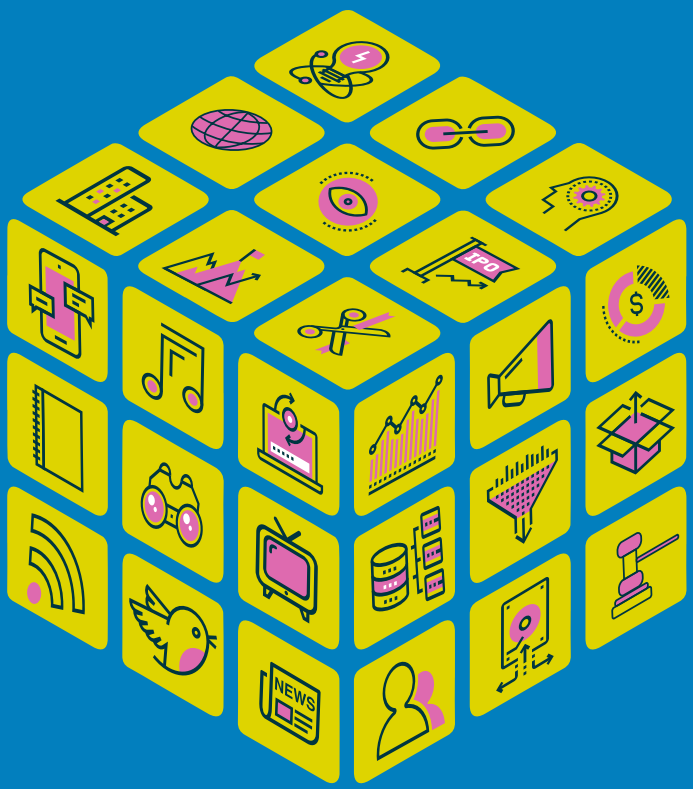
ADVANCED

MANAGING MEDIA AND DIGITAL ORGANIZATIONS



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Overview

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1

1.1 The Need for "Media Management"?

This book is aimed at graduate courses and the professional market. A shorter version is available for the college level. The basics are shared because the subject matter and its importance are the same.

Everybody understands the importance of the media and information sector. It is a growing and dynamic field, encompassing content creation, distribution platforms, and technology devices. The information industry sector in 2017 accounted for about $1.7 trillion in the USA and $6 trillion worldwide, about 6% of the global gross domestic product (GDP). As a share of "discretionary income" the share of the sector is closer to 20%; and as a share of "discretionary time" it is an extraordinary 30%. Per capita media consumption in the USA is 2100 hours annually, which translates to 5.7 hours a day. And it is not only quantity that counts. Media industries are also a driver of change, leading in technological innovation, testing new organizational practices, and transforming societal institutions and culture. This has always been the case. Gutenberg's movable print not only upended religion, science, and politics, but it was also the first machinery of any kind used for mass production. The production and distribution system for film has been the forerunner for an emerging production system of virtual companies. And more recently, the internet is changing everything again, far beyond the media and information sector. There is therefore no dispute over the centrality of the sector in advanced and developing economies and societies.

What is more of a question is whether the actual management activity in this sector is special. Is managing a media or information sector company different from managing a car manufacturer? An airline? A bank? After all, every business is run by similar functions—strategic planning, financing, human resources, production, marketing, distribution, accounting, government relations, and so on.

There are two perspectives. The first holds that managing media is quite distinct from management generally. Media—at least their content segment—are not driven by numbers and analytical models in the same way that other industries are. Managing media is based on creativity, "feel," and intuition. The profit-motivation of business is also supplemented by a strong orientation to public service and cultural contribution. Media are thus seen as a special sector, with their own incentives, policy sensitivities, traditions, and styles.

In addition, the status of management in media organizations is unique. Whereas in most industries management need not justify its analytical approaches and motivation, in the media sector the very legitimacy of management is in question. Within companies, managers are often overshadowed by the "creatives," who have prestige and public visibility. Managers are seen as "bean-counters" and "suits," as narrow-minded clerks focused on the bottom line. In no other industry does management have to continuously apologize for doing what managers do: raise money, hire and fire, control costs, and market the products.

But is that cultural difference enough to conclude that the management of media is too different from other industries that one cannot apply general management concepts and practices? The second perspective disputes that. It had that the distinctions do not make a difference. Economists and business researchers are used to almost every industry considering itself special. Agriculture, energy, health care, law firms, biotech, aviation, banking—they all see themselves to be governed by different principles. Yet all businesses have major commonalities: they must all raise funds, select projects, hire employees, arrange for inputs, create outputs, price them, market them, account for the results. The production technologies and distribution processes might be different, but the principles of economics and management are not.[1] In that perspective there is no "media management," just as there is no "kitchen appliance management."

But this, too, is overly simplistic. Yes, basic management principles apply to all industries, but media industries also have special characteristics. There are several fundamental factors at work, which, while individually not necessarily distinctive, are unique in their combination.

The differences are on two levels. There are "big picture" and narrower factors. The central setting of information production and distribution in the post-industrial economy and society, together with a tradition of public service and cultural contribution, are the "macro environment." The fundamental business characteristics of information goods and services constitute the "microenvironment." For example, it is a characteristic of media and information products to have extremely high fixed costs and extremely low marginal costs. Information is typically expensive to produce but very cheap to reproduce. Distribution networks are expensive to create but cheap to extend to additional users. Management implications are: large firm size, market concentration, incentives to mergers, incentives to early entry, incentives to imitation and piracy, intense price competition, prices that do not cover costs and are thus not sustainable, imperatives to price discriminate, and more. Twelve defining characteristics of media and information production and distribution are outlined in this book's second chapter, "The Information Environment." These and other characteristics impact just about every media activity and media manager. Many of these characteristics exist, of course, in other industries—but not in the same combination. Together, they create unique incentives, demands, and constraints as compared with those of industrial productions or other services. An example is the need for media strategies to "compete with free." Where else

1 Shapiro, Carl, and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business Review Press, 1998.

must a company contend with zero-priced rivals giving away their products? Such particularities create a need for media-specific management approaches and analytical tools. In that sense, media management is indeed different.

1.2 Approaches to the Study of Media Management

For a long time, media management had a strong reliance on experience and gut feeling rather than numbers and analytical formulas. Book publishers used their experience to make hypotheses about the number of copies to print, the price to set for consumers, and the advance that should be paid to authors. Film distributors made educated guesses about the marketing budget of films and the numbers of home video copies to produce. Media tech entrepreneurs often forge ahead with more optimism than disciplined business plans. But lifelong experience in one segment of this increasingly overlapping environment does not suffice, nor does business daring.

It is, however, relatively easy to talk about the need for a holistic and convergent media management and much harder to provide its elements. One reason is the lack of an organized set of analytical tools. Economists have long talked about the three factors of production—capital, labor, and land. Over time a theoretical analysis has been developed for each of them. Finance theory has done it for capital assets; labor economics has provided a body of analyses for the people aspects of organizations; and regional and resource economics have investigated land use. But a fourth factor, information, has no integrated set of analytical tools that are equivalent. Information—as an input and as an output with its consumer manifestation of "media"—has no integrated body of analysis that can be used for management and decision-making. There are, of course, several kinds of "information theories" but they are useful for media managers only in a tangential way. One information theory is that of technologists: how to squeeze more bits into a pipe. Another kind of information theory is that of economists, dealing with asymmetric knowledge. But these theories do not relate directly to media where information is the output, not the input.

To deal with this, media management economics, a new sub-discipline, is emerging to provide analytical tools and insight into activities in the media and communications environment.[2] It combines several analytical management disciplines such as microeconomics, financial economics, statistics and operation research, the behavioral sciences of sociology and psychology, managerial accounting, and marketing. It deals with an industry sector—media; with a product—media content; with an input—information; with a creative process—content production; with complex distribution systems—telecom TV and internet platforms; with dynamic technology—information systems; and with wide-ranging legal and regulatory challenges.

This is a major task. In time, it will bring the field—the management of information resources and products—to a more central role in economics and business analysis, just as finance theory has achieved. But today it is still an unconventional field for traditional departments, schools, and disciplines, whether in schools of management or communications.

1.3 Approaches to the Teaching of Media Management

Media activities are being taught and practiced all over the world. A large number of communications students end up on the business side of media companies, although the creative side might have been their initial goal, and although the curriculum they studied often does not reflect that career path. At universities, a typical "media business" course, if it exists at all, is usually a survey of the various media industries— film, print, music, internet, TV. A second type of course focuses on political economy, reviewing the role of media and with an element of media policy. A third approach, often practiced in management programs, is to use existing generic courses such as marketing or strategy and supplement them by media-specific cases and examples. A fourth approach is an umbrella course of guest speaker presentations by media professionals. This can be interesting and informative but typically lacks analytical tools.

In addition to students, many young and rising professionals who are already active in information sector firms, whether start-ups or established ones, find themselves in need of management concepts. They have often risen through the technical or creative ranks and find themselves as mid-level managers, yet without a business training. They require materials that apply a business curriculum to their jobs and industry.

There is therefore a need for courses, textbooks, and handbooks to help prospective and current managers in the media and information sector. Some do exist, of course. Basically, the subject matter can be thought of as a two-dimensional matrix. The vertical dimension is that of the various industries—music, film, internet, media tech, etc. The horizontal dimension is that of business functions—finance, marketing, human resource management, for example. The verticals tend to be taught or written about by sectoral experts on the particular industry "silo." Books that follow this approach are organized by media industry

2 Several survey articles appear in: Albarran, Alan B., Chan-Olmstead, Sylvia M. Chan-Olmstead, and Michael O. Wirth. Eds. *Handbook of Media Management and Economics Handbook of Media Management & Economics.* Mahwah, NJ: Lawrence Erlbaum Associates, 2006. They are: Picard, Robert G. "Historical Trends and Patterns in Media Economics," Albarran, Alan B. "Historical Trends and Patterns in Media Management Research," Mierzjewska, Bozena I. and C. Ann Hollifield. "Theoretical Approaches in Media Management Research," and Wildman, Steven S. "Paradigms and Analytical Frameworks in Modern Economics and Media Economics."

1

such as music or TV,[3] or by industry categories such as video media.[4] Yet one of the defining characteristics of the overall sector is its increasing convergence.

The second approach has been to take the horizontal dimensions of the matrix: proceeding along disciplinary and functional lines, such as distribution, pricing, or market research. Such approach follows the disciplinary specialties of their authors and is thus rarely interdisciplinary, or holistic across business functions.[5]

1.4 Outline of the Book

It is the goal of this book to overcome the limitations of this matrix and apply the major dimensions of a Master of Business Administration (MBA) curriculum to the entire media and information sector.[6] In the process, communications students and professionals will gain a sectoral-focused MBA summary, while more generally oriented business students and managers will gain an introduction to the media and information sector, and a "capstone" that integrates the various strands of the MBA curriculum within one business sector.

The book could be subtitled *Management Study in a Nutshell.* It takes most major components of an MBA program, simplifies them, summarizes them, and applies them to the media and information sector. The book covers these tools and approaches in a non-technical way. There are few equations and the style is non-jargony. There are no prerequisites, though an introductory course in economics would probably help in terms of mindset.

The book is organized in three main sections: Producing, Harvesting, and Controlling media and information activities.

Part I. Producing

1. Overview: The Information Environment
2. *Production* management
3. *Technology* management
4. *Human resource* management in the creative sector
5. *Financing* media and information activities
6. Managing *intellectual assets*
7. *Law and regulation* as tools and constraints

Part II. Harvesting

1. *Market and audience research*
2. *Marketing*
3. *Pricing* of information products
4. *Distribution*

Part III. Controlling

1. *Accounting* in the information sector
2. Setting and implementing *strategy*

Each of these chapters covers a major management function. Each of these functions is run by a high-level executive with staff (large company model) or by a multitasking team (start-ups). These functions and their challenges are described and analyzed. To make a media and information company effective, each of these functions must be made to work well, and to work well together; or alternatively these functions must be outsourced to specialist firms and professionals that must be supervised.

The book includes, for each chapter, a case discussion that follows a major media company (some US based, others international) throughout that chapter to illustrate the materials.

3 *Books:* Greco, Albert N., Jim Milliot, and Robert Wharton. *The Book Publishing Industry*. New York: Routledge, 2013; Compaine, Benjamin M. *The Book Industry in Transition: An Economic Study of Book Distribution and Marketing.* White Plains, NY: Knowledge Industry Publications, 1978.
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4 Vogel, Harold. *Entertainment Industry Economics: A Guide for Financial Analysis*, 10th ed. New York: Cambridge University Press, 2014; Van Tassel, Joan and Lisa Poe-Howfield. *Managing Electronic Media: Making, Marketing, and Moving Digital Content*. Burlington, MA: Focal Press, 2010; Albarran, Alan B. *Management of Electronic and Digital Media*. Boston: Wadsworth, 2013; Chaturvedi, B.K. *Media Management.* New Delhi: Global Vision Publishing House, 2009; Turow, Joseph. *Media Today: Mass Communication in a Converging World.* New York, Routledge, 2013; Lavine, John M. and Daniel B. Wackman. *Managing Media Organizations.* New York: Longman, 1988; Pringle, Peter K. and Michael F. Starr. *Electronic Media Management*, 5th ed. Boston: Focal Press, 2006; López, Juan Torres. *Economía de la Comunicación*. Madrid: Gruopo Zero, 1985; Hollifield, C. Ann, Jan LeBlanc Wicks, George Sylvie, and Wilson Lowery. *Media Management: A Casebook Approach*, 5th ed. New York: Routledge, 2015.

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These case materials are set inside text boxes. To facilitate the book's use in a course setting, each chapter is followed by "Questions for Discussion" and a multiple choice quiz.

1.5 Outlook

Information has evolved from a supplementary factor to a central business input and output. Where information was once a scarce resource, it is now becoming abundant throughout the world. Partly as a result, we are going through one of the most creative periods in business history. More wealth has been created in a shorter time than ever before. At the same time, those managing media companies must remember the fate of established communications giants of the past. They must recognize that they might be the next targets of extinction.

This leaves the question: why be a manager in the media and information sector? It is a difficult business with an uncertain career path. Yet it is also an endlessly interesting, fascinating, enthusiasm-building field. Creativity meets management. Imagination meets technology. Arts meet investment. Left brain meets right brain. Youth meets wealth. Media create the entertainment that forms our fantasies, shapes our styles, and sets our role models. It provides our analysis of the world around us. It is the trendsetter that affects our tastes. It represents sweet imagination, seductive opportunity, rich possibilities, style, opportunity, fortune, and fame.

The good news is that for those interested in the information resource—how to produce it, how to distribute it, how to use it—the present is the most exciting period ever. The bad news is that it is also the period with the greatest ever uncertainty and risk. What does it take for success in the media business? Creativity, innovation, and performance, of course. But that is not enough. It requires an understanding of technology, money, markets, audiences, pricing, global business, economics, managerial accounting, government relations, and the ability to nurture and lead talent. What we want to do in this book is to help those in the media, information, and media tech sector become creative managers and managerial creatives. The aim of this book is to make managers in this field more knowledgeable and less blinded by hype. It aims to make readers more effective, more productive, and more responsible participants.

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2.1 Introduction

2.1.1 Definitions

2

What is "information"? The dictionary definition is "Facts provided or learned about something or someone." But that does not include fiction, entertainment, a musical score, software programs, and so on.[1] A leading communications scientist, Claude Shannon, often called the "father of information theory," described information as "what reduces uncertainty … Information is news that makes a difference. If it doesn't make a difference, it isn't information." Taking these and related strands together, a workable definition of information is raw data subjected to organization that make it useful to some people. Entertainment content is one form of such information. Other examples are financial reports or topographic maps.

"Media firms" are organizations that produce or distribute information. "Communications" is the transmission of information, using various distribution platforms. "Telecommunication" is its electronic version. "Media tech" are the various technology devices enabling media and communications, such as printing presses and cellphones. "Media" consists of three segments—distribution platforms, content production, and media devices (Fig. 2.1).

Distribution platforms deliver content from producers to users. They range from movie theaters to fiber optic networks, internet service providers, and infrastructure cloud providers. Distribution systems stress technical reliability, long-term planning, and frequent dealings with government regulation.

In contrast, *content production* is often short term, project based, and imbued by the culture of creatives and entertainment entrepreneurs. In recent years, however, it has become more tech oriented, with websites, software, and digital applications that enable transactions.

Devices are the technical components for distribution and content. Media-tech devices include television sets, computers, cellphones, cameras, and components such as semiconductors and microchips. The sector is dominated by established high-tech firms on the one end of size, and start-ups on the other. The sector is innovation driven, highly competitive, cost oriented, and entrepreneurial.

The three segments are increasingly overlapping, and companies often straddle them or function as integrators.

The US information industry sector in 2017 accounted for about $1.7 trillion, of which content industries were $400 billion in size, distribution industries $1000 billion, and device industries $300 billion. Worldwide revenues for 2017 were $6 trillion. This amounts to about 6% of the world gross domestic product (GDP). This growth has been rapid for a long time. Media activities have been around from the dawn of humankind, and its cave paintings, dancing, and singing though the technologies and the players have changed.

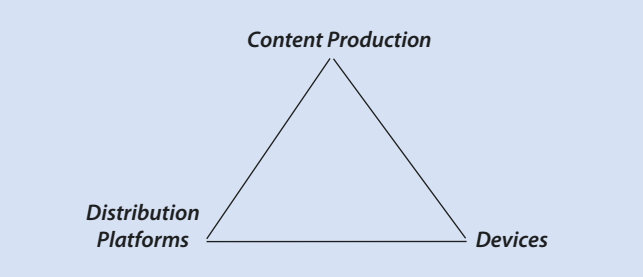

Fig. 2.1 The three legs of media

2.1.2 History

What was the world's largest private company in the nineteenth century? It was Western Union, the giant American near-monopoly for telegraph service, which was started in 1851 and delivered almost all telegrams in the USA for a century. But as its core business—telegraphy—became obsolete, the company gradually declined. By the time the telegram service formally ended in 2006, Western Union had become a medium-sized funds-transfer provider, primarily servicing low-income migrant workers who were sending money to their families back home.

During most of the twentieth century, the largest private company was AT&T. AT&T owned and built 80% of all telephones and phone lines in the USA. In 1981, it employed 1,030,000 employees, of whom 7452 alone were named Smith.[2] Eventually, AT&T was broken up by the US government into eight parts for being too powerful. The residual core AT&T shrank and declined and was eventually bought out for a mere $16 billion in 2005.[3]

When it comes to content companies, the world's largest firm in the early twentieth century was the Hearst newspaper firm, which owned many newspapers, magazines, radio stations, and a film production operation. By the 1930s, the company was near bankruptcy and had to sell off many of its properties. Its place at the top was taken by the champion of the new electronic media, the Radio Corporation of America (RCA), owner of the dominant radio network National Broadcasting Company (NBC). But by 1986 that company, too, had been swallowed up.

Other major media, media tech, and information firms that were once market leaders and then declined to secondary status or less were MGM, Kodak, Lucent, Nokia, Blockbuster, Myspace, Borders, Atari, IBM, Tribune, Nortel, BlackBerry, Motorola, Sun, Compaq, Yahoo, Sony, and the US Postal Service.

1 Computer-oriented information scientists take another tack and speak of a "DIKW" hierarchy at whose bottom is "Data"—raw unprocessed facts. Organize and digest this data, and one gets "Information." Distill that information and one reaches "Knowledge." Add judgment and meaning and one finds "Wisdom."

2 Kleinfield, Sonny. *The Biggest Company on Earth* (New York: Holt, Rinehart and Winston, 1981), 3.

3 The acquiring company, SBC, itself one of the breakup parts, renamed itself AT&T, but the old "Ma Bell" was gone.

Conversely, companies that have become giants were unknown just a few years ago—Google, Facebook, Skype, eBay, Netflix, Apple, Amazon, Twitter, Softbank, Free, and others. In 2010, according to *Fortune* magazine, the fastest growing company in the world was the Canadian wireless device company RIM.[4] One year later, RIM was in deep financial trouble.

Does this tell us something about media companies, media markets, and media management? Are they even more volatile and unpredictable than other industries? Are they even more subject to technological transformation, to the vagaries of public tastes, and to the politics of government and regulation? And is it more difficult to manage them successfully?

2.2 The Macro-Environment of the Information Economy

The Industrial Revolution began in England during the 1770s. Stripped to its basics, it was based on technologies that could extend human *physical strength*. The enabling technologies was the steam engine, which powered production machinery such as mechanical looms, and transportation devices such as trains, ships, and with gasoline motors, automobiles.

The Industrial Revolution was characterized by mass production, rising living standards, and urbanization, but also by social strife and environmental decline.

Today, we are in the midst of another economic transformation: the Information Revolution. This time, human *mental strength* is being extended. New devices enhance our capability of memory, logical processing, communication, sensory cognition, story-telling, and interaction. Because brainpower is a more basic characteristic of humans than muscle power, this second revolution is even more fundamental than the first.

2.2.1 The Information Revolution

The beginnings of human information accumulation are not new. In a fundamental way, it began with genetic information accumulated in our DNA. A single strand of DNA contains approximately the same quantity of information as 2000 books. This information increased over time through Darwinian evolution. Random changes (mutations) occur in the molecular structure followed by non-random selectivity of the most effective structures.[5] The increase of information in DNA has taken millions of years. A more rapid extra-genetic system of information storage and processing evolved, namely the brain. The brain also allows us to communicate the information it contains. Communication is a tool to pool individual informational resources by sharing and transmitting knowledge and experience.

Humans communicate through standardized protocols called language. The evolution of language occurred 30,000–50,000 years ago, through a combination of signs, gestures (body language), and structured sounds. The use of spoken language allowed for the emergence of early organized audible communication. This included songs, plays, and poetry declamations, distributed in temples and theaters, and at public spectacles.

Spoken language evolved into written language because sounds could not be easily transmitted across space and time. There are two basic ways to record language. The first is to record meaning independent of a particular language by using symbols. Egyptian hieroglyphs, Chinese ideograms, and today's emoticons are based on that concept. A second way to record language is by using symbols for sounds. This method is simpler, because the numbers of sounds is just a few dozen while concepts number many thousands. Early phonetic languages included Phoenician, Hebrew, Greek, and Etruscan. In order to gain wide usage, writing became standardized and was quite slow to change. Greek, Hebrew, Chinese,[6] and Latin letters have changed minimally over thousands of years. Julius Caesar could read today's road signs.

Workshops and industries developed to reproduce the written media. In the Paris region alone, there were about 10,000 scribes at work in the fifteenth century both in monasteries and in commercial workshops. The costly inefficiency of mass production of writing by hand led to the development of printing machinery.

Type was pioneered in the eleventh century in China by Pi Sheng and further developed in Korea. However, print flourished after its European reinvention. In the 1450s, Johannes Gutenberg, of the German city of Mainz, created his own printing system in great secrecy.[7] His first real printed book was the "Gutenberg Bible" of 1454, still one of the most beautiful books ever produced. Print became the first mass medium on an industrial scale. It spread rapidly across Europe. Between 1481 and 1501 alone, 268 printers in Venice produced 2 million volumes. Early media industries emerged, in particular book publishing, newspapers, magazines, and papermaking. Paper was far cheaper than parchment and made books affordable. Literacy became more common among the middle class.

The development of communication technology has been linked with almost every major historical change, from the

4 Fortune. "100 Fastest-Growing Companies." Accessed April 10, 2017. ► http://archive.fortune.com/magazines/fortune/fortunefastestgrowing/2009/snapshots/1.html.

5 Today we are starting to intervene into the DNA content in a process that will ignite the next scientific revolution: the bio-information revolution.

6 Classical Chinese was standardized between AD 25 and 220. It remained until the 1920s, when it was altered to resemble spoken Mandarin. Omniglot. "Chinese Script and Language." Last accessed on July 12, 2010. ► http://www.omniglot.com/writing/chinese.htm#intro.

7 He developed typefonts, the casting of letters, the composition of lines and pages, the right kind of ink and its application, the required paper, the pressing of the pages (hence the term "the press") and their binding. Harry Ransom Center: The University of Texas at Austin. "The Printing of the Bible." Accessed on July 12, 2010. ► http://www.hrc.utexas.edu/exhibitions/permanent/gutenberg/html/4.html.

Protestant Reformation to the Enlightenment and the American and French revolutions.[8] Today, we are transitioning into an even more fundamental period of transition as the existing industrial system undergoes a "creative destruction" that threatens almost every established organization and institution.

2.2.2 Drivers of Change

2.2.2.1 Technology

The technology driver of the Industrial Revolution was the steam engine, invented for practical use by 1712. That is well known. But what is the equivalent for the Information Revolution? If we strip down the building blocks of information technology to their basics, the major technological driver is the increased ability to manipulate sub-atomic particles (electrons and photons). We have progressively gained the capability to harness these particles into useful applications. The scientific foundation was that of physics research and experimentation, which was paralleled by an engineering ability to produce means that enabled us to control these particles, and then to efficiently string these devices together into systems. The prime example of such a linkage is the internet. To facilitate operations and applications, all information and content was being transformed into a code that can be worked by these tools: a process we call "digitalization."

The rapid spread to the technology was made economically possible by the rapid drop in the production cost of electronic microcomponents. In 2017, processing power and computer memory (RAM) cost less than one-billionth of what they had cost in 1971. These changes follow the pace of "Moore's Law"—the observation that the capability of computer components is doubling every 18 months, that is an increase at a rate of approximately 40%, per year.[9] With technology accelerating and prices dropping, the applications followed suit. We have moved in three decades from the "kilobit" stage of individualized communications—in which the signals of digital 0s and 1s, that could reach us individually were measured in thousands—to a "megabit" stage, a thousand-fold increase, and we have now reached the "gigabit" stage, another thousand-fold increase. It is a difference as dramatic as moving from animal-powered transportation to jet planes. And it will have similar fundamental impacts.

The futurist Ray Kurzweil has extrapolated the current trends in computation power and prices and concluded that the capability of a human brain will be available around 2023 for $1000 and for 1 cent in 2037. The capability of the entire human race would be available in 2049 for $1000 and in 2059 for 1 cent. Even if one discounts this forecast by several orders of magnitude, one can predict the emergence of a wide variety of tools with enormous long-range impacts. These include bio-electronic interaction of human and electronic processes and machines that can interpret meaning. We are only at the beginning of this process.

2.2.2.2 People

People are just as much a major driver of the Information Revolution as technology. There has been a huge increase in the number of information producers. In one decade, the 1960s, the share of the labor force employed in the "quaternary" (or information) sector of the economy, working with paper and symbols rather than with muscles, went from a quarter to a half. More information workers lead to more information products. It has been observed that 90% of all scientists who have ever lived are alive today.[10] This is also true for most or all information-based occupations, whether screenwriters, architects, lawyers, engineers, or MBAs. Every 30 seconds, a new book is published. Every hour, three new feature films are produced. In almost any scientific field, more research articles were written in 2018 alone than in the entire history of human beings before 1900. In the field of chemistry, within a span of 32 years (1907–1938), a million chemistry articles were written and abstracted. In contrast, it took less than one year for a million such articles to be produced in 2010.[11]

This is the macro-environment in which media companies operate. It is an environment with:

- exponential change in technology;
- exponential growth of the knowledge base;
- and perhaps an exponential transformation of the economy.

2.3 The Microeconomics of the New Media Economy

Media and information activities are subject to 12 fundamental economic characteristics and properties. Many of these factors exist in other industries, too, but not in the combination seen in the media and information sector.

2.3.1 Characteristic #1 of Media and Information: High Fixed Costs, Low Marginal Costs—Very High Economies of Scale

The first economic property is the fundamental cost structure of media product and services. They usually involve very high "fixed costs," that is, costs that remain constant independent of the number of units produced. At the same time, the "marginal costs" (the incremental costs required to produce the next unit) are relatively low. Media content is typically

8 Innis, Harold A. *Empire and Communications* (Toronto: University of Toronto Press, 1972), 164–198.

9 Even if this rate slows down, as every exponential process eventually does, we still have a long way to go.

10 Price, Derek John de Solla. See Cloud, Wallace. "Science Newsfront." *Popular Science*, 182, no. 3 (Mar. 1963): 17.

11 Information production in the Western world has increased since about 1000 CE, with a nadir during the Dark Ages when a significant part of the information accumulated in the period of Antiquity was lost.

expensive to produce but cheap to reproduce. Similarly, media distribution networks are expensive to create but cheap to extend to additional users. The sum of fixed cost and variable cost (the sum of the marginal costs) is total cost. Average cost per unit = total cost/number of units produced.

As the fixed costs are distributed over more and more units, average costs decline.[12] In formal terms, economies of scale mean that a single producer has lower total production cost C for the quantity A+B than two producers who together produce the same quantity but separately. C(A+B) < C(A) + C(B).

Thus, average costs per unit become smaller with the quantity produced. The more units get produced, the lower the average cost per unit. Products that exhibit this property are said to have high economies of scale. We can observe these characteristics for films, TV programs, computer software, electronic networks, videogames, newspapers, and semiconductors.

There are several business implications of the economic property of high fixed costs and low marginal costs. They include:

- The economies of scale lead to the emergence and predominance of large-sized companies in media, telecom, and internet.
- There are incentives to reach large size through mergers and to be a first-mover in a product in order to gain scale early.
- In competition, prices are very low owing to the low marginal costs that determine price.
- In competition, there is a large consumer surplus (buyers having to pay less than they would be willing to) because of low prices.

There is an incentive for companies to price-discriminate among customers in order to reduce consumer surplus.

2.3.2 Characteristic #2 of Media and Information: Network Effects

The second of the frequent economic properties of media is a "network effect." Individual benefits from media are often interdependent with those of other users. Network effects arise when users benefit by sharing a resource such as a network or sharing the experience with each other. The value to an individual of connecting to a network of users depends on the number of other people already connected to that network. The larger that network, the more value it provides to its users and the more valuable it becomes. For internet and telecom companies or social network providers such as Facebook, the benefits to users rise with the number of other users on the network. On the content side, too, a major benefit of media consumption is to share the experience with one's peers. To most individuals, the value of a film, TV show, music recording, or popular book, rises as the experience is shared with many other people.

This changes the economics of demand. Demand rises with the size of a network. The more people are on the network or share an experience, the more people are willing to pay for the product. Usually, economic theory says that price and demand are inversely related—the lower the price, the higher the number of customers. But where network effects are strong, the relationship is the opposite—the higher the number of customers, the higher their willingness to pay a larger amount.

Network effects may also exist among producers, who often benefit from each other's presence by sharing expertise and specialized factors of production. This often leads to their clustering together geographically and thereby raising each other's productivity and innovation. Examples for such clusters in the media sector are Hollywood and Bollywood in film; Madison Avenue in advertising; or Silicon Valley and Bangalore in high tech.

Robert M. Metcalfe, the co-inventor of Ethernet, proposed a "law" according to which the value of a network increases exponentially with the number of nodes:[13]

$$V = bn \cdot (n-1) = b\left(n^2 - n\right)$$

where:

- V = overall value of a network;
- b = benefits to a user from the participation of another user;
- n = number of participants.

For example, if an individual user benefits $2 from each other user's presence on the network, then a network with ten users has a total value of $180 ($2 × [10^2–10]), for an average value to each of the ten users of $18. In contrast, a network with 100 users has a total value of $19,800. The average value for each user rises from 18 to 198, more than tenfold. A tenfold increase in the size of a network leads to a hundredfold increase in its overall value, and a tenfold increase for each user.

Network effects have several business implications. As in the economies of scale—which describe advantages to size on the *production* side—size is important also on the *consumption* side. For certain goods and services, the larger the firm's user base, the more value is being provided to users. A song that gets attention on a large social network gains a cumulative advantage because many more want to be

12 Unless marginal costs rise significantly, which they rarely do in media industries.

13 Metcalfe, Robert and Michael Vizard. "Ontology and Revenge of the System Analyst." *InfoWorld*, no. 51 (December 17, 2001): 8.

included in the experience.[14] A firm that captures a relatively large share of an audience will often experience further demand growth, and can charge users a higher price. First movers have an advantage; it is usually easier for a firm to capture market share if it is the first to launch a particular product or service. Finally, the interconnectivity of a small network with other networks is important, because it enables the users of a small network to link into a larger network and benefit from the latter's network size and access to its user base.

2.3.3 Characteristic #3 of Media and Information: Radically Divergent Cost Trends in the Value Chain

As mentioned, the production of most media activities is subject to high economies of scale and network effects. But their magnitudes and trends vary greatly. For network distribution platforms, in particular, these economies are large and rising, as fixed costs grow and marginal costs drop. This leads to still larger firms and to market concentration. Media technology devices show similar trends. Content production, however, has a different trend. Parts of it are subject to drops rather than growth in their economies of scale. Owing to advancing digital technology and its declining prices, a given (*ceteris paribus*) item of content—music, video, or text, becomes cheaper to produce. This tends to enable the entry of many small producers. Chris Anderson, editor-in-chief of *Wired* magazine, termed this the "long tail" phenomenon as content can be produced to millions of profitable niche markets and products, as opposed to a few blockbuster products. For example, each month, thousands of consumers rent movies from Netflix that no traditional bricks-and-mortar movie rental store would carry. Anderson concluded that "popularity [i.e. size] no longer has a monopoly on profitability."[15] But there is a counter-trend too. Since the audience members' attention time is limited, they gravitate to premium content products such as films and interactive video experiences with a high production cost. And here the rising expectations of audiences, together with newly available bells and whistles of immersion, customization, and so on, raise expense and fixed costs. Thus both premium and long-tail products gain, at the expense of the middle—mid-budget productions.

These opposing trends create new business and policy pressures in the media sector. This leads to rising conflict vertically across the value chain, leading often to some form of regulation of access, interconnection, non-discriminatory service, or ceiling on size. The business implications are incentives to vertical mergers; to a specialization on the content side; and to generic platforms that can serve anyone on the distribution side.

2.3.4 Characteristic #4 of Media Information: Information as a Cumulative Asset

The accumulation of information in the western world has grown exponentially (except in the period of the Dark Ages between Antiquity and Renaissance when human knowledge was massively lost).[16] One of the important characteristics of information is that it is cumulative because, once created, it becomes a permanent part of the human stock of knowledge. It need not be recreated because it has not been used up. Once the sea route from Europe to India was found, once penicillin was discovered and understood, they need not be rediscovered. With few exceptions, new knowledge, once created, becomes the new base line. Even if individuals are not getting smarter, a community, organization, and society are getting more intelligent and hence more productive because they benefit from the past accumulation of information. One can wise up, but one cannot wise down. Business innovation accelerates because methods from previous evolution are used in the next stage. Thus the "returns" to new information accelerate over time.[17]

What are business implications? As technology progress accelerates, firms must evolve faster. Knowledge assets last shorter. Adaptation to new knowledge becomes essential. And because knowledge depreciates faster, experience becomes less important, and with it seniority in the organization.

2.3.5 Characteristic #5 of Media and Information: Excess Supply

We observed that media production has been increasing exponentially. Media consumption, however, increases only linearly and slowly. Excess supply is inevitable and is accelerated by the increased ease of spreading globally through ever-cheaper electronic distribution and the proliferation of start-up content providers. The CAGR of media production is about 12.0%, whereas the CAGR of media time consumption is only 1.2%. Even that rate will decline. As mentioned above, 2100 hours of media are already consumed by an average person in America per year. That is 5.75 hours per day.[18] Given time for sleep, eating, and work, this number will increase only slowly. Thus the gap of demand is growing at over 10% each year.

14 Salganik, Michael J., Peter Sheridan Dodds, and Duncan J. Watts. "Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market." *Science* 31, no. 5762 (February 10, 2006): 854–856. "The gazillion-dollar question." *The Economist.* April 20, 2006. Accessed on August 2, 2012. ► http://www.economist.com/node/6794282

15 Anderson, Chris. "The Long Tail." *Wired.* October 2004. Last accessed on July 13, 2010. ► http://www.wired.com/wired/archive/12.10/tail.html.

16 As exemplified in the loss of the Great Library of Alexandria.

17 Kurzweil, Ray. "The Law of Accelerating Returns." *KurzweilAI.net.* March 7, 2001. Last accessed July 13, 2010. ► http://www.kurzweilai.net/the-law-of-accelerating-returns.

18 Some of this consumption is while multitasking, e.g. while driving or working.

This has consequences for both content style and marketing.[19] Attention is the scarce resource. As Nobelist Herbert Simon observed, "a wealth of information creates a poverty of attention."[20] New media consumption must be mostly supported by substitution from existing media in terms of time or full attention. Inevitably, this leads to competition for "mindshare" and "attention." Compared with 1998, fewer than half as many of the new products make it to the bestseller lists, reach the top of audience rankings, or win a platinum disc.

The business consequence is more competition and greater specialization in media content and technology. In addition, greater product innovation and marketing effort are necessary. Together, costs rise per product.

2.3.6 Characteristic #6 of Media and Information: Price Deflation

A major economic property of media has been price deflation. In general, when price competition occurs in any industry, the price of a good or service is driven toward its marginal cost.[21] Marginal cost for many information products and services is near zero. But at that low price, the revenues do not cover total cost, which also includes the high fixed cost. The result of price competition with low marginal cost has been price deflation in information products and services. This is a good deal for the consumer but a difficult problem for the creators, producers, and distributors.[22] Price deflation toward marginal cost poses a threat to their long-term viability since low prices make it difficult to cover costs and achieve profitability.

And that is indeed what has been happening. Information has become cheaper for many a decade, and it is becoming increasingly difficult to charge *anything* for it. Music and online content is increasingly free. Newspaper prices barely cover the cost of paper and delivery; the content is thrown in for nothing. As social media pioneer Steward Brand said, "Information wants to be free." Free in terms of content, but also free in terms of price.

Prices have been dropping for a long time for phone calls, bandwidth, software, even hardware such as semiconductors and information technology (IT) devices. For example, for telecom prices in the USA, the price for a dedicated high-capacity line between Los Angeles and New York City decreased from $1,820,000 in 2000 to $8250 more recently. Similarly, the average revenue per minute (i.e. average price) for mobile telephone calls in the USA dropped from 1993 to 2016 by 80%, from $0.44 to $0.05 per minute in terms of actual consumption of voice minutes.

Price deflation is one of the fundamental economic trends of our time. The entire competitive part of the information sector—from music to newspapers to telecoms to internet to semiconductors and anything in between—has become subject to a gigantic price deflation in slow motion.

This price deflation leads to economic pressure, to price wars which squeeze out weaker companies, followed by the jacking up of prices, volatility of prices, and to instability in the entire information sector. Therefore, one main strategy for media managers is to avoid such price competition, and to focus on product differentiation, price discrimination (differentiation), consumer lock-in strategies, and industry consolidation.

Thus it has been observed that the economics of information do not just frequently encounter imperfectly competitive markets but that they actually require it.[23] Without mechanisms that reduce competition such as patents or oligopolistic market structures, the creation of information such as media content and technological innovation becomes unprofitable. This creates business incentives to reduce the competitiveness of markets and to the creation of strong patent and copyright protections.

2.3.7 Characteristic #7 of Media and Information: Convergence of Technology

A major factor in the recent evolution of media and information is the increasing convergence of such media. Historically, media industries used to be separate from each other. Newspapers, music, TV, telecom, and computers were realms of their own, each with their own technologies, companies, suppliers, distributors, and industry culture. Starting in the 1970s, integration between sectors in the technology industry began to occur with increasing technical overlap of devices, components, and software. Any content can be digitized—encoded as a stream of bits, and then processed, shared, distributed, and displayed in similar ways.[24] In the 1980s, the increased integration of technology extended the overlap to consumer electronics and office equipment. For example, a smartphone combines the technologies of telecoms, computers, radio transceivers, consumer electronics, information vendors, TV players, video game consoles, calculators, cameras, music players, flashlights, dictaphones, e-books, navigation devices, and more.

The implication is that industries and firms that used to comfortably fill their separate niches are increasingly facing competition from each other. It also means that companies can expand more easily to adjoining markets, and that media conglomerates will emerge. These "economies of scope" and "synergies" of operating across multiple markets

19 School of Information Management & Systems, University of California, Berkeley. "How Much Information." 2000. Last accessed May 14, 2008. ▶ http://www2.sims.berkeley.edu/research/projects/how-much-info/summary.html#consumption.

20 Simon, Herbert. "Designing Organizations for an Information-Rich World." In Martin Greenberger. *Computers, Communication, and the Public Interest* (Baltimore: The Johns Ho21pkins Press, 1971), 37–72.

21 Strictly speaking, toward its *long-run* marginal cost, where all inputs are variable.

22 Collis, D. J., P. W. Bane, and S. P. Bradley. "Winners and Losers--Industry Structure in the Converging World of Telecommunications, Computing, and Entertainment." In *Competing in the Age of Digital Convergence*, edited by D. B. Yoffie. Boston: Harvard Business School Press, 1997.

23 Evans, Philip, and Thomas S. Wurster. *Blown to Bits* (Boston: Harvard Business School Press, 2000), 15–21.

24 Shapiro, Carl. and Hal R. Varian. *Information Rules* (Boston: Harvard Business School Press, 1999), 1–18.

and products are increasing, and technological synergies are increasing, with production and distribution across several lines of media business cheaper—all other things being equal—than separate activities in each segment.

2.3.8 Characteristic #8 of Media and Information: Non-Normal Distribution of Success

A major economic characteristic of the media and information sector is the high risk of its projects in the presence of competition. This is based on small odds owing to the excess supply, as well as the high fixed costs which reduce the ability to start small and grow gradually. A network, a device, or a software program needs to be pretty fully created right from the start. The low chance of success for any project results in several responses: a portfolio diversification, which favors large firms, and the need for a truly high "prize" to the winner in the high-stakes contest for success in order to offset the low probability.

The statistical distribution of media performance is not normally (Gaussian) distributed along the shape of a classic bell curve. One of the properties of a normal (Gaussian) distribution is that the mean (average) outcome is also the most likely (median) outcome. If one can identify the most likely outcome, one can find the average outcome. But that kind of distribution does not match at all the actual distribution in the media industries where almost all projects are unprofitable. For many media products, the average (of revenues or of profits) is therefore *not* the most probable outcome. The *average* is significantly skewed by the few and extreme positive outcomes, and it is actually far above the most *probable* outcome.[25] (For more detail, see ► Chap. 9, *Demand and Market Research for Media and Information*.)

The nature of media products is that most projects return poor financial results, whether in content or technology. This means that there must be very significant rewards on the upside to compensate for that risk. For example, suppose the expected outcomes are normally distributed, such that 10%: $10 million; 20%: $5; 40%: $0; 20%: −$5; 10%: −$10. Then, the most likely event is a breakeven ($0), and the average return is a breakeven, too. The top "prize" must be at least $10 for such a breakeven scenario. If it were lower, the expected return would be negative and hence not interesting to a rational participant. But suppose that the distribution is more skewed, with 20%: −$100 million; 40%: −$50 million; 20%: −$20 million; 10%: $0; and 10%: with a return that needs to be set in order to attract people to join. The combined losses would have to be offset by an expected profit level of at least $44 million for the expected (average) profit to become positive. Given the 10% probability for it to happen, the top prize would have to be at least $440. Even in that scenario, the most likely outcome (the median case) would be a loss of $50 million. In this high-risk scenario, the top prize must be 20 times as high as in the "normal distribution" case described before, to compensate for the risk. The more frequent and the bigger flops are on the downside, the higher the few blockbusters must soar on the upside.

This leads to a "winner-takes-all" system. One often observe a "80–20" outcome in which 80% of all media products do not become profitable at all, while 90% of all profits are generated by 10% of the products, and 50% of profits are generated by 1–2% of the products.[26]

What are the business implications? Rewards must be set very high to compensate for such losses. In consequence, risk containment becomes a key management task.

2.3.9 Characteristic #9 of Media and Information: Importance of Intangible Assets

Many media and information activities are not based on physical assets but on intangibles, in particular on intellectual assets. There are multiple characteristics to this kind of capital. It is not inherently a scarce resource, it does not deplete with use, it can be shared, and it is hard to prevent others from using it. This is true for content as well as for technology. Coupled with the low marginal cost of copying, this invites an appropriation by others and makes it difficult for the creator/producer/innovator to recoup their effort. Because this reduces the incentives to create and innovate, governments have created special property rights, in particular patents and copyrights, and are engaged in the protection of these rights. Similarly, the distributors of information create protective technological fences around their intellectual assets and engage in various pricing schemes.

2.3.10 Characteristic #10 of Media and Information: The Presence of Non-Maximizers of Profit

Many individuals in the media field derive utility from the process of creating a product, not from profiting from its sale. They like to perform, to see a play produced, to

25 The more accurate distribution is instead, an "exponential" distribution as the best statistical representation of media content revenue success. (And among several distributions, the exponential one linked to Alfredo Pareto and his 80:20 rule is the most useful, or the "Zipf distribution" For film. Specifically observed is the Stable Paretian distribution.) De Vany, Arthur S. and W. David Walls. "Does Hollywood Make Too Many R-Rated Movies? Risk, Stochastic Dominance, and the Illusion of Expectation." *Journal of Business* 73, no. 3 (July 2002): 425–451. There are various explanations for such a non-normal distribution. One reason is a "cumulative advantage" ("Cumulative advantage" occurs when preferences are determined by the amplified choices of the first few consumers, i.e. where there are strong network effects.)

26 Collis, D. J., P. W. Bane, and S. P. Bradley. "Winners and Losers--Industry Structure in the Converging World of Telecommunications, Computing, and Entertainment." In *Competing in the Age of Digital Convergence*, edited by D. B. Yoffie. Boston: Harvard Business School Press, 1997.

distribute poetry or a short story, to publish a scientific paper, or to contribute code to a collective software development. Producing the good is not a chore but a benefit. When this occurs, it is hard to distinguish production from consumption. In standard economic analysis, producers follow the incentives of profits while consumers maximize their utility. In media production, however, creators are often incentivized to maximize recognition, not profit. This means that they might give the product away, or that they will aim to reach only a small segment of important arbiters of quality, since such acceptance elevates their status. In either case, profitability is secondary. Larger media firms operate on more traditional incentives, but they are nevertheless affected, since they must compete against these non-economic participants, or incorporate them into their own production and distribution models.

2.3.11 Characteristic #11 of Media and Information: Information as a Public Good

Another economic property of information is that it is often a public good, which means it is a product or service that is consumed in common, examples being national defense, a lighthouse, fireworks, a scientific discovery, or a TV broadcast.

The two classic economic characteristics of a public good are: (1) it is difficult to control the access to the information because it is non-physical ("non-excludability") and (2) it is easy to share the product ("joint consumption"). As described by Paul Samuelson, Nobel Prizewinner in economics, a public good is something that "all enjoy in common in the sense that each individual's consumption in such a good leads to no subtractions from any other individual consumption of that good."

The implication of information being a public good is that it is difficult to charge for information, which leads to underproduction or even non-production. This is known as a market failure. To deal with that problem, there are arrangements of property rights, and of frequently indirect transactions (such as advertising) to create and ability to collect income from information. Media products are often given away rather then sold (e.g. in broadcasting, web portals, email services, search engines), with their attention then sold to advertisers.

The implications for the public good aspect of information is that the media sector has been at the forefront of creating legal arrangements of intellectual property rights, in particular copyrights and patents. An intellectual asset has several important characteristics. First, it is not inherently a scarce resource but rather is abundant. One can always create more. Second, an intellectual asset is not used up when someone consumes it. Multiple people can use it without it being depleted. This is known as non-rival consumption.

2.3.12 Characteristic #12 of Media and Information: High Government Involvement

The underproduction of information owing to public good characteristics is one reason for the frequent government involvement in the information sector. Governments are involved in most aspects of the media and communications sector. A private underinvestment of certain categories of useful information leads to government taking a role in assuring its creation (intellectual property rights) and in supporting a non-profit production (e.g. basic research; funding of universities; funding of the arts, etc.). But there are many other motivations for government involvement. Information distribution is considered essential, and hence the government aims to make it widely available across geography and income classes, and to protect it against dominance by a private company. For instance, anti-trust and anti-monopoly rules have been established to limit mergers and price fixing. Regulatory policy also seeks to reduce distributor power over content providers.

The high impact of media companies on politics and culture is such that they are always controversial, highly visible, regulated, and fought over. In consequence, there exists strong participation and regulation of government in broadcasting, cable, satellite, telecom, mobile, film, IT, and more. Governments are involved in almost every aspect of media: including the protection of children and education, promotion of culture and national identity, economic growth and innovation, establishment of infrastructure, protection against market power and opinion power, and the protection of intellectual property. Considering the government's strong regulatory presence there is a need for media firms to be able to manage government relations.

2.3.13 Summary of Economic Properties

We have identified 12 factors of the media and information industry which, in combination, make its management different, in some ways, from management more generally:

1. High fixed costs, low marginal costs
2. Network effects
3. Divergence in the cost trends in the value chain
4. Cumulative and accelerating returns
5. Excess supply
6. Price deflation
7. Convergence of technology
8. Non-normal distribution of risk
9. Non-maximizers of profit
10. Prevalence of intellectual assets
11. Public good characteristics
12. A strong governmental role

We can compress these factors into three broad categories:
- very high advantages to size;
- high uncertainty and market instability;
- public good characteristics.

These characteristics affect almost every media and information activity.

2.4 Review Materials

Issues Covered

In this chapter we have covered the following issues:
- The factors that make the management of media and information organizations is different.
- What the technological and human drivers of the Information Revolution are.
- How fixed and marginal costs of media products and services are distributed.
- How the excess in media supply and attention as scarce resource influence content style and marketing.
- How network effects benefit the consumption and production side.
- Why intangibles assets are protected and why they are important.
- How price deflation impacts the information sector.
- How the convergence of technology and media channels creates synergy potential.
- Why many providers of media content do not follow the traditional economic concept of profit maximization.
- How the government is involved in the media and information sector.
- How information has been accumulating, and what the implications are.

2.4.1 Questions for Discussion

1. How should we define the information sector?
2. With information becoming a central part of the economy, should its production be left entirely to market forces? What is the role for non-profit and governmental sectors in the distribution of information?
3. Extrapolating present trends for 20 years, what kind of economies will advanced countries have? What kind of industries and companies will succeed?
4. What were the success factors for business leaders in the industrial revolution? For the information revolution?
5. Information technology progresses at the rate of Moore's Law, but business, personal, and societal adjustments are much slower. What are the implications?
6. How does managing in the economy of things differ from managing in the economy of information?
7. For macro-economists. The following equation expresses a relationship between progress in a particular sector and the productivity growth of the overall economy:

$$p = s(\mathrm{pL}) + (1-s)(\mathrm{pR})$$

   - p = total productivity growth;
   - s = share of information sector in total expenditure;
   - pL = rate of cost decrease in information sector;
   - pR = rate of cost decrease in rest of economy.

   Two factors, the rate of cost decrease in the information sector (pL) and the income elasticity of demand for products of that sector, affect both real wealth and the size of the share of the information sector (s). As Moore's Law predicts a steady decline in technological costs and the income elasticity of demand for the information sector is greater than 1, what does this equation tell us about the economy as a whole?
8. How does the information revolution affect the process of globalization?
9. How has the relationship between producers and consumers of media changed in the past decade?
10. Why do media companies incur such high fixed costs of production? Has this changed in recent years? Have the marginal costs of distribution changed?
11. Given the vastly different models that have arisen in media, is there a common thread that defines the entire media industry? What is it?
12. What are the causes and effects of price deflation in the media industry. How can media firms cope with it?
13. In what ways do the media industry's economic properties not apply to the airline or banking industry?

2.4.2 Quiz

1. To be profitable in the information business usually requires imperfect markets.
   A. False;
   B. True.

2. The economics of information production has a tendency toward:
   A. Diminishing returns for an initial period to be followed by increasing returns;
   B. Diminishing returns throughout;
   C. Increasing returns throughout;
   D. Increasing returns for an initial period to be followed by diminishing returns.

3. The basic technology of the Industrial Revolution can be seen as an extension of:
   A. Information-processing capabilities;
   B. Assembly lines;
   C. The Renaissance;
   D. Human physical strength.

4. In terms of basic technology, what is the main driver of the Information Revolution?
   A. Disaggregating systems by stringing segmented devices;
   B. Ability to manipulate sub-atomic particles;
   C. Both of the above;
   D. None of the above.

5. Perhaps the last major constraint on media consumption is:
   A. High price of media goods;
   B. Ubiquity of media goods;
   C. Bad programming;
   D. Limited time for consumption.

6. Which is not a fundamental characteristic of knowledge today?
   A. Proliferation;
   B. Innovation;
   C. Specialization;
   D. Scarcity.

7. Which is NOT an obstacle to the transition toward new media?
   A. Anti-peer-to peer (P2P) legislation;
   B. Network effects;
   C. Garnering the type of ad revenue that the current mass media attracts;
   D. All of them can be obstacles.

8. The shape of the new media establishment seems to be:
   A. A sphere, with equidistant unlimited nodes, all with equal power: it signifies utter decentralization;
   B. A cube, with segments of equal reach: the symmetry signifies the balance between media producer and media consumer;
   C. A pyramid, with a few mass producers at the top and numerous media venues supporting it at the bottom;
   D. A simple arrow, projected toward an unknown and unpredictable future.

9. All these characteristics make media management different except:
   A. Difficult to predict consumer preferences;
   B. High fixed costs and low marginal costs;
   C. Price deflation and public good characteristics of products;
   D. Mostly scientific management methods.

10. Network effects lead to:
    A. An elastic demand curve;
    B. Decentralization;
    C. Barriers to entry;
    D. Falling prices.

11. What makes the media industry so risky?
    A. 10% of products make most of the profit;
    B. Price deflation;
    C. Market instability;
    D. All of the above.

12. What are the segments of the media industry?
    A. Media devices;
    B. Distribution platforms;
    C. Content production;
    D. All of the above.

13. What makes the information economy Schumpeterian?
    A. Rapid technological change and creative destruction;
    B. Increasing returns to scale;
    C. Decentralized economic actors;
    D. Ease of communication and symmetrical information exchange.

14. What causes market failures in the information sector?
    A. High fixed costs and low marginal costs in a competitive environment causes firms to price at a loss;
    B. Asymmetric information leads to adverse selection, so that only the consumers with the least to pay will read newspapers;
    C. Government intervention has disrupted the market mechanism and is creating significant dead weight loss;
    D. Positive externalities are not recognized by consumers of information products.

15. Which of the following is not a characteristic of an intellectual asset?
    A. Does not deplete with use;
    B. Easy to price differentially;
    C. Not inherently a scarce resource;
    D. Can be shared.

16. Which of the following is not a consequence of high fixed cost, low marginal cost characteristics for a media firm?
    A. Large "consumer surplus";
    B. Incentives to piracy;
    C. No incentive to price discriminate among customers;
    D. Competitive prices are often unprofitable;
    E. First-mover advantage.

17. Why do governments often take a role in supporting the creation of information?
    A. Solely to have a stronger influence on the information;
    B. Information, as a public good, implies underinvestments by private parties;
    C. Information wants to be free;
    D. Information, as a public good, implies overinvestments by private parties.

18. Information assets often have a shorter economic life than tangible ones. Why?
    A. High employee turnovers;
    B. As a society, we are getting smarter;
    C. Exponential growth of information shortens usefulness period;
    D. Can be shared easily.

19. What should be a main strategy for media managers in terms of pricing?
    A. Typically keep price competition in favor of competition on features and quality;
    B. Typically avoid price competition in favor of competition on features and quality;
    C. Cost-based pricing;
    D. Marginal-cost pricing.

20. Managerial implications of price deflation in the overall information sector include which of the following:
    1. Strong process and product innovation
    2. Outsourcing of production
    3. Short-term sales contracts
    A. 1 and 2;
    B. 1, 2, and 3;
    C. 1 and 3;
    D. 2 and 3.

21. As the media sector is highly regulated by the government, what are the implications for media managers?
    A. Manage government relations as a business function;
    B. Industry is more volatile;
    C. Changing of pricing in mass media requires governmental approval;
    D. Greater flexibility in decision making.

Quiz Answers

1. A
2. C
3. D
4. B
5. D
6. D
7. D
8. C
9. D
10. C
11. D
12. D
13. A
14. A
15. B
16. C
17. B
18. C
19. B
20. A
21. A

Production

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3.1 Media Production

3.1.1 Introduction

The media sector has three legs: content, distribution, and devices. In this chapter, we will address content and its production, and specifically the following questions:

- What are the ingredients of successful content production?
- How is content production being organized on an industrial scale?
- What management tools can be applied to media production?

When it comes to media content—movies, TV shows, music, books, newspapers—it seems that everybody is an expert. It has surrounded us since birth individually, and infused our culture collectively. Media content is not merely art and entertainment; it is also a worldwide role model, a trendsetter and moodsetter. Media content exerts influence on our values, our attitudes, our politics, and our lifestyles. It is the subject of intense public fascination and scrutiny. It is also an industry, and for the USA it is among the largest export businesses.

Creativity is thought of as an individual activity, but it has become an organized business and social activity. Film, theater, opera, and software development are all the result of highly organized collaboration and teamwork. Creative content is being created on an industrial scale—the "Dream Factory." It is a complex process. The writer F. Scott Fitzgerald, himself with some Hollywood experience, wrote in his final novel, *The Last Tycoon*, about the film business: "not a half dozen men have been able to keep the whole equation of pictures in their heads."

Since Fitzgerald wrote this about the film industry, the quantity of content produced has grown exponentially. Take, as an example, the total video program hours per week provided to New York City television viewers: in 1969, it was 1016 hours, increasing tenfold to 9600 hours by 1997, and to 200,000 by 2016, including repeat showings but excluding the millions of hours of internet-based video. Such vast content provision requires a vast production system.

3.1.2 Content Production

Production management aims at a smooth and continuous flow of production. It must allocate resources to different activities. It aims to increase productivity, and it must have a system in place to measure and evaluate performance. Production activities in companies are often headed by the Chief Operations Officer. The responsibilities of production management include: purchasing, inventories, and supply chain; process engineering; production scheduling and capacity planning; sub-contracting; locational choices. A sub-set is project management, which tends to be more limited in scope and time. Production management aims at a smooth and continuous flow of production. It must allocate resources to different activities. It aims to increase productivity, and it must have a system in place to measure and evaluate performance.

Production is part of a value chain that runs from strategy to product design to process design to production and marketing. In real life, the process is not one-directional and linear. Production follows strategy, but strategy, in turn, is based on the firm's ability to produce effectively. And this, in turn, is affected by internal resources such as money and people, by legal and regulatory constraints, and by market conditions. Some of these issues are discussed in other chapters of this book.

3.1.2.1 Special Characteristics in Content Production

The basic stages of content production are similar to those of production more generally. Typically, production requires the following steps:

- Market analysis;
- Concept creation;
- Selection;
- Funding;
- Product design;
- Development;
- Production planning;
- Procurement and deployment of inputs;
- Production and assembly;
- Post-production improvements and quality control;
- Preparation for distribution.

Each of these steps also exists for content production. Content industries are uncomfortable in being put into the same basket as more mundane industries, as they believe that they are different. And while just about every industry believes that, there are indeed several differences, as we discussed in ▶ Chap. 2 The Information Environment These include:

- An unusually high level of *uncertainty* about the commercial success of content products.
- Extremely high fixed production costs and low reproduction costs. They require significant upfront capital to make the initial product. This means unusually high *economies of scale*, which are further increased by *network effects*: the users of a product partially increase the value of that product to other users.
- There often exist content producers who do *not aim to maximize profit*, which affects the nature of competition.
- Media content often has *public good* characteristics: its value goes beyond the immediate benefits to the producers, and it is often impractical to exclude non-payers from enjoying the content.

We will discuss, in particular, the film industry because it has always been the most commercialized of content media, with dynamics that have often foretold those of other media. In order to understand the success factors for content production, we will explore the following question: why has one particular content production center—Hollywood—been so successful, for so long, in so many countries, and potentially now online? And this despite the fact that Hollywood is a high-cost producer, that it has usually lacked a long-term strategic vision (for example,

it initially totally missed the significance of broadcast TV, cable TV, home video, and the internet), and despite the fact that many major international markets have been only partly open, with many of them imposing import quotas for almost a century.[1]

None of this seems to have made a difference. Hollywood productions have remained predominant around the world throughout that time, despite countless efforts to support national production and to restrict Hollywood. In 1920, the Hollywood studios accounted for over 70% of the world's movie revenues. In 2016, they still maintain about the same market share, 67.7%.[2] During this time, pretty much the same six firms (Universal, Paramount, Disney, Warner Bros., Columbia, 20th Century Fox) dominated and produced the majority of films. (MGM and RKO dropped out, while Disney joined.) Not even Houston's oil companies, New York's Wall Street and London's city financial clusters, or Detroit's automotive industry maintained such a long-term global dominance. What does this tell us about the elements for success in content production?

3.1.2.2 Case Discussion

Canal Plus and the Hollywood Advantage

France is the birthplace of film. It is also a significant market for the medium: 209 million tickets were sold in 2016; 34.5% of admissions were for French films, while 53.6% were for American films, a higher number than in 2011 when it was 48%.[3] In total, 211 French films were released in 2016,[4] which made France the largest film producer in Europe.

Canal Plus is the major French film company, a subsidiary of the multimedia firm Vivendi. It has its own production arm (StudioCanal) and distribution channels in France, Europe, and Africa. It has a stake in two-thirds of French film production, and is the prime provider of original cable TV content in France. Canal Plus is Europe's largest film distributor (over pay-TV) and film producer, and it wants to export worldwide, including to the USA.

There are some questions about how this might be done. How can Canal Plus become a global content producer? What kind of content should it produce, and how? These questions will be the subject of the case discussion.

3.2 Content Industries

3.2.1 Early Content

The production of what we now call "media content" goes back to the dawn of humanity, when individuals and groups performed for their community or overlords. Over time, this became organized and institutionalized—theater in ancient Greece, gladiatorial spectacles in Imperial Rome, playhouses in Elizabethan London, opera stages in Italy. Some performers were individual content providers, such as bards, troubadours, and minstrels. They provided entertainment and news. Others were teams organized as content companies that produced and performed spectacles, plays, and music events.

In nineteenth-century America and Europe, popular entertainment was provided by theater, opera, circus, and various kinds of burlesque shows. But the economics were unfavorable: they were relatively expensive to produce, and the limited potential for automation and mass-production meant it was difficult to expand performances to larger audiences. This "craft"-style content production and distribution were ready to be replaced by a mass-production model in the same way that print technology industrialized the book medium after the sixteenth century. For music, this technology emerged after 1877 with the Edison phonograph. And for moving visual imagery, film technology made a big splash after 1895.

3.2.2 Types of Production

Production is generally done in either of two basic ways—as a "job shop" or as a "flow shop." A job shop means a specialized craft production. It creates special and highly varied products and uses general tools. In the media field, examples for job shop productions are plays, music events, and books. Job shop productions typically require a relatively limited upfront capital investment to cover the relatively small upfront overhead, but they have relatively high variable costs of production for the individual item.

In contrast, a "flow shop" is a process of mass-production that requires specialized resources. Flow jobs tend to be industrial productions, on a larger scale and repetitive. They are characterized by high fixed costs but low marginal costs. They are less flexible than job shop productions and require larger capital investment. Examples of flow shop productions are newspapers and magazines in content creation and telecommunications services in distribution. An intermediate category is a "batch flow" of production, which creates a small set of similar products. A TV series is an example.

1 For example, import quotas and restrictions were set in Germany and France in 1921.

2 Tartaglione, Nancy. "2016 Intl Box Office Sees Projected 3.7% Drop Amid Currency Shifts & China Dips – Studio Chart." *Deadline Hollywood.* Last updated January 5, 2017. ► http://deadline.com/2017/01/highest-grossing-movie-studios-of-2016-international-box-office-1201878861/.

3 Centre National du Cinema et De L'Image Animee. "Theater Admissions—Estimates for February 2017." Last modified March 3, 2017. ► http://www.cnc.fr/web/en/theater-admissions.

4 The Numbers. "Movies Produced by France and Released in 2016." Last accessed April 11, 2017. ► http://www.the-numbers.com/France/movies/year/2016.

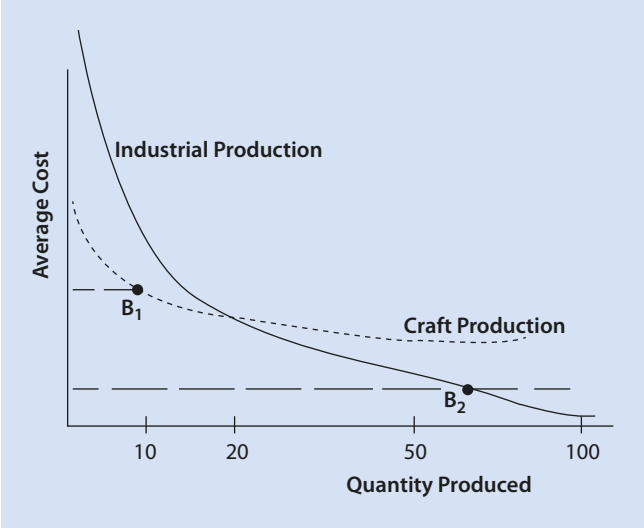

Fig. 3.1 Cost characteristics of craft and industrial production

Figure 3.1 illustrates the cost characteristics of craft versus industrial production. Craft production requires a relatively low initial fixed costs and its average costs (the vertical axis) are therefore moderate during the earlier stages of production (the horizontal axis). At a quantity of production B_1, average cost is intermediate. But increases in craft production add substantial incremental costs, which means that average costs do not drop much (and may eventually even increase). Industrial production, in contrast, starts with a much higher average cost owing to the high initial fixed cost. At low levels of production its average cost is higher than craft production; but since it enjoys lower marginal costs, average cost is eventually lower than for craft production (B_2).

A company must decide whether it wants to be in the mass production (high total cost, low-price) business or in the custom (low total cost, high-price) business. There might be a period where a firm will be in an intermediate range where cost is high but price is being pushed down by competitive forces. In that situation, a firm must decide whether to limit production, raise quality, and raise price to make people choose its product as superior, or alternatively whether it will set itself up for greater production runs and lower the price. In the former case, it must prioritize the product and its design. In the latter case, it must invest in the production process, and may have to suffer initial losses until its scale is large enough to support the low price.

In media and technology, there are typically two stages of production. The first is the production of "first copy" which has job shop/craft characteristics; the second is the making of reproductions and their distribution, which have flow shop/industrial characteristics.

Another dimension is whether production is proactive to demand or following it. Production is organized either as a supply "push" model, the amount produced being based on managerial estimates of demand, or as a demand "pull" model, based on actual orders.

Table 3.1 Cost characteristics of theater and film

	Content production cost/second	Distribution cost/capita/second
Theater	$25	0.56¢
Film	$10,000	0.005¢

3.2.3 Cost Characteristics: Film Versus Theater

The basic economic advantage of film over theater is that its distribution cost per viewer is only 1% or less of the cost to distribute a similar item of content via live theater. The figures in the Table 3.1 (right column) show that it costs a commercial big city theater in the US about 0.56 cents to distribute a second of content per person, based on the re-creation cost for every performance, plus the hall and its associated costs, all divided by the audience size and the length of the performance. In contrast, the marginal cost of film distribution (through movie theaters) is one hundred times smaller (0.005 cents/person), including the need for copies of the film, actual physical distribution, and the cost of the movie theater, divided by the audience.

This low cost facilitates distribution to audiences of many millions. But to make millions of people want to see one film rather than a rival one, one needs to create a highly attractive product. This requires a much higher upfront cost of producing the film than is spent on a theatrical show.[5] That cost can then be spread over the larger audience. Thus, content production costs of Hollywood films (the fixed costs) have risen over time to a remarkable figure of approximately $10,000/second, 500 times higher than for a typical commercial theater production. The moviegoer pays, in the USA, about one-eighth of a cent per second, of which the film theater gets to keep about half. Therefore, the producer/distributer collects one-sixteenth of a cent per viewer per second. To cover its production and distribution expenses then requires about 16 million viewers.[6]

Film therefore shifts costs away from *variable* costs of distribution to *fixed* costs of content production. The cheaper the distribution, the more elaborate the content production can become since it is spread across more users. And it is one of the economic characteristics of an industry with high fixed costs and low marginal costs that it has high economies of scale—large providers have cost advantages over small ones (as long as they produce reasonably efficiently). The other aspect of the same fundamental economics is that there is a much higher downside of financial losses if the audience does not materialize.

5 For theater, these upfront production costs include expenses up to the opening show, after which the costs are those of reproduction.

6 This does not yet cover the marketing expenses, part of the overhead, and profit on the expense side. It also does not include non-theatrical revenue streams on the income side. In 2015, 29 films sold more than 12 million tickets in the USA. International film revenues account for 70% of Hollywood theatrical revenues. This would mean that US audiences need to cover, on average, only 3.6 million tickets. In 2015, 86 films met that number.

3.2.4 Breakeven Point

A "breakeven point" of a production occurs when total costs of the production equal total revenue. The equation below shows how to determine this breakeven quantity. If a firm can sell a product at a quantity that is higher than the breakeven point, it will make a profit; below this point, it will face a loss. The breakeven point is found where total cost equals total revenue.

TC = Total Cost; TR = Total Revenue; FC = Fixed Cost; VC = Variable Cost; Q = Quantity of Production; P = Price

$$\mathrm{TC} = \mathrm{FC} + \mathrm{VC} \cdot Q$$

$$\mathrm{TR} = P \cdot Q$$

After substitutions, we find that the breakeven point, where total revenue is equal to the cost, is at $Q = \frac{\mathrm{FC}}{P - \mathrm{VC}}$.

Example: Theater

A live theater has an average net ticket cost of $40, fixed cost of $300,000 ($130,000 for content, $170,000 for marketing and overhead). It performs five shows per week, each time for 400 audience members. The cost of serving each audience member is $30. The breakeven will be at an audience of 30,000. We arrive at this number using the breakeven equation:

$$Q = \frac{\mathrm{FC}}{P - \mathrm{VC}} = \text{Breakeven Point}$$

$$Q = \frac{300{,}000}{40 - 30} = 30{,}000$$

This number is reached after 15 weeks. (30,000/(400 × 5)).

Compare this with the breakeven point for film. We assume that the ticket price is $10. The producer/distributor gets to keep 50% share of box office receipts, and marginal revenue (P) for the producer is hence $5. Fixed costs are $77 million (content $54 million, marketing and overhead $23 million) and there is a variable cost of $.27 per ticket. The film is screened in 1000 theaters with 20 weekly showings and an average audience of 200 audiences per screening. The breakeven point can be calculated as:

$$Q = \frac{77{,}000{,}000}{5 - 0.27} = 16{,}279{,}061$$

It would take over 16 million paying viewers to put the film into the black. (For comparison, the numbers of box office tickets sold in the USA (not including other countries and other forms of distribution) (admissions) for a Harry Potter film was 50–60 million, for *Madagascar 3* 25.1 million, and for *Spiderman* 30.4 million. Earlier all-time hits were *Gone with the Wind* (1939; 225.7 million tickets), *Star Wars IV* (1997; 194.4 million), *ET* (1982; 161 million), *The Sound of Music*. (1965; 156.4 million), and *Titanic* (1997; 128.4 million worldwide).

In our example, the weekly audience for the film would be 4 million (1000 × 20 × 200), and the weekly revenue is $20 million. Breakeven at 16.3 million tickets is reached in week five. The film, despite its high total production cost ($54 million) and high marketing cost ($23 million) (vs. 130,000 and $170,000 for theater), has a lower average cost per audience after 1.5 million viewers, because it can be spread across a wider audience. If it keeps running well after week four, it will make a lot of money. But if its audience drops after week one, it may lose many millions. For theater, in contrast, both the upside and the downside are much lower.

The same cost dynamics apply to a comparison of printed books with hand-written manuscripts. A printing press reduces incremental cost, but increases upfront investment in fixed costs. It is also the case for recorded music versus live music, or for off-the-shelf packaged software versus customized programs. It is the economics of industrial mass-production versus artisan production.

But it is also a double-edged sword. Production with a higher fixed cost and lower marginal cost is more profitable when the number of tickets or copies sold is large. Conversely, it can also lead to a much higher loss when the number of tickets sold is low. It is the higher risk strategy. To deal with this downside, risk reduction therefore becomes a central management task in the content production of mass-market media.

A second management consequence is that a high fixed cost, low marginal cost industry with its high economies of scale means a more concentrated industry structure, composed of a few large firms. This will now be discussed with the film industry as the main case.

3.2.5 History of the Film Production Industry

In the eighteenth century, the recognition of a "persistence of vision" (i.e. the blurring of images into each other when they pass the eye rapidly) led to novelty items such as the Zoetrope, which created simple moving images by a spinning wheel with pictures drawn on it.

In the 1820s and 1830s, Nicéphore Niépce and Louis Daguerre in France and William Henry Fox Talbot in England invented the process of photography, using glass plates. In the 1880s, George Eastman of the USA created celluloid film that could be rolled up, and he introduced cheap Kodak cameras. In 1891, Thomas Edison's laboratory invented the Kinetoscope, where the viewer stared into a box to see moving images, photographed by a Kinetograph, a camera system. This was augmented by the Kinetophone, a sound system based on Edison's cylinder phonograph. Edison's first film, *The Squeeze*, was copyrighted in 1893.

However, Edison's peep-style display could be viewed only individually or by small groups using a bank of consoles. In contrast, the brothers Louis and Auguste Lumière of Lyon, France, projected their moving images onto a screen,

Table 3.2 The top Hollywood film studios, 1995–2016

	Movies 1995–2010	Average gross/ movie (million)	Market share 1995–2010 (%)	Global market share 2013	Global market share 2016[a]
1. Disney	423	57	14.3	15.7%	17.2%
2. Warner Bros. (Time Warner)	467	51	14.2	17.1%	11.3%
3. Columbia/Sony	455	45	12.3	10.5%	4.7%
4. Paramount (Viacom)	315	62	11.6	8.9%	3.2%
5. 20th Century Fox (News Corp./21st Century Fox)	332	57	11.2	9.7%	10.9%
6. Universal (GE/Comcast)	311	56	10.3	13.1%	7.1%
7. New Line	203	41	5.0	Warner Bros.	
8. Dreamworks SKG	77	74	3.4	1.8%	Universal
9. Miramax (al Jazeera)	374	14	3.2	<1%	
10. MGM	229	21	2.9[b]	Sony	

Table compiled using Noam, Eli *Who Owns the World's Media?* Oxford 2015 and Tartaglione, Nancy. "2016 Intl Box Office Sees Projected 3.7% Drop Amid Currency Shifts & China Dips – Studio Chart." *Deadline Hollywood.* Last updated January 5, 2017
[a]Tartaglione, Nancy. "2016 Intl Box Office Sees Projected 3.7% Drop Amid Currency Shifts & China Dips – Studio Chart." *Deadline Hollywood.* Last updated January 5, 2017
[b]The Numbers. "Top-Grossing Distributors 1995 to 2010." Last accessed November 3, 2010. ► http://www.the-numbers.com/market/Distributors/

facilitating mass-audiences. Their first film clip was *L'Arrivée d'un train à la Ciotat* (1895). Its first showing was in Paris in 1895 and can be counted as the beginning of the film medium as popular entertainment.

Almost immediately, new types of content began to emerge, and film moved beyond novelty to a medium of considerable creativity. Already in 1902, *A Trip to the Moon*, a science fiction film, was produced in France with new special effects, with Georges Méliès the director. Physical comedy emerged, and the antics of comedians such as Charlie Chaplin were distributed worldwide. The first Western film, *The Great Train Robbery*, was created as well as the first sexually suggestive film, *The Gay Shoe Clerk*. These and other productions could venture into content that theater could not accomplish technically or financially—special effects and genuine outdoor scenes.

The fundamental economics of the film medium led also to imitation, piracy, and to attempts to monopolize markets. The so-called "Edison Cartel" pooled in 1908 the patents of the industry leaders Edison, Pathé, Vitagraph, Eastman Kodak, and Biograph, as well as the financial resources of J.P. Morgan in a bid to control the industry. The cartel possessed patents, theaters, money, lawyers, and connections. Yet it was unable to suppress independent film entrepreneurs. These emerged from the popular entertainment industry (such as "vaudeville") that catered to working-class audiences, or from retail and merchandizing trades. These included such legendary figures as Mack Sennett, Harry Cohn, Adolph Zukor, Marcus Loew, William Fox, Carl Laemmle, Jesse Laski, the Warner brothers, Louis B. Mayer, and Sam Goldwyn, and later, in the 1930s, Walt Disney. These pioneers established the film companies which continue to exist into the twenty-first century. They soon moved from New York to Southern California, partly for its weather, which made outdoor shooting simpler. Other factors were the lower costs of non-union labor and the greater distance from J.P. Morgan's and Thomas Edison's New York lawyers and friendly judges who were enforcing intellectual property rights.

As the industry grew, the studios organized factory-like production facilities and employed actors, directors, craftsmen, crews, and equipment that could be used for many projects. They moved into a flow-type production, creating hundreds of films each year. The MGM studio in Culver City could shoot six different films at the same time. Feature films could be shot in less than a week.[7] The legendary Cecil B. DeMille at times directed and produced two films simultaneously.

Today, the six major Hollywood film studios that dominate the film business are fairly similar in size, with market shares of about 10–15%, depending on the success of a particular season (Table 3.2).

7 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publication, Ltd., 2005. This highly informative book is a frequent source of factual information for this book.

3.2.6 Production in Other Media Industries

Before we continue discussing production in the film industry, let us look briefly at the background of other content production industries.

3.2.6.1 Books

After the emergence of print technology in the fifteenth century, early printers at first also functioned as publishers by selecting and commissioning content. Printing centers emerged, such as Venice and Amsterdam. In the early eighteenth century, publishing separated from printing and became professionalized. Publishers such as Weidmann (Leipzig) and Longmans (London) have continued into the twenty-first century. In the USA, the book industry structure, after a period of fragmentation and easy entry, stabilized in the 1920s and centered on a handful of major publishing companies surrounded by thousands of small firms. The large publishers were McGraw-Hill, Random House, Simon & Schuster, Little Brown, HarperCollins, and Macmillan, and were mostly located in New York.

The book industry has fairly high marginal costs and moderate fixed costs; its economies of scale are therefore moderate. This has contributed to an industry with numerous (about 3000) small publishers and to a huge number of individual products, most of them with a small production run. Combined with the rising supply of authors, the number of titles published has grown greatly.

The market share of the largest publishers in the USA, in the period 2009–2016, is shown in Table 3.3:

Worldwide, the largest owners of publishers are shown in Table 3.4:

Table 3.3 US market share of book publishers, 2009–2016

Company	Market share (%)
Penguin Random House (Bertelsmann, Mohn family, Germany) & Pearson (UK) (Penguin, Random House, Bantam, Dell, Doubleday, Viking, Addison Wesley)	17.6
McGraw-Hill	8.2
News Corp (Rupert Murdoch) (HarperCollins, Scott & Foresmann)	7.3
Viacom (Redstone; Simon & Schuster)	5.2
Reed Elsevier (Netherlands)	5.0
Hachette (Lagardere family, France) (Grolier, Time Warner, Little Brown)	2.9
Holtzbrinck (Holtzbrinck family, Germany) (Macmillan, St. Martin's)	3.0
Scholastic	5.4
Others	57.3

In italics: publisher is part of a major diversified media firm

Table 3.4 Largest worldwide publishers, 2009–2016

Company	Market share (%)
Bantam Random House (Bertelsmann-Pearson) (Mohn family, Germany; Pearson, UK) Penguin, Random House, Bantam, Dell, Doubleday, Viking, Addison Wesley)	9.8
Hachette (Lagardere family; Hachette; France)	7.3
NewsCorp (HarperCollins, Scott & Foresmann, US)	3.4
McGraw-Hill (US)	2.9
Fininvest (Silvo Berlusconi; Mondadori; Italy)	2.0
Planeta (Spain)	1.8
RCS (Italy)	1.7
Jiangsu Phoenix (China)	1.3
China South Media/Hunan Publishing (China)	0.8
Beijing Publishing (China)	0.8
Bonnier (Sweden)	0.7
Eksmo-AST (Russia)	0.4

In italics: publisher is part of a major diversified media firm

In Europe, the major book publishers have high market shares in trade (general audience) and paperback books. In France, Hachette/Lagardere, 29.4%; in Italy, Mondadori 30% and Fininvest 28.8%; in the UK as well as in Australia; Bertelsmann-Pearson 24%, in Russia Eksmo-AST 57.7%; and in Sweden Bonnier, 22.6%.

The annual number of new book titles for the USA was 338,990 in 2015.[8] In Germany, about 89,510 book titles were published in 2015.[9] The Harry Potter book series sold 500 million copies by 2016.[10, 11]

Publishers need to make numerous managerial decisions beyond the editorial ones and are the central node in book production. They select authors and manuscripts; improve the product; oversee printing and manufacturing in house or outsourced and determine the quantity. They market the book, set prices, secure copyrights and license subsidiary rights.

8 International Publishers Association. "Number of new titles published in selected countries worldwide in 2015 (in 1,000s)." Statista. Last accessed June 14, 2018. ► https://www.statista.com/statistics/248335/number-of-new-titles-and-re-editions-in-selected-countries-worldwide/.

9 International Publishers Association. "Number of new titles published in selected countries worldwide in 2015 (in 1,000s)." Statista. Last accessed June 14, 2018. ► https://www.statista.com/statistics/248335/number-of-new-titles-and-re-editions-in-selected-countries-worldwide/.

10 Time Staff. "Because it's his Birthday: Harry Potter by the Numbers." *Time.* Last Updated July 31, 2013. ► http://entertainment.time.com/2013/07/31/because-its-his-birthday-harry-potter-by-the-numbers/.

11 Hypable Media. "Harry Potter-History of the Books." Last accessed April 12, 2017. ► http://www.hypable.com/harry-potter/book-history/.

They manage the distribution channels, collect sales proceeds, and distribute it to claimants such as authors.[12]

A book's sales revenue goes to these categories of recipients, approximately:

- Retailer (bookstore)[13]: 40%
- Wholesaler: 12.5%
- Producer publisher: 35%
  - Printing, storage, shipping: 12.5%
  - Design, typesetting, editing: 3%
  - Marketing: 3.9%
  - Admin./overheads: 7.8%
  - Profit: 7.8%
- Creators/authors: 12.5%

Assuming that the publisher's overhead is evenly attributable to both production and distribution functions, this means that production activities (authoring, editing, designing, typesetting, and printing) receive 32.9% of a book's revenue; 60.3% goes to marketing and the chain of distribution; 7.8% is the publisher's profit.

3.2.6.2 Newspapers

In richer countries newspaper penetration used to be very high but it has been steadily declining. In the USA, 78% of the adult population read a daily paper in 1970. That number dropped to 51.6% by 2005, 33.7% by 2014,[14, 15, 16] and 28% in 2016.[17] Some countries have a newspaper system based on large, nationwide newspapers. Examples are Japan and the UK. Other countries have a system of local/regional papers, for example, the USA and Germany. The newspapers distributed in the USA nationally are the *Wall Street Journal*, *USA Today*, and the *New York Times*. Aside from such presence, in most US cities newspapers operate in a near-monopolistic local market structure. In 2014, only 20 American cities were served by two or more separately owned competing local dailies. The city population generally needed to assure a single local paper in the year 2000 was above 100,000, whereas in 1980 it had been only half that. To sustain more than one daily local newspaper required on average a population of more than one million, whereas it was half a million in 1980.[18]

In many countries, the market share of the top newspaper publishing company is quite high: in Mexico (OEM, 49.4%); Turkey (Dogan, 63%); Australia (News Corp., 58%); Chile (Mercurio, 55%); Ireland (INM, 52%); South Africa (Naspers, 36%); Argentina (Clarin, 45%); France (Amaury, 30%); and the UK (News Corp., 35%).[19] In the USA, the largest newspaper company is Gannett, with a market share of 12% in 2016.

Given the historically central role of newspapers in political and commercial communications, there has been a great deal of concern about the decline of the newspaper industry. The continued trend toward local market monopoly, the mergers of newspaper groups, the shrinking circulations, and the emergence of the internet as an effective and delivery platform of free news and targeted advertising have raised worldwide alarms about the future viability of newspapers. Newspaper firms have responded by further consolidation, using technology to streamline production and distribution processes, and cutting editorial costs (and often quality). But in particular, newspapers "repurposed" their content in new electronic ways to compete for consumer attention and advertiser support.

Magazines do not include up-to-the minute news and are capable of relying on more leisurely delivery systems than newspapers.[20] Magazines rapidly adapt to changing interests and activities in society; as a result, the industry has faced a less steep decline than daily newspapers. The major magazine groups tend to publish dozens of different titles, with economies realized in the physical production and distribution more than in content production. In the USA these groups are Advance Publications, Meredith, and Hearst, each with about 7–9%. Internationally, the largest groups are, aside from the Government of China and the three US groups mentioned, the commercial publishers Abril and Globo (both Brazil), Bauer, Axel Springer, Burda, and Bertelsmann (Germany), Lagardere (France), Sanoma (Finland), and Bonnier (Sweden).

For newspapers, the share of the different stages of the value chain in overall revenues is provided below. The share of the publisher is by far the largest, because they get most of the substantial advertising revenues, in contrast to the news-stand revenues which they must share with retailers and wholesalers.

Revenue Shares of Print Newspapers

- Retailer (vendors): 13%
- Wholesaler: 9.5%
- Producer/publisher: 62%
  - Materials: 15%
  - Production: 19.1%
  - Admin./overhead: 6.5%
  - Advertising and marketing: 10.7%
  - Profit: 10.7%
- Creators/editorial: 15.5%

12 Bailey, Herbert S. *The Art and Science of Book Publishing*. Athens, OH: Ohio University Press, 1990.

13 Rich, Motoko. "Math of Publishing Medts the E-Book." New York Times. February 28, 2010. Last accessed July 17, 2017.
► http://www.nytimes.com/2010/03/01/business/media/01ebooks.html?partner=rss&emc=rss.

14 Newspaper Association of America. "Newspaper Readership & Audience by Age and Gender." *NAA.org*. Last updated March 18, 2013. ► http://www.naa.org/Trends-and-Numbers/Readership/Age-and-Gender.aspx.

15 Newspaper Association of America. "Daily Readership Trend - Total Adults (1988–2005)." *Newspaper Association of America*. (1988–2005). Last updated October 2005. ► http://www.naa.org/marketscope/pdfs/Daily_National_Top50_1998-2005.pdf.

16 Pew Research Journalism Project. "Newspaper Readership by Age." *Pew Research Center*. Last updated July 2014. ► http://www.journalism.org/media-indicators/newspaper-readership-by-age/.

17 Edmonds, Rick. "Newspaper declines accelerate, latest Pew Research finds, other sectors healthier." *Poynter*. Last updated June 15, 2016. ► http://www.poynter.org/2016/newspaper-declines-accelerate-latest-pew-research-finds-other-sectors-healthier/416657/.

18 Noam, Eli. *Media Ownership and Concentration in America*. (New York: Oxford University Press, 2009), 142.

19 Noam, Eli. Who Owns the World's Media? New York: Oxford University Press, 2016.

20 Compaine, Benjamin M. and Douglas Gomery. *Who Owns The Media?* 3rd edition (Mahwah: Lawrence Erlbaum Associates, Inc., 2000), 147–193.

Table 3.5 Global market shares of major music groups (2015)

Music group	Market share
Universal (Vivendi)	33.5
Sony	22.6
WMG (Time Warner)	17.1

Music & Copyright. "WMG makes biggest recorded music market share gains of 2015; indies cement publishing lead," April 28, 2016. Last accessed April 11, 2017. ► https://musicandcopyright.wordpress.com/tag/market-share/

3.2.6.3 Music

The recorded music industry is internationally concentrated and integrated with other media. The three major music groups own large numbers of specialized and national labels worldwide, each with its own character and specialties (Table 3.5).

The music industry has low economies of scale and entry barriers on the content production end, but high economies of scale on the distribution end, where only a few companies manage to exist. The retail revenues of a typical compact disc (CD) go to the following categories of recipients:

- Retailer: 20%[21]
- Distribution (wholesale): 17%
  - Physical distribution: 10%
  - Admin. copyrights: 7%
- Label (production): 46%
  - Manufacturing: 10%
  - Production (recording): 5%
  - Marketing: 15%
  - Overhead: 10%
  - Profit: 6%
- Creators/artists (incl. composer): 17%
  - Performer and composer: 11%
  - Composer and songwriter: 6%

For a traditional music CD, the producing activities (artist, songwriter, composer, copyright, producer, recording, manufacturing, and allocated overhead and profit) account for about 53% of overall revenue. Overall Distribution accounts for 37%. For online music, production gets about 38% of revenues (not including advertising intermediaries). Much of the revenue goes into the distribution chain (retailer, wholesale distributor, marketing) and to the copyright publisher.[22]

The business model for the music industry has been changing drastically. While the economies of scale of music production have declined, those of distribution have risen. The technology of the internet, file compression, and data storage has shifted music from a physical product, such as vinyl records or CDs, to electronically stored and distributed files and formats. Apple's iTunes store, in particular, has revolutionized the music business by abandoning the physical CD in favor of downloads.[23]

CD album sales in the USA dropped by 15% in 2007, 14% in 2008, 13% in 2009, 13% again in 2010 (314.9 million units), 20% in 2012,[24] and 13.6% in 2016.[25] Online and mobile downloads rose for a while strongly, to 660.8 million units in 2011, but then dropped as listeners moved to streaming and continued to download illegally. Audio streaming rose in the USA in 2014 by 42%, with over 150 billion songs. In 2016, audio streaming became the largest revenue stream for music, accounting for 34.3% of all revenue, around $2.4 billion. Digital downloads (which includes methods such as Apple iTunes) accounted for 34% of music revenues.

In terms of revenue, the income from an album CD sale is the equivalent of about 1500 song streams. A CD song is thus worth about 150 streamed songs. ► Amazon.com's MP3 store holds a 13% share in the digital music market. Apple iTunes became the largest music retailer in the USA after pulling ahead of Wal-Mart Stores in 2008. With its 64% of digital downloads, Apple accounted for about 21% of all music sold in 2015. What all this means for production is that the physical aspects of that activity have declined significantly in volume and importance, and recording and editing has become greatly more affordable through cheap software and hardware of digital audio workstations.

3.2.6.4 Television Content

Much of TV content has a short half-life, especially news and sports events. "Disposable television" includes talk shows, award galas, and so on. But a short economic life has advantages, too, since it attracts less piracy. Other major parts of TV entertainment content are serials and "made for TV" films. These have increasingly become part of subsequent distribution over the internet (Table 3.6).

The world's largest producers of TV content are state-owned broadcast entities (such as in China, Egypt, and Russia), and national public service broadcasters such as BBC (UK), RAI (Italy) NHK (Japan), and ARD and ZDF (Germany). Large commercial TV producers, aside from the

21 Sources: Donovan, Natalie. "If CDs cost £8 where does the money go?" BBC News. August 26, 2013. Last accessed July 17, 2017. ► http://www.bbc.com/news/magazine-23840744; Wizbang. "Does a CD have to cost $15.99?" October 14, 2004. Last accessed July 17, 2017. ► http://wizbangblog.com/content/2004/10/14/does-a-cd-have.php; Knopper, Steve. "The New Economics of the Music Industry." Rolling Stone. October 25, 2011. Last accessed July 17, 2017. ► http://www.rollingstone.com/music/news/the-new-economics-of-the-music-industry-20111025.

22 For online music, the retailer such as Apple iStore takes about 30%, the distributor (for encoding, submission, etc.) 8%, the producer/ label 28%. (The latter includes marketing 11%, production 10%, admin./overhead 5%, and profit 2%); advertising intermediaries 16%; the artist 10%; songwriter and composer 6%).

23 Music streaming services do not "sell" the ownership of a song but rather a service that provides it on demand. Their revenue streams are mostly advertising and subscriptions. Providers include Pandora, Spotify, Rhapsody (RealNetworks), and Sony's Music Unlimited. Amobi, Tuna N. "Movies and Entertainment." *Standard and Poor's Industry Surveys.* March 2012. Last accessed August 2, 2012. ► http://www.netadvantage.standardandpoors.com/NASApp/NetAdvantage/showIndustrySurvey.do?code=mhe.

24 Amobi, Tuna N. "Movies and Entertainment." *Standard and Poor's Industry Surveys.* March 2012. Last accessed August 2, 2012. ► http://www.netadvantage.standardandpoors.com/NASApp/NetAdvantage/showIndustrySurvey.do?code=mhe.

25 Christman, Ed. "U.S. Record Industry Sees Album Sales Sink to Historic Lows (Again) – But People Are Listening More Than Ever." Last updated July 6, 2016. ► http://www.billboard.com/articles/business/7430863/2016-soundscan-nielsen-music-mid-year-album-sales-sink-streaming-growth.

Table 3.6 US market share of major TV production companies for primetime TV shows (2017)

21st Century Fox	17.7%
Viacom/CBS	7.3%
Time Warner	21.4%
Disney	7.7%
NBCUniversal	8.6%
Other	37.3%

Turk, Sarah. *IBIS World Industry Report 51211b: Television Production in the US.* (IBISWorld, March 2018), 23–28

ones listed above, are Globo (Brazil), Televisa (Mexico), NTV, TV Asahi, Fuji, TBS (all Japan), SBS (Korea), Bertelsmann (Germany), and Fininvest (Berlusconi, Italy).

Much of the TV content produced by these firms is being retail-distributed by their own TV and cable channels domestically and by additional companies internationally. But others are not vertically integrated, and their programs are produced and distributed to the public through independent companies or in mixed arrangements.

3.2.6.5 Video Games

Video games, though distributed by game publishers, are actually written by different types of developers: in-house teams of the publishers; by independents who may self-publish and self-distribute; and by third-party contractors. When self-developing, the distribution forms hire programmers, game designers, artists, sound engineers, producers, and testers.

Major games easily cost $10 million and more to produce, plus $10 million to market. Game platforms are subject to a five-year hardware cycle of technology generations, and game companies must redesign most of their game software on the same schedule to conform to the enhanced technological capabilities of the new-generation platforms.

Video game titles have an 80% failure rate, but the upsides can be substantial. In 2009, a single video game, *Call of Duty: Modern Warfare 2*, developed by Infinity Ward and published by Activision, sold over 4.7 million copies in its first 24 hours in just the UK and the USA, earning roughly $310 million.[26] In its first weekend, the game earned over $550 million worldwide, surpassing the movie *The Dark Knight*'s $155 million opening weekend and *Harry Potter and the Half-Blood Prince*'s $394 million five-day earning. By 2010, the game had earned over $1 billion from over 25 million unique players. By 2014, the *Call of Duty Modern Warfare* franchise had grossed $3.52 billion with about 58 million players.

The major video game software makers (market share by units sold) in 2016 are listed in Table 3.7:

Table 3.7 Major video game makers in the USA (2016)

Publisher	US market share
Electronic Arts	20.6%
Activision	13.1%
Nintendo	12.7%
Microsoft	10.1%
Take-Two Interactive	9.9%
Sony	9.5%
Ubisoft	8.1%
Others	16%
US total revenue ($ million)	14,900[a]

Based on video game units sold of the top 100 sold games in the USA for the calendar year 2016. Data from "USA Yearly Chart" *VGChartz*. Last accessed May 12, 2017. ► http://www.vgchartz.com/yearly/2016/USA/

[a]US total revenue based on total video game software market of $24.5 billion minus $6 billion for mobile phone games, minus $3.6 billion in hardware sales

The video game industry has moved to economics similar to those of Hollywood. This includes high budgets and a reliance on blockbusters.[27] In-game advertisements similar to TV commercials were introduced, and the industry collaborated with the Nielsen research company to develop an advertising audience measurement system.

3.2.7 The Global Success of the Hollywood Production Industry

We now return to a discussion of the film industry. For several centuries, the flow of culture—books, theater, and music—flowed largely in one direction, out of Europe: to the colonies and the rest of the world. But then the direction of the flow was reversed for the young medium of film. Starting in 1910, American films accounted for over half of the box office in Europe, exceeding domestic products even in France, Germany, and the UK, and this percentage grew in the 1920s. In response, protective import quotas and restrictions on the repatriation of box office earnings were speedily established in the major European countries. In effect, this was an early regulatory measure against cultural globalization, which until then had been acceptable in music and literature. Content protectionism serves three functions: to shelter a country's national culture and identity; to support the influential cultural production sector and its workforce; and to help project a country's worldwide visibility. The measures employed were direct governmental subsidies, import

26 Gaylord, Chris. "Modern Warfare 2 Sales Nuke All Previous Records." *The Christian Science Monitor*. November 12, 2009. Last accessed July 7, 2010. ► http://www.csmonitor.com/Innovation/Horizons/2009/1112/modern-warfare-2-sales-nuke-all-previous-records.

27 Nussenbaum, Evelyn. "News and Analysis; Video Game Makers Go Hollywood. Uh-Oh." *New York Times*. August 22, 2004. Last accessed April 11, 2017. ► http://www.nytimes.com/2004/08/22/business/news-and-analysis-video-game-makers-go-hollywood-uh-oh.html.

quotas, screen and broadcast quotas, and tax breaks. Many of these policies have persisted in one form or another for almost a century. In Canada, the government subsidizes film production directly. In addition, 60% of the Canadian TV schedule must be Canadian content, subject to a complex formula. In Australia, government money makes up around 37% of overall film investments, along with the lost tax revenues from an immediate 100% tax deduction for investors. In Europe, Brussels provided $850 million subsidies in one year for films that generated box office revenues of only around $400 million.[28] On top of these European Union (EU) subsidies, most European countries (and within countries different regions) have their own subsidies, some of which cover over 50% of a film's budget. In 2013 European governments spent approximately $2.8 billion (€2.1 billion) in various forms of direct cash support for European productions. Additionally, $1.3 billion (€1 billion) of support is given in the form of targeted tax incentives in 2013.[29] This alone adds up to $4.1 billion per year, and it does not include the major support from public service TV, which is funded through dedicated taxes (license fees) or the general state budget, and the economic value of import restrictions. Even so, of the top 40 grossing films worldwide in almost every year almost all were Hollywood productions.

In most countries, audiences prefer domestically produced films, but imported Hollywood films follow behind as second most popular, and they are more numerous and thus dominate. The key problem is that films from third countries—including films from neighboring countries—are much less popular outside their own country. In 2004, only 8% of film revenue in Europe was from European films shown outside their own national market in other European countries.[30]

What then are the reasons for Hollywood's success as a content production center? The answers may help to identify the main success factors for content production more generally.

3.2.8 Case Discussion

Canal Plus

Canal Plus is a French premium pay television channel and is one of the world's leading subscription-based TV providers. It has nearly 14 million subscribers across Europe and Africa. Canal Plus and its production arm StudioCanal are the nearest equivalent in Europe to a major Hollywood studio.[31] In 2011, it led in European film production, acquisition, and distribution.[32] The company is owned by the French media and communications conglomerate Vivendi. After establishing itself in France, Canal Plus expanded internationally, in Belgium, Spain, Germany, Netherlands, Sweden, and Africa, and by broadcasting by satellite. Its content included popular American TV shows and movies, but it also moved into film production and financing. It launched StudioCanal Plus and financed projects with Hollywood studios and others. It also became Europe's largest buyer of American movie rights.[33]

In 2006, the company acquired the UK film distributor Optimum Releasing and in 2008 the German film distributor Kinowelt (both were renamed StudioCanal). In other countries it uses other distributors. In the USA, for example, StudioCanal distributes its home videos through Criterion, Rialto Pictures, Image Entertainment, MGM, and Universal.[34] On its part, it has internationally distributed home video from Miramax Films.[35]

Cinema in France

To understand the present and future of Canal Plus one must understand its past. For several decades, French film had been a relatively weak exporter. In other cultural markets French cultural products have been highly successful around the world. Paris is the capital of fashion and cuisine. Its books are read worldwide. In popular French music, dance music group Daft Punk has become highly successful. Its album *Random Access Memories*, released in 2013, sold half a million copies, and was number one on the Billboard album chart. Daft Punk helped popularize electronic dance music in America. Another famous French musician was the rock star Johnny Hallyday, who sold more than 100 million albums worldwide.

In cinema, as mentioned, the world's first film was made by the Lumière Brothers in 1895. Pathé Brothers was founded in 1896, and soon became a world leader in movie production and distribution; Gaumont was started in 1895 and also had a global presence. The Hollywood "majors," however, quickly came to dominate the French market. In the 1920s, French film producers successfully lobbied the government for import quotas, in co-ordination with Germany, despite the bitter hostility of their governments to each other in the wake of World War I. These quotas were not particularly successful. French film maintained a decent market share at home but not internationally, including in other European countries.

For decades, many of the major French films were elaborate productions

28 This includes, for example, €110 million a year from the Creative Europe MEDIA program.

29 Schwartz, Thomas. "Current Trends in International Film Co-Productions." *Lipscomb, Eisenberg & Baker.* Last accessed April 4, 2014. ► http://lebfirm.com/news/current-trends-in-international-film-co-productions/.

30 European Audiovisual Observatory. *Focus 2004 - World Film Market Trends.* Cannes: Marché du Film, 2004. Last accessed August 7, 2012. ► http://www.obs.coe.int/online_publication/reports/focus2004.pdf.

31 Hopewell, John. "Variety's Achievement in Int'l Film Award: Olivier Courson." *Variety.* May 11, 2012. Last accessed May 30, 2013. ► http://variety.com/2012/film/news/creative-punch-meets-biz-savvy-1118053319/.

32 Canada NewsWire. "Lionsgate, StudioCanal and Miramax Enter into Home Entertainment Distribution Agreement." February 11, 2011. Last accessed May 30, 2013. ► http://search.proquest.com/docview/851458253/13E5B602AB716C5660C/4?accountid=10226.

33 FundingUniverse. "Canal Plus History." Last accessed June 6, 2013. ► http://www.fundinguniverse.com/company-histories/canal-plus-history/.

34 Kirschbaum, Erik and John Hopewell. "StudioCanal buys Kinowelt." *Variety*. January 17, 2013. Last accessed May 30, 2013. ► http://variety.com/2008/film/news/studiocanal-buys-kinowelt-1117979210/.

35 Fritz, Ben. "New Miramax finds its home entertainment distributors: Lionsgate and StudioCanal." *Los Angeles Times.* Last updated February 11, 2011. ► http://latimesblogs.latimes.com/entertainmentnewsbuzz/2011/02/new-miramax-finds-its-home-entertainment-distributors-lionsgate-and-studiocanal.html.

of classic novels of French culture. This "cinema of quality" was supported by governmental funds. Critics covered it gently. Outside France it left no mark. A dissident group of gifted writers and critics centered around the journal *Cahiers du Cinema*, including François Truffaut, Jean-Luc Godard, Eric Rohmer, and Jacques Rivette, attacked this tradition. Starting in the late 1950s, they began to make their own movies.

The result was a major renaissance in French film-making. 120 first-time directors made full-length films in the years 1958–1964. Governmental or public service TV usually supported these films. This era is known as the French New Wave—Nouvelle Vague. Other French filmmakers in those years included Claude Chabrol, Jean Renoir, and Alain Resnais.[36]

The New Wave gave directors great freedom as "authors" (*auteurs*) of a film. Their films frequently rejected the narrative structure of novels and were often political. Endings were ambiguous, challenging viewers to insert their own imagination. In texture, editing, and visual quality they were inspired by documentaries. New Wave films with international success included *400 Blows*, *Breathless*, *Hiroshima Mon Amour*, and *Last Year in Marienbad*. Such films inspired film-makers in other countries.[37]

Soon, however, the New Wave was crested. Financial success was less frequent, and younger audiences did not follow the 1960s generation in enthusiasm. By the late 1970s, French film had declined again. *Cahiers du Cinema* itself became politicized and controlled by a Maoist fringe. It lost readership and influence.[38] The "New Wave" ceased to be new, or a wave.

To deal with this decline, the French government created a financial support mechanism. Its most notable element was the new TV channel, Canal Plus, created in the mid-1980s. Previously, under conservative French Presidents de Gaulle and Pompidou, French TV had been totally owned and controlled by the government for which it was the mouthpiece. De Gaulle's influence rested on his direct TV addresses to the nation. Opposition politicians rarely had access to the news and were covered in unflattering ways. French presidents directly appointed the top management of the three national TV channels, with political loyalty as the main factor. By 1980 this system was widely derided. A new socialist president, François Mitterand, himself long a victim of such state TV, opened up the medium somewhat by privatizing one of the three government channels. He also created the first pay-TV channel, Canal Plus. But staying within the paradigm of state control, it was guided by Andre Rousselet, the president's closest advisor, chief of staff, regular golfing partner, campaign finance director, and executor of his last will. Rousselet became head of the largest French advertising and media company, Havas, which then received from the government a monopoly license to transmit pay-TV in France, as Canal Plus. Rousselet became its director general. Being the state-licensed monopolist of pay-TV, Canal Plus was able to charge prices that would have failed in more competitive markets. In 2014, it charged almost $53 per month. In contrast, HBO or Showtime in the USA charged $11–17.

In return for its profitable exclusivity in pay-TV,[39] Canal Plus had to agree to allocate 10% of its revenues to the production of French films. This revenue source became the major funding for French cinema. In 2008, Canal Plus prebought or co-produced 64% of all French films, plus any that might have been licensed or acquired later in "negative pickup deals."

Thus the system that was created was a commercial monopoly, with non-competitive prices borne by French consumers, parts of the monopoly revenue channeled into film production that soon became dominated by its source, Canal Plus, and all of it controlled and partly owned by the President's personal friend and political ally.

Vivendi—The Parent Company

Vivendi is the largest European media company. Its origin is the French municipal water utility Compagnie Generale Des Eau, created by edict of Napoleon III in 1853. Eventually, water distribution led to waste management, construction, energy, cable TV distribution, and mobile telecoms.

The water, utility, and construction segments were spun off in 2000. The media part was renamed Vivendi. Its president, Jean-Marie Messier, was a highly entrepreneurial leader who admired the American media chief executive officer (CEO) model. He made the company a major vehicle of growth.

Vivendi diversified by buying the second French cellular telecoms operator, the video game companies Activision and Blizzard Games, and Canal Plus. It then acquired the major Hollywood studio and music companies Universal Pictures and Universal Music in 2000, by buying the Canadian firm Seagram's, whose new-generation leader, Edgar Bronfman Jr., had visions of media grandeur. Eventually, however, Vivendi over-extended itself and faced huge debt obligations and insolvency. The 2001 losses were $11.2 billion. Messier was fired and Vivendi sold off portions of the business, including most of Universal Pictures. Messier was charged with securities violations, and a decade later was slapped on the wrist with a fine of €150,000.

Vivendi, became a classic vertically integrated multinational mass-media and telecommunication company with activities in music, television, film, publishing, telecoms, the internet, and video games.[40] Its market share in the film market in France is 26.8%, far ahead of the other players, including Hollywood firms whose combined share was about 50% (see Table 3.8). In 2016 Canal Plus accounted for 23% of Vivendi's profits.[41]

In film distribution, many of the major companies in France are the Hollywood majors. The two other major French film companies are Gaumont and UGC/Bouygues. Other firms include Europa Corp, Metropolitan, and Bertelsmann/RTL of Germany.

36 Grant, Barry Keith. *Schirmer Encyclopedia of Film*. (Detroit: Schirmer Reference, 2007), 235.
37 The New German Cinema, Cinema Novo, New Hollywood, the LA Rebellion, Indian Parallel Cinema, Japanese Nuberu Bagu, and more.
38 Macnab, Geoffrey. "Pretentious, Nous? Geoffrey Macnab Celebrates 50 Years of Cahiers Du Cinéma, the World's Most Influential Film Magazine." *The Guardian*. April 6, 2001. Last accessed August 27, 2015. ► https://www.theguardian.com/film/2001/apr/07/books.guardianreview.
39 Canal Plus briefly got competition for terrestrial pay-TV, 30 years later, when the French government licensed SelecTV, which, however, went bankrupt after a short time.
40 Vivendi. "Vivendi in Brief." Last accessed April 12, 2017. ► http://www.vivendi.com/en/vivendi-en/.
41 Vivendi. *Vivendi 2016 Annual Report*. Last accessed April 12, 2017. ► http://www.vivendi.com/wp-content/uploads/2017/02/20170223_Financial_Report_and_Consolidated_Financial_Statements_FY_2016.pdf.

Table 3.8 Market shares in film production and distribution (France, 2011)

Firm	Market share (%)
Vivendi Pathé	26.8
United International Pictures (UIP)—Universal & Paramount Pictures (Viacom, USA and Comcast/GE, USA)	10.9
Warner Bros. (Time Warner, USA)[a]	10.7
Gaumont	10.5
21st Century Fox (USA)	7.8
Sony (Japan)	6.5
Bouygues (TF1, France) UGC	5.7
Mars	5.6
SND	4.5
Metropolitan	4.2
Europa Corp	2.9
Bac Films	

Badillo, Patrick-Yves, Dominique Bourgeois, and Jean-Baptiste Lesourde. "France." In *Who Owns the World's Media?* Ed. Eli Noam. New York: Oxford University Press, 2016.
[a]Acquisition by AT & T approved in 2018

3.3 Conventional Arguments for Hollywood's Success in Production

3.3.1 Supposed Advantage: Market Size? Language?

Many explanations have been offered for Hollywood's enduring success as a center for content production. The most frequent ones are the large scale of the market, as well as political and economic power, superior access to talent, and vertical integration of production and distribution. These factors will now be discussed because they are relevant to all types of content industries.

The conventional argument for content success is that a large domestic market must exist before exporting the content worldwide. The US population is about 318 million, whereas the French one, for example, is only 66 million. A 2013 compilation finds that English as first and second language was understood by 840 million people. For French, the equivalent figure was 486 million, for Spanish 430 million, for Portuguese 310, for Arabic 620 million. It was highest for Mandarin at 1036 million and Hindi/Urdu at 850 million.[42] Thus, English by sheer numbers is not a radical outlier, though clearly it is by far the most influential and global language, and is spoken by an economically affluent slice of the world's population.

But is market size, even when weighted by income, determinative of production success? Because if it were, this would relegate small countries into permanent roles as importers. However, such "two-stage" thinking, in which exports are only a subsequent second step after domestic success, makes no sense for a business firm. With such economic logic, there would be no major industry of watchmaking in Switzerland, of chocolate in Belgium, of software in Israel and Ireland, or of video games or consumer electronics in Korea. All these countries are relatively small. None possesses unique natural resources. But they are major exporters of their products despite (or perhaps because of) their limited national markets. In the modern economy, producers must plan from the beginning to sell in a world market rather than only domestically.

In concept, small or medium-sized countries can produce content for the rest of the world. In music, there are many successful artists from medium-sized or small countries. For example, the Swedish pop group ABBA. Bob Marley from Jamaica, or Björk from tiny Iceland. In books, authors from relatively small countries have often been global successes. Examples are Georges Simenon (Belgium), Astrid Lindgren (Sweden), and Gabriel Garcia Marquez (Colombia).

That it can be profitable for media companies from small or medium-sized countries to become large in global terms can be seen by the world's largest commercial book publishers, which, in 2009, were #1 Bertelsmann (Germany); #2 Lagardère/Hachette (France); #3 Fininvest/Mondadori (Italy); #4 Planeta (Spain); followed by a US company (Harper Collins) as #5, controlled by Australian Rupert Murdoch's NewsCorp. All of these companies made a substantial part of their business outside their home base.

But an exports orientation also has an impact on content. If export revenues rise in importance, the incentives for content in terms of themes and style will be to be more global and less local. Therefore, content that aims at export will most likely shed some its domestic distinctions in favor of a wider global appeal. "Mid-Atlantic" or "mid-Pacific" content emerges. An extreme example, in the late 1960s, was the highly successful genre of films from Italy known as "Spaghetti Westerns," which emulated American cowboy films. Given the worldwide popularity of the genre at the time, these Italian-made films were hits everywhere, but they were not particularly Italian in content.

Similarly, television content, for worldwide success, becomes export-oriented. Endemol, a Netherlands-based firm, developed TV formats that were then widely franchised, such as *Big Brother* and *Fear Factor*. They have few elements that are distinctively Dutch or Western European.

The same dynamics affect American content. Not all content is equally exportable. Films with action, adventure, physical comedy, and special effects generally travel well to

42 Simons, Gary F. and Charles D. Fennig. Eds. *Ethnologue: Languages of the World,* 20th edition. Dallas, TX: SIL International. Online version: ► http://www.ethnologue.com.

other countries. In contrast, comedies are more difficult to translate in terms of language and sub-text. Social controversies such as race themes do not export well either. In consequence, the tastes of foreign audiences affect American film. The choice of actors also becomes more global. In the casting of films increasingly multinational performers are chosen for their multinational marketing appeal.

The argument is often made that there is no symmetry in the willingness to watch foreign content. US audiences are supposedly opposed to dubbing and sub-titles; it is not clear if this is a true or permanent state of affairs. After all, if the rest of the world watches dubbed movies then why would Americans not do so if a foreign-made film were compelling? The foreign-language film with the largest ever audience in the USA was *The Passion of the Christ*, which was in ancient Aramaic (!) with English sub-titles, and it proved to be a huge success.

3.3.1.1 Small Country Versus Large Country

We can show the dynamics of interaction in a simple analysis. Suppose there are two countries, one of them, the USA, with a population of 300 million, and a small country, S, with a population of 30 million. Each country produces a film: each costing $10 million to produce. Each films appeals to the same proportion (0.33%) of their domestic markets. If the production budget declines, so does the audience proportionately. US audiences for the US film spend $10 million on 1 million tickets. Country S audiences spend $1 million on 100,000 tickets for the domestic film.

Programs produced in one country for its own audience diminish in appeal in the second country owing to cultural differences. This diminution is called the *cultural discount*. We assume that there is a cultural discount of 40% for exports, in both directions. Thus, whereas a film appeals domestically to 0.33% of the population, for imports that percentage is reduced by 40%; it is therefore about 20% overall. Taking into account the cultural discount of 40% for imports we get, for the US film, revenues of $10 million domestically + $(1–0.4) × 1 million exports to country S = $10.6 million overall.

The offsetting production cost is $10 million, and the film is thus profitable by $600,000.

Meanwhile, for the smaller country's film domestic revenue = $1 million.

And from the export of the film to the USA, taking into account the cultural discount,

$$(1-0.4)\times 10\text{million} = \$6\text{million}$$

The production cost is $10 million so the net loss is $10 million –$7 million = $3 million.

Thus the small country's film loses money. What then are the options for a producer in that country?

The first option is that the film's budget has to be reduced, to $5 million, for example. This, however, will reduce the film's attractiveness domestically and internationally. It will also reduce audience size domestically, by half, to 50,000, and in the USA to 3000,000. The film will still be in deficit, by $3.5 million –$5 million = –$1.5 million. True, costs have declined by half—but so has the audience. Reducing just the film's budget did not help.

The second option is to change the style of the film to better suit the home audience. This option would raise the domestic audience share of the film from 0.33% to 0.5%, but it would also reduce the attractiveness of the film to audiences in other countries by raising the cultural discount by the same proportion. For example, domestic audiences would rise to 1.5 million; the US audience, however, would decline to 3 million. $1.5 million + $9 million − $10 million = −$5.5 million. Thus the film is still in deficit.

The third option is to make the film *less* domestic. Now, the producer in country S produces content that highly appeals to the larger market outside. This would reduce the cultural discount to, say, 5%.

Reducing a cultural discount means less of a national orientation. This would make domestic audiences in S drop by 5% to 950,000, but US audiences would increase to (1–0.05) × 10 million = 9,500,000.

Thus, with a production cost of $10 million,

$$\begin{aligned}\text{Profit} &= \$0.95\text{million} + \$9.5\text{million} - \$10\text{million}\\ &= \$0.45\text{million}.\end{aligned}$$

The film is now moderately profitable. It could be produced and be self-supporting.

A variation on the "market size" argument is that large domestic markets supposedly enable content to be produced for domestic audiences which is then "dumped" at a low price on foreign markets. The argument is often framed in economic terms: that the low marginal cost of a film leads to low export prices, which then overwhelm the production in small countries. The claim is that Hollywood exports flood world markets because they have already been produced for the US domestic market, and can therefore be exported at A low marginal cost, whereas it is costly to produce a domestic film from scratch.[43]

But this is a flawed economic argument: it compares apples and oranges—the incremental cost of renting a premade US production with the total cost of making a new domestic film. An analogy would be to argue that it is cheaper to rent a taxi for a ride than to buy a new car. The argument is also asymmetric: films can also be imported from and to any third countries at marginal cost, not only from Hollywood. The same goes for TV content, music, and so on.

A large domestic market helps content production, but it can be overcome by a firm that thinks globally not locally in its content production strategy and on a scale that goes beyond its domestic market. It must not think of exports as an aftermarket but as *the* market. This, however, means a reduction of the national character of the content in order to appeal to a wider audience, through themes, styles, and costs. (There will be, of course, a few exceptions in which the very "foreignness" of content is its attraction.)

43 Richeri, Giuseppe. *Global film market, regional problems.* Switzerland: Università della Svizzera Italiana, 2016.

A variant of the big market argument is that of cultural imperialism, under which a large and strong country can project its culture onto a smaller and weaker country. Ancient Rome and Babylon, or nineteenth-century England and France, were able to project their cultures. More recently, America's global influence has made its themes and values globally familiar.[44] Critics charge that Americanization threatens national culture, and that a "free flow of information is the channel through which lifestyles and systems can be imposed on poor and vulnerable societies" (Herbert Schiller). Such arguments have often led to national policies of restricting imports and subsidizing domestic production. For example, France requires theaters to reserve 20 weeks of screen time a year for French (and now European) films.

The argument of power, is partly true but partly wrong. Several Greek and Italian city-states were culturally highly successful without being particularly powerful. Hollywood was dominant already before World War I and America's ascent. The American superpower status did not generate a similar US dominance in books, theater, or the visual arts. The Soviet Union, as a superpower, never had a global content-shaping role. Thus national power is just one factor for content success.

3.3.2 Supposed Advantage: Stars?

Does a content producer require "star" performers, writers, or other talent to succeed? Is access to such stars therefore a reason for the success of Hollywood, Broadway, or Silicon Valley? Each content industry has its leading lights. In the nineteenth century, for books, Charles Dickens, Leo Tolstoy, and Emile Balzac had a hold over national and international audiences. In theater and opera, famous performers such as Eleonora Duse, Sarah Bernhardt, and Enrico Caruso presented the works of luminary playwrights such as George Bernard Shaw or of composers such as Giuseppe Verdi. The world's first star movie actor was Mary Pickford (1892–1979). Name brand creatives have always enlivened the content industry. But are such "stars" essential? Are they the secret of success in content production? And does control over them give an advantage to a content provider?

This seems a simple question to answer with a yes. A star is indeed likely to increase the tickets or copies sold. But one must take into account that these stars also command very high payments which may well offset the higher revenues attributable to their reputation. By definition, stars are rare. (They may not be more talented than many others, but they are more famous and audiences like that.) And being a scarce input to a production, they can extract an economic rent well above the going rate for less famous talent.

In addition to their direct compensation, plus profit participation, stars also raise production costs by requiring other top-grade and premium-pay artistic and support staff. Stars thus tend to raise the salaries of all people in the project.[45] Arnold Schwarzenegger, for example, had a contractual "pre-approval" clause that gave him the choice of not only the director and the principal cast, but also his hairdresser, makeup person, driver, stand-in, stunt double, publicist, personal physician, and cook.

Stars help in marketing a media product. But are they worth the money they cost? One view is that stars add value to a project but then capture most of it in high compensation, so it is all a wash or even a waste. An alternative view is that stars add credibility to a project and thus help to make it happen. Statistical studies show that stars (and big production budgets) are associated with higher revenues but not with higher profits. A study of 600 movie stars and 500 movies concluded that the effect of a star on theatrical revenue was, on average, $3 million and did not increase the market value of the firm distributing or producing the film.[46] Casting announcements of a star did not affect the share price of media companies that owned the studio. Several other studies have also not found a relationship between revenues and stars.[47] Some have found that a movie's revenues increase with star power but usually not as much as the added costs.[48] One study of 200 films shows that stars play no role in a movie's financial

44 Hagen, David M. and Susan Musser. *America's Global Influence.* Detroit: Greenhaven Press, 2007.

45 Stars have also created their own production companies to add further to their share. Film actor Tom Cruise's company, Cruise-Wagner Productions, co-produced several of Cruise's own movies, such as *Vanilla Sky*, *Mission Impossible*, and *The Last Samurai*, and films made by his then wife, Nicole Kidman, such as *The Others*. Similarly, Oak Productions, owned by Arnold Schwarzenegger, acted as the "lender" of the star's services to the film production of *Terminator 3*. Epstein, Edward Jay, *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

46 Porter, Eduardo, and Geraldine Fabrikant. "A Big Star May Not a Profitable Movie Make." *New York Times*. August 28, 2006. Last accessed April 12, 2017. ► http://www.nytimes.com/2006/08/28/business/media/28cast.html; Elbserse, Anita. "The Power of Stars: Do Star Actors Drive the Success of Movies?" *Journal of Marketing* 71, (October 2007): 102–120.

47 De Vany, Arthur and W. David Walls. "Uncertainty in the Movie Industry: Does Star Power Reduce the Terror of the Box Office?" *Journal of Cultural Economics* 23, no. 4 (November 1999): 285–318; Litman, Barry R. "Predicting Success of Theatrical Movies: An Empirical Study." *Journal of Popular Culture* 16 (Spring 1983), 139–175; Litman, Barry R., and Hoekyun Ahn. "Predicting Financial Success of Motion Pictures." *The Motion Picture Mega-Industry.* In Barry R. Litman, ed. (Needham Heights. MA: Allyn & Bacon, 1989), 172–197; Ravid, S. Abraham. "Information, Blockbusters, and Stars: A Study of the Film Industry," *Journal of Cultural Economics* 18 (September 1999), 217–235; Austin, Bruce A. *Immediate Seating: A Look at Movie Audiences.* Belmoni. CA: Wadsworth, 1989.

48 Basuroy, Suman, Subimal Chatterjee, and S. Abraham Ravid. "How Critical Are Critical Reviews? The Box Office Effect of Film Critics, Star Power, and Budgets." *Journal of Marketing* (October 2003), 103–117; Eliashberg, Jehoshas, Anita Elberse, and Mark Landers. "The Motion Picture Industry: Critical Issues in Practice. Current Research and New Research Directions." *Marketing Science* 25 (November–December 2006), 698–661; Faulkner, Robert R. and Any B. Anderson. "Short-Term Projects and Emergence Careers: Evidence from Hollywood." *American Journal of Sociology* 92 (January 1987), 879–909; Litman, Barry R. and Linda S. Kohl. "Predicting Financial Success of Motion Pictures: The '80s Experience." *Journal of Media Economies* 2 (Fall 1989), 35–50.

success. Instead, there are other variables associated with profitable films, such as the number of reviews, and G and PG ratings.[49] Another study shows that star participation itself is not correlated with a film's revenue but rather that high production budgets are.[50] Whether the money is spent on stars or on other things such as expensive special effects, the revenues increase, statistically speaking. But although they increase revenue, these big production budgets do not increase profitability; indeed, the opposite is true.

Furthermore, as stars increase the cost of production they also increase risk. Films with the same star will often perform very differently. The actor Leonardo DiCaprio appeared in the films *Titanic*, *The Man in the Iron Mask*, and *Celebrity*—all in the same year. *Titanic* became the highest-ever grossing film of all time ($900 million in worldwide theatrical rentals). But *The Man in the Iron Mask* earned just $80 million, and *Celebrity* earned only $3 million. Thus, DiCaprio could not create a huge audience by himself but was still paid considerable amounts.[51]

Similarly, Julia Roberts—the highest-paid actress in 1997—could not consistently generate a large audience. Two romantic comedies with her as the lead were released in that year: *My Best Friend's Wedding* earned $127.5 million, but *Everyone Says I Love You* earned only $12 million.

Jackie Chan translated his massive success in Southeast Asia into international stardom. The film *Twin Dragons Mira* (1997), however, earned only $8 million, whereas *Rush Hour* (1998) earned $141 million.[52] Tom Hanks appeared in two consecutive movies, *That Thing You Do!*, with a box office of $14 million, and in *Saving Private Ryan*, $200 million.

There are advantages to stars, of course. They attract attention to the work and help in promotion, reviews, and free publicity. When stars champion a project, their own "bankability" may get it approved and produced. Stars may be hired because the industry faces uncertainty and executives wish to be covered in case a project fails. Executives may care about revenues instead of profits, and stars as well as big budgets raise revenues. But statistically speaking, a star-filled movie also raises the producer's odds of suffering large losses and lowers the chances of making large profits.[53] The long-time Paramount studio head Sherry Lansing summarized her perspective: "I'm not interested in box office and I never have been. I'm interested in profitability."[54]

The most profitable arrangement for a producer is to recognize a "rising star," who will work at relatively low pay yet break out with the role and make the film a major financial success. Examples are Dustin Hoffman in *The Graduate*, Richard Dreyfus in *American Graffiti*, Clint Eastwood in *A Fistful of Dollars*, or Kristin Wiig in *Bridesmaids*. But the odds to identifying such a rising star are similar to selecting Google as an investment when it was a start-up idea by two Stanford graduate students.

The difficulty in an early discovery of a star is that is not necessarily based on special talent or looks that differentiate one person from hundreds of others. Much of stardom is down to fads, fashion, and network effects (bandwagons). Such a bandwagon might start in an entirely random way. An artist might acquire some fans whose choices are copied by other fans, who generate positive "network externalities" from sharing an experience with others, and who provide word of mouth to others in order to gain further positive externalities, setting off a self-sustaining trend.[55]

This was the case with Justin Bieber, Lady Gaga, and many other stars who come and go. One analysis showed that in selecting albums in a music store, the probability of each shopper selecting a given album is proportional to the share of previous buyers who picked it. If one models a simulation of such bandwagon effects that follow randomized early choices, one finds a distribution of sales levels for hit records that is very similar to the distribution of "gold" records over three decades.[56] There is therefore no reason to believe that popular stars are unique—rare exceptions aside—and without such scarcity no media company or industry cluster has a special grip on talent. In summary, one can conclude that while some actors become big in Hollywood, Hollywood is not big because of its largely replaceable stars.

3.3.3 Supposed Advantage: Vertical Integration of Content with Distribution?

Many people believe that the success of content producers requires that they control distribution channels, which gives them advantages over competitors. There are two major kinds of vertical integration for media. The first, *backwards* integration, is when a distribution company such as a TV network produces its own inputs such as TV shows. By doing so, the company controls costs and quality of inputs. The other, *forward* integration, is when production firms control distribution channels. This ensures distribution, markets,

49 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
50 Ravid, S. Abraham. "Information, Blockbusters, and Stars: A Study of the Film Industry." *Journal of Cultural Economics* 18 (September 1999), 217–235.
51 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
52 Box Office Mojo. "Jackie Chan Movie Box Office Results." Last accessed April 18, 2017. http://boxofficemojo.com/people/chart/?id=jackiechan.htm.
53 De Vany, Arthur and W. David Walls. "Does Hollywood Make Too Many R-Rated Movies? Risk, Stochastic Dominance, and the Illusion of Expectation." *Journal of Business* 73, no. 3 (July 2002): 425–451.
54 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications Ltd., Inc., 2005.
55 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.
56 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.

and supply, while also helping to create product synergy. Examples are when a music company or book publisher operates its own distribution through retail stores or "media clubs."

3.3.3.1 Distributors

The major distribution companies handle products created by their own affiliated production companies, but they also distribute content produced by independent and foreign producers and even by competitors. This is true for film, TV, music, or video games. It is the case, in some instances, for book, newspapers, and magazine publishing. In the film business, it was Adolph Zukor who consolidated before and after World War I the ownership of theaters, wholesale distribution exchanges, and production facilities into one company—Paramount Pictures—that became the model for the other studios.

In addition to the major six Hollywood distributors, there are about 75 other active independent film distribution companies in the US. In Europe there are 830 distributors.[57] Most, however, are small.

In the case of film, for their varied services plus their own profit, distributors usually charge about one-third of all revenues collected from retailers, after first recovering their direct marketing expenses and interest payments due to them.[58] Overhead charges are about 30% for the major distributors, 27.5% for smaller distributors, and up to 20% for independent distributors and sales agents without national branch-office networks, and for specialized films shown only in selected locations after an overhead in the advertising billings.[59] The distributor's compensation is typically recovered from box office revenues before the other claimants such as investors are get paid.

3.3.3.2 Reasons for Vertical Integration

What are the business reasons for the vertical integration of production and distribution? Promoters of merger deals such as investment bankers who stand to profit from such deals tend to make the following arguments in favor of vertical integration:

- Vertical integration is advantageous to a content-producing company in order to control the release of its products and their prices through a "release sequence" of different outlets, different timings, co-ordinated planning, and different prices.
- The cross-marketing of multiple products, and a cross-platform distribution are facilitated, thereby reducing transaction costs.
- To a distributor, it is advantageous to have assured access to products it controls, and to favor those products over those of others. Attractive content may be scarce, and superior access to it provides a distributor with market power.
- Through vertical integration, market power can be extended from one stage of the value chain to another, for example, from distribution to production, and used to foreclose markets to competitors.
- Rivals can be subjected to a vertical "price squeeze" in which the wholesale market price for their product is kept low by their rival's domination of wholesale distribution. The vertically integrated rival then shifts its profit to the wholesale sector from the production sector. The same can be done by a company that dominates retail.

That said, economists are generally skeptical about these alleged business advantages of vertical integration. The exception exists when high market power in one stage is extended into a competitive stage. An example of this would be Microsoft using its market power in operating systems – i.e., Windows – to gain market share in related applications programs such as word processing. Generally, favoring one's own product is sensible only if it is superior. It is not economically rational for a distributor to reject another producer's blockbuster and push its own less popular product into distribution. Similarly, it is not economically rational for a distributor to be a captive buyer for an inferior product of its own production company. Similarly, a production company should not be beholden to one distributor. Disney as a TV show producer should sell any of its new programs to the highest bidder, not only to its own TV network, ABC. And the ABC network, similarly, should buy the most attractive programs at the best price, not specifically those produced by Disney companies.

Vertical integration often makes economic sense for a holder of market power when there is a scarce factor. In the past the scarce factor was the distribution power of TV networks, of which there were only a few. Therefore, these networks wanted to expand into production and dominate it, and had to be constrained, for example in the USA, by regulation. In many countries, the TV networks became the major producers of content. Later, with cable and satellite TV, distribution became more plentiful and the scarce element was now content. As a result, the major content producers, now empowered, greatly expanded into distribution. In the USA, the content companies Disney, Time Warner, Viacom, Universal, and NewsCorp. came to own or control TV networks. More recently, with the broadband internet, distribution became again more concentrated, with a few distribution websites dominating (such as Netflix in the USA).

Vertical integrations are thus often the expression of market power, not its cause. They are not essential to an efficient functioning. When it comes to advantages such as cross-marketing, timing of release, and so on, a firm can achieve through contracts most of the advantages of vertical integration.

57 Pardo, Alejandro. *The Europe-Hollywood Cooperation* (Pamplona, Spain: University of Navarra, 2007), 25–39.
58 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
59 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.

3.3.3.3 Control Over Release Sequence

Control over distribution is useful for marketing and pricing. While this does not require vertical integration and can be accomplished by contractual arrangements, vertical integration reduces transaction costs even as it reduces flexibility. The primary advantage is the greater ease in the sequencing of time between releases over different distribution platforms.

There are periods in which film theatrical releases are most desirable, such as during major holidays and the summer. In other cases, it could make sense to release a film during uncrowded periods when competition is lower. There are also different national markets with their own peculiarities and holiday seasons. Beyond these seasonal and competitive timing issues there is also the sequencing among different distribution platforms, a practice known as "windowing." A graph provided in ► Chap. 12, Distribution of Media and Information, ◘ Fig. 12.18 shows schematically a film's release "windows" over its lifecycle. According to that graph, theatrical distribution takes place in the first six months. (There is also a partial overlap for non-theatrical release such as airlines.) This is followed by home video rentals and sales, video on demand (VOD), and pay-TV channels. Eventually, most films end up on small independent TV stations for late-night viewing. They have reached the tail end of their economic life.

The basic principle for a release sequence strategy is to first distribute to the platform or market that generates the highest extra revenue per unit of time, and then to cascade down in the order of marginal-revenue contribution. This leads, typically, to a sequencing of distribution. Release sequences exist also for books and music.

To maintain this windowing, it is essential to keep the release stages apart from each other. Therefore, one impact of unlicensed releases ("piracy") is to affect the release timing. Foreign releases, for example, come much sooner now because otherwise key audience segments have already viewed the film online or on unlicensed DVDs. This has practical implications on marketing campaigns. In the past, directors and stars used to visit each major country as their film was about to be released, in order to generate publicity, but this becomes harder to do logistically when all releases are in the same tight time window.[60]

How does one analyze the optimal release sequencing? If one waits too long, the subsequent channels will enjoy less of a promotional buzz from the initial publicity to help gain visibility. But if the follow-up release comes too soon it will cut into higher-value sales. One model uses knowledge of the sales parameters in the first channel (film theaters) to predict sales in the second channel (video rentals).[61] This helps strategy in the second distribution channel, in both pricing and timing. At a certain point in time the firm releases the film on home video. This leads to a sharp drop in theatrical revenues, but also to a second and substantial revenue stream. The optimal time to release a movie as a video is a function of the "opening strength" and the "decay rate" of a movie. Those parameters can be determined early enough in a movie's run to affect the video release timing decision. One can define an equation that expresses the optimal time for secondary release.[62] Obviously, this kind of an equation is not easy to apply in the real world, but it suggests a way to think about this type of question.

3.3.3.4 Vertical Integration in Other Media Industries

In book publishing, vertical integration has been low. Book publishers rarely own distributors or retailers. But there are exceptions. On the retail level, both Bertelsmann and Time Books used to have large book clubs for distribution. On the wholesale level, in 2001, the largest book retail chain in the USA, Barnes & Noble, tried to buy Ingram, the largest book wholesaler/distributor. Predictably, it encountered significant opposition by publishers and other retailers who feared the potential vertical discrimination, price squeeze, and foreclosure. Under pressure by the US Government, Barnes & Noble dropped this plan but moved to seeking vertical integration in the other direction, that of production, by buying Sterling, a specialist in of out-of-copyright classics. ► Amazon.com, the online book retailer that became the world's largest book seller, expanded vertically by providing self-publishing services to aspiring authors. It also launched 14 publishing imprints (labels or brands) that include out-of-copyright classics, new fiction, translations, children's books, and self-help books. It also bought the romance publisher Avalon with its 3000 backlist titles, opened a German subsidiary operation, and bid for publishing rights of star authors' books, paying advances of up to $1 million. Nevertheless, for all its efforts Amazon made little headway. Part of the reason was that bookstores, with the same logic as when they opposed Barnes & Noble's vertical expansion, boycotted Amazon books, not wishing to help their retail rival. Another reason was that Amazon spent too much money.[63]

60 Granados, Nelson. "Changes To Hollywood Release Windows Are Coming Fast And Furious." *Forbes Media & Entertainment*. April 8, 2015. Last accessed April 18, 2017, ► https://www.forbes.com/sites/nelsongranados/2015/04/08/changes-to-hollywood-release-windows-are-coming-fast-and-furious/.

61 Lehmann, Donald R. and Charles B. Weinberg. "Sales Through Sequential Distribution Channels: An Application to Movies and Videos." *Journal of Marketing* 64, no. 3 (July 2000): 18–33.

62 $t_V^* = \left(\frac{1}{m_2 - v_2}\right)\left\{\ln\left[\frac{nm_1^B M_T}{v_2 v_1 M_V}\right] + \left(\frac{pv_2}{rn}\right)\right\}$

t_v^* = optimal time to open the second (video) channel. m_2 = decline rate of sales of the first (movie theater) channel

v_2 = decline rate of the second (video) channel. N = number of rental turns per copy each time period, for example, three per week. P = price to retailer per video.

R = rental fee per copy. M_T = gross margin in the first (theater) channel. M_v = gross margin in the second (video) channel. $\frac{m_1^B}{v_1}$ = Relative size of the potential movie and video market. Lehmann, Donald R. and Charles B. Weinberg. "Sales Through Sequential Distribution Channels: An Application to Movies and Videos." *Journal of Marketing* 64, no. 3 (July 2000): 18–33.

63 Amazon paid $1 million for *The 4-Hour Chef* by self-help guru Timothy Ferriss, and almost as much for *My Mother Was Nuts*, a memoir by Penny Marshall, star of the 1970s *Laverne & Shirley* TV show. In hardcover, Ferriss's book had minor sales in comparison to his earlier self-help books, and Marshall's sold 17,000. Most of Amazon's other books sold even fewer.

The head of one New York publisher was quoted, "hardly concealing his schadenfreude," that "there are certain things it takes to be a publisher. You have to have luck, but you also have to have judgment, discernment. Bezos [Amazon founder and CEO] has moved on to diapers and jewelry—we're still doing books."

John Sargent, head of Macmillan Publishing, described Amazon's weakness: "Book publishing is a very human business, and Amazon is driven by algorithms and scale. When a house gets behind a new book, well over two hundred people are pushing your book all over the place. That's the magic potion of publishing ... That's pretty hard to replicate in Amazon's publishing world, where they have hundreds of thousands of titles."[64]

Alternative sales channels by traditional retailers are another matter. Barnes & Noble has been selling directly to consumers for decades, starting with mail-order catalogs in the 1970s and proceeding to sell books online starting in the 1980s. The company's retail website, ► www.barnesandnoble.com, was launched in 1997, but could not match ► Amazon.com.

In contrast to book publishing, in television vertical integration is high. Of the six major Hollywood film producers, all but one are vertically integrated in the USA into TV broadcasting stations, TV networks, or cable networks. The one large Hollywood company missing from the list is Sony, but that company is vertically extended into consumer media devices and even electronic components. Sony also provides six satellite TV channels in Asia.

Vertical integration in cable TV is moderate. In the USA, the role of cable television operators (multiple system operators, MSOs) in content production waxed and waned. In 2008, Time Warner Cable, the second-largest American MSO was split off from Time Warner. On the other hand, Comcast substantially increased its role by buying NBC Universal in 2010/2011.

In music, production and wholesale distribution are substantially integrated. This was not always the case. There was a time when the music-creating and music-producing labels were distinct from the distribution firms that moved music to retail stores and often physically stocked the racks. But in the 1970s, the label groups moved into distribution and supplanted most independent distributors.

The role of the music groups in retailing has always been modest, however, and the exception—Virgin Music and its megastores—has all but disappeared. There are Virgin stores left in the Middle East, franchised to the French media company Lagardère.

Attempts to generate vertical synergies of film with books or music have similarly been unsuccessful. In the 1970s and 1980s, several film production studios acquired book publishers. The idea was to extend the success of a book into a film or TV series, and vice versa.[65] Examples were CBS with Simon & Schuster, Warner Bros. with Time Warner Books, News Corp./Paramount with HarperCollins Publishing, Bertelsmann RTL with Random House, and Fininvest (Berlusconi) with Mondadori. For an integration of music and books, examples were Bertelsmann (BMG-Random House) and Time Warner. Few of those combinations exhibited synergies. Bertelsmann made a valiant effort, by appointing a "chief creative officer" whose job it was to promote cross-fertilization. But these efforts did not produce business results. Soon, the same investment banks and advisors that had promoted mergers and profited handsomely from the transaction fees, commissions, and success fees (adding up to about 0.3–0.5% of a $10 billion dollar deal, i.e. $30–50 million) were now seeking fees from new deals in reverse, and advocating the breakup of the same vertical integrations. They now spoke of "unlocking value," "enabling investors to benefit from separate strategic opportunities," "pure plays," and the benefits of "more focused management."

3.3.3.5 Conclusions on Vertical Integration

As mentioned, economists are generally skeptical about the advantages of vertical integration. It works where market power lies in one segment and is expanded to a competitive segment, thus foreclosing markets to competitors. But the source of the advantage is the market power in a segment, not the vertical integration itself. When it comes to advantages such as cross-marketing, timing of release, and so on, a media firm can achieve most of the same results through contracts. The existence and magnitude of "synergies" have been exaggerated by empire-builders and deal brokers. The actual performance of the vertically merged entities has often been disappointing.

To conclude the wider point of the analysis so far: the conventional explanations for success as a content producers—as exemplified by Hollywood—have been: domestic market size, stars, and the vertical integration of production and distribution. These factors are helpful, to some extent, but are not the core reasons for success. Instead, the major factor for a content company's sustained economic achievements is the effectiveness of its production system and product development. These are key elements that are not exclusive to Hollywood. They will now be discussed.

3.4 Success Factors for Content Production

There are three factors for a superior production process for content:

1. Organizational structure;
2. Risk reduction;
3. Product development.

3.4.1 Organizational Structure

3.4.1.1 Networked Production

When people discuss film production they tend to talk about the "studios" that they are producing all "Hollywood" movies.

64 Packer, George. "Cheap Words." *New Yorker*. February 17 and 24, 2014. Last accessed April 12, 2017. ► http://www.newyorker.com/magazine/2014/02/17/cheap-words.

65 Holson, Laura M. "Blockbuster With a Joystick; Movie Studios Get Serious About Making Video Games." *New York Times*. February 7, 2005. Last accessed April 12, 2017. ► http://query.nytimes.com/gst/fullpage.html?res=9A07E6DC1E3BF934A35751C0A9639C8B63&pagewanted=all.

This is not so. True, in the 1940s the production and distribution, and even retailing, of films were closely integrated. For example, the Hollywood studios owned the most lucrative theaters in the major cities. Paramount owned 1236 theaters in 49 cities, and Fox owned 423 theaters in 177 cities. However, in the 1948 *Paramount* decision, the US Supreme Court outlawed the vertical integration of distribution and exhibition and the studios had to sell their theaters. The other death blow to the traditional vertical integration was the emergence of television, which undercut studio audiences and revenues. As a result, their organizational model had to change rapidly.

A production process can be one in which all activities are conducted in-house or alternatively by outsourcing many activities, with the firm being more in the nature of assembling the pieces and functioning as a marketing brand. This is true for consumer electronics just as it is for content production. In the 1920s, "formula" films were commoditized entertainment, with the studios cranking out film products like cars on an assembly line, and selling them literally by the foot. One studio, the Universal Film Manufacturing Company (a telling name), produced more than 250 films in a year, one per business day.[66]

Actors were employees of the studio company and had to play every part assigned to them, just like other staff members who were electricians or carpenters. They could also be rented out to other studios. The average cost of producing a Hollywood film in 1947, including all studio overheads, was only $7.8 million in 2017 dollars. The average net receipts for a studio feature were $17 million. The average profit per firm therefore was $9 million, plus profit on overhead.[67] With 50 films produced per year by a studio, profits were about half a billion dollars in today's money. And the industry was recession-proof. When the economy was down, people needed an inexpensive escape more than ever. It is therefore not surprising that in the Great Depression, Louis Mayer, the head of MGM, was the world's highest-paid manager. Of the world's next 25 highest-paid executives, 19 were Hollywood studio officials.[68] On top of straight compensation, these studio managers also had numerous perks.

The studio had elaborate production "sound stages," "back lots," and large warehouses for costume and props. They employed numerous full-time electricians, set makers, sound engineers, camera operators, costume makers, acting and singing coaches, and animal trainers.

Up to the 1950s, the Hollywood film studios were integrated mass-producers, like automobile makers or oil companies. In consequence, they operated with a high overhead cost. The invasion of television forced the Hollywood studios to re-engineer themselves in the 1960s. The main strategy was, first, to position themselves at the high end of the product spectrum and leave cheaper mass-production ("B-movies") to TV. Second—and this has been much more important in management terms, even if it is less noticed by film fans—was to lower overhead costs by shifting to a project-based organization. The studios moved from mass-producing commodity content along the "flow-shop" model of production to a customized production—a "job shop"—based on ad hoc specialists and a networked production system.

Contributors to a project, such as actors, writers, musicians, cinematographers, editors, and financiers became freelancers. Over 100,000 of the film industry's workers are now independents, or work for tiny companies with fewer than ten people.[69] What the major Hollywood studios do is provide back-office support for production teams, some financing, and distribution/marketing. It was an early version of a "gig economy" based on freelancers and independent contractors. This structure has several benefits: it is relatively low on bureaucracy, low in capital overhead, and low on employee fringe benefits such as pensions and health plans.

These trends restructure an industry from vertically integrated producing companies with in-house employee talent and skills, to a system of horizontal specialists for hire. These specialists are brought in for in-house projects or by specialist outsourced companies. This decentralized organizational model was also adopted by other leading industries. High-tech companies in Silicon Valley are a good example. The former chairman of Intel, Andy Grove (former CEO of Intel), compared the software industry to the theater, where producers, directors, actors, technicians, and others are brought together briefly to create a new production.[70]

A networked structure for production thus emerges, and this is shown in ◘ Fig. 3.2.

◘ Figure 3.2 shows that there are three levels of hierarchy in content production: aggregators, integrators, and specialists. The aggregator (I) is a distributor, TV network, or online platform that put together packages of content. The integrators (A–C) are the film and TV producers and entrepreneurs who create specific content products by bringing together specialized talent (1–12) and management. There may be a fourth level, when the specialists are themselves firms that put together individual talent. A fifth level may exist where multiple aggregators (networks) are combined in a larger platform such as cable TV or an online film website.

Such network structures exist or are emerging in many content media:

- Film production;
- Software development;
- Video game development;
- Recorded music;
- Book publishing;
- Many magazines.

66 Rifkin, Jeremy. "When Markets Give Way to Networks…Everything Is a Service." *The Age of Access: How the Shift from Ownership to Access is Transforming Modern Life* (London: Penguin, 2000), 24–95.

67 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

68 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

69 Kotkin, Joel and David Friedman. "Why Every Business Will Be Like Show Business." *Inc.* March 1, 1995. Last accessed April 12, 2017. ► https://www.inc.com/magazine/19950301/2182.html.

70 Rifkin, Jeremy. "When Markets Give Way to Networks…Everything Is a Service." *The Age of Access: How the Shift from Ownership to Access is Transforming Modern Life* (London: Penguin, 2000), 361–374.

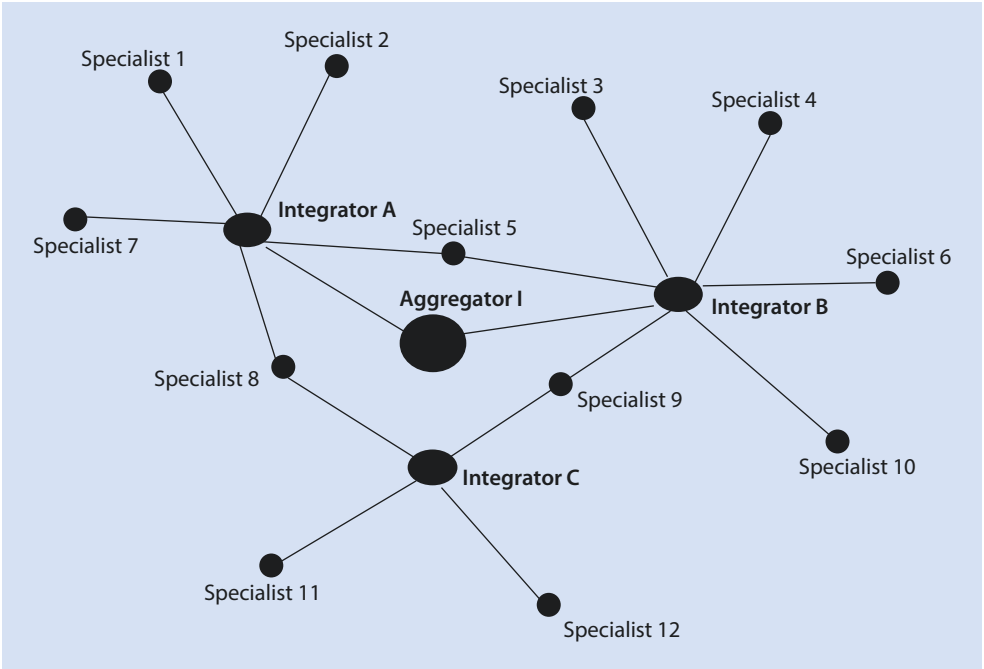

Fig. 3.2 Networked production

An example for the specialist level company is computer-generated animation. In 1977, computer processing was too expensive for long sequences of film animation, and the director, George Lucas, could only afford to use computer graphics for a simple 90-second sequence of his celebrated film *Star Wars*. The sequence took several computers three months to complete. Lucas went on and started a specialized computer graphics company, Industrial Light & Magic, which became a leader in developing computer graphic technologies, followed by other companies such as Pixar and Digital Domain. Whereas in 1977 the credits for the original *Star Wars* listed 143 technicians, the fifth film to be released, *Attack of the Clones*, listed 572 technicians in 2003.[71] *Godzilla* (2014) required 762 computer-graphics imagery artists. The team for Toy Story (1995) included seven PhDs in computer science, 22 technical directors, and 25 puppet, clay, and stop-motion animators.

3.4.1.2 Clustering

Specialization both encourages and feeds on geographic clustering. Clustering enables specialization. It also leads to a disaggregation of the production process into multiple firms and providers that get assembled for each project into an ad hoc organization. Clustering is prevalent in the media and information sectors.

The major reasons for the formation of economic clusters are:

- Positive network effects. The various specialists encourage each other, and this attracts yet more specialists, in a virtuous cycle.
- Clusters encourage investment in reputation for high-quality and co-operative behavior. This is because there are repeated interactions among the parties in a cluster.

Some examples of media clusters are as follows:

- Hollywood, Bollywood, and Nollywood (film industries in Los Angeles, Bombay (Mumbai), and Lagos, Nigeria);
- Madison Avenue (advertising);
- Sixth Avenue (the four US TV networks);
- Silicon Valley, Route 128, and the Research Triangle (technology);
- Publishers' Row (New York publishing);
- Fleet Street (UK newspapers);
- Printers' Row (Chicago);
- Soho (New York art galleries);
- West End and Broadway (London and New York theater);
- Nashville and its Music Row (country music);
- "Tin-Pan Alley" (popular music, New York, early twentieth century).

Film clusters exist in other countries, but the Hollywood cluster is the largest. Companies outside this cluster therefore have to make more of an effort to link up with it and benefit from its scale and network effects. Electronic communications make this easier and in the process are broadening the geographic footprint to a virtual one. Nevertheless, the person-to-person aspect remains important for creativity, deals, and the informal bonds that reduce transaction costs.[72] Thus, beyond the personal there are solid business reasons for physical proximity in a fragmented industry.

71 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Inc., 2005.

72 Kotkin, Joel and David Friedman. "Why Every Business Will Be Like Show Business." *Inc.* March 1, 1995. Last accessed April 12, 2017. ► https://www.inc.com/magazine/19950301/2182.html.

3.4.1.3 Management in Networked Production

The specialization and decentralization of skills require co-ordinators of these specialized skills. In media industries, the key co-ordinators are the distributors (film studios, music groups, publishers,) independent producers, and talent agents.

Talent Agencies

Many small talent agencies exist, but several giant ones—William Morris, Creative Artists Agency, and International Creative Management—play a major role in the USA. Producers negotiate with artists' agents for terms and dates.[73] Talent agencies may package one client's script with other clients such as a director and actors, in a "ready-to-shoot" package.[74] The talent agency's job is to provide the artist with work, in return for 10–20% of the artist's income.

Normally, creators or agents must sell their projects to the publishers or producers. But in other cases, their positions are so strong that they can let the media companies compete for them. Agents will sometimes conduct a formal auction for the rights to the project, or do so informally.

Independent Producers

It is difficult to define or describe the role of a "producer" because of the profusion of titles that incorporate the term. "A producer can be anyone who calls him or herself such."[75] Basically, it describes a manager or entrepreneur in a media project. Theatrical production created the model for independent producers. In film, producers were originally employees of a large production company. But in the late 1930s, ambitious employee-producers left the major studios to operate on their own. *Gone With the Wind* was produced by David Selznick as an independent production and distributed by MGM for half the profits. MGM contributed Clark Gable as a star. Since then, Hollywood has been giving entrepreneurs ("independent producers") a stronger role than in most countries, where producers are often salaried staff members of media firms or public TV institutions. Now, in an age that emphasizes entrepreneurship, this model is spreading across countries and media.

In music a music producer can be a full-time and salaried employee of a record company with the main responsibility to see through the production of a particular album. Such a model was prevalent when music companies had a strong control over music, artists, and the recording process. This changed with the emergence of rock artists in the 1960s who often created their own songs and used their own producers. Independent producers typically receive 2–4% points of retail revenues; a star producer might get 5 or 6% points and a bonus.[76] Another model is a "speculation deal," where producers are the risk-taking entrepreneurs, funding the entire project and then pitching the finished recording to a label. Producers have also started their own labels.

There are also producers for live musical events. They are often called concert promoters, and they take the risks, pay the acts, market the shows, and sell the tickets. They usually rent the concert venue for a flat fee or for a flat fee plus a percentage of gross ticket sales. Performers will also often be paid a guaranteed fee plus a percentage of ticket sales. If the event is free, or if tickets are subsidized by a charity or student activities fund, performers will typically receive a flat fee.

In film, there are several producer categories. Line or assistant producers manage the physical production, administration, and troubleshooting. They are typically younger people hoping to move up in their media career. Associate producers manage specialty tasks such as sound or post-production. Executive producers manage the financing of a film and often of the selection of key talent, including of the director. They have the most prestigious positions, like an entrepreneur in a start-up. They typically have a financial stake in the project, often guarantee the payment of salaries and expenses, and make the major management decisions from script selection to budgets. They are risk-takers who are highly knowledgeable about industry trends. They are also skilled at risk-shifting, as we shall see.

■ Directors

In many countries, the primary co-ordinators for film are the directors. They are the controlling force shaping a film. In contrast, in the studio-system era, most Hollywood directors, even celebrated ones, were mostly staff employees. Later, independent producers became the key people in a project, and they were the ones to select stars and director.[77]

Directors often had an artistic role, often from initial authorship of the script to its subsequent modifications, and all the way down to a final editing. In 2003, over one-third of Hollywood studio movies credited the director as the writer or co-writer. Directors also sought the right to approve the casting.

In the USA, film directors tend to be members of the Directors Guild of America (5,000 members, about 1,000 of them actually working directors). By union contract, a director is guaranteed per film at least eight weeks of work on the lowest-budget films and ten weeks on larger films. While in the studio system directors were rarely paid more than $80,000 for a film (about $1 million in 2017 dollars) in 1945 money, or by 2017 salaries of more than $8 million were common for high budget films.

To conclude, this then is the organizational structure of Hollywood:

- Entrepreneurial specialization and fierce competition in production;
- Oligopoly in distribution.

There are also similar structures—though less developed—for music labels, book imprints, and video games.

73 Baskerville, David. *Music Business Handbook & Career Guide,* 8th edition. (Thousand Oaks, CA: Sage Publications, 2006), 246.

74 Ross, Alexander G. "Creative Decision Making within the Contemporary Hollywood Studios." *Journal of Screenwriting* 2, no. 1 (January 2011): 99–116.

75 Lindheim, Robert. "What is a Producer?" *Inside Television Producing* (Waltham, MA: Focal Press, May 1991), 10.

76 Baskerville, David. *Music Business Handbook & Career Guide,* 8th edition. Thousand Oaks, CA: Sage Publications, 2006.

77 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

3.4.2 Funding and the Reduction of Risk

The second major economic factor in content production is money. This is often described as "access to capital," and Hollywood, is said to possess such access. But "access" is a meaningful concept only in association with a price. The price of money is the interest rate (explicit or implicit), and it is determined by the perceived risk to the investor that must be compensated. That risk can be reduced by managerial actions. Thus, the access to capital is ultimately a matter of risk management.

Risk reduction is a major factor for superior production. Media industries such as music, film, or even books face high failure rates, around 80%. According to a 2013 study by the British Film Institute, of 613 UK films between 2003 and 2010, only 7% made a profit, and of low budget films only 3.1%. For big budget films it was still low at 20%. There have been cases where a film flop entirely ruined an entire movie studio, such as the tradition-rich studio United Artists (through *Heaven's Gate*) and of the upstart studio Carolco (through the disastrous *Cutthroat Island*). 20th Century Fox was nearly sunk by *Cleopatra*. More recently, major movie "bombs" were, in millions of dollar losses, *Mars Needs Moms* (2011, −$111), *The 13th Warrior* (1999, −$98), *The Adventures of Pluto Nash* (2002, −$92, and *The Alamo* (2004, −$81).[78]

Historically, the flop rate for Broadway musical comedies has been 76% and for stage plays 80%. A sample study of 948 Broadway shows between 1972 and 1983 finds an aggregate loss of $66.6 million on a total investment of $267.5 million; that is, a negative return of 25%.

The probabilities of success have become still lower. As platforms and productions expanded, the probability of reaching the top of a week's audience rankings (for movies), to platinum status (for music), or the bestseller's list (for books) declined by half. Of new US primetime TV series, only a quarter survive beyond the first season, whereas in the 1980s it was a third.[79]

At the same time, content production has become more expensive. Factors that have increased the production cost of media include rising wages. Audio and video media copyright licensing fees increased by 8.32% per year from 2010 to 2014.[80] In Germany, licensing costs in book publishing grew by 9% per year for some years, and TV sports rights grew at a rate of 914%.

What is the nature of financial success and failure in media projects? As we discussed in ▶ Chap. 2, The Information Environment normal distribution does not describe the media business well. The average is not the most probable outcome. Instead, it is dominated by rare, extreme outcomes which are much larger than the most probable outcome, the median.[81] As mentioned, one often observes a "80–20" outcome in which 80% of all media products do not become profitable, 90% of all profits are generated by 10% of the products, and 50% of profits are generated by 1–2% of products.[82] This is not simply a matter of small odds but also of the statistical properties of media performance, which is not normally ("Gaussian") distributed.

With costs rising, rivals abounding, and attention fragmenting, risk-reduction is a crucial management task in the media production process.

There are various ways to risk reduction:

- Market forecasting;
- Selection of lower risk projects;
- Insurance;
- Shift of risk to others;
- Diversification;
- Hedging.

3.4.2.1 Market Forecasting

Forecasts are basic to many physical production decisions, for the planning of:

- Scheduling of production activities;
- Ordering of materials and components;
- Hiring and scheduling of labor;
- Setting of inventory levels;
- Planning of shipments.

Forecasting tries to predict the future based on historical data, market studies, subjective predictions, surveys, or mathematical models. There are different types of forecasting:

- Economic forecasts: macro-conditions of inflation, interest rates, currency, economic growth, etc.
- Technological forecasts: trends of technology. This includes distribution technologies and consumer devices.
- Demand forecasts: for a product or service. These will help in pricing, in planning, capacity requirements, or deciding whether to enter a market.

Can the success rate of media products be improved by market research? Some of this is discussed in ▶ Chap. 9 Demand and Market Research for Media and Information Products.

3.4.2.2 Selection of Lower-Risk Projects

Selecting projects such as a sequel to a blockbuster reduces risk because it is easier for producers or publishers to predict success. Similarly, products involving a best-selling author or a famous actor and singer, as well as imitations of branded products, have already proved to be successful and

78 Box Office Mojo. "The 13th Warrior." Last accessed June 10, 2014. ▶ http://www.boxofficemojo.com/movies/?id=13thwarrior.htm.

79 Aris, Annet and Jacques Bughin. *Managing Media Companies: Harnessing Creative Value*, 2nd Edition. West Sussex: Wiley, 2009.

80 Bureau of Labor Statistics. "May 2013 National Occupational Employment and Wage Estimates United States." Last accessed April 18, 2017. ▶ https://www.bls.gov/oes/2013/may/oes_nat.htm; Marybeth Peters. "Analysis and Proposed Copyright Fee Adjustments to Go into Effect on or about August 1, 2009." *Register of Copyrights*. March 15, 2009. Last accessed April 18, 2017. ▶ https://www.copyright.gov/reports/fees2009.pdf.

81 De Vany, Arthur and W. David Walls. "Does Hollywood Make Too Many R-Rated Movies? Risk, Stochastic Dominance, and the Illusion of Expectation." *Journal of Business* 73, no. 3 (July 2002): 425–451.

82 Collis, D. J., P. W. Bane, and S. P. Bradley. "Winners and Losers--Industry Structure in the Converging World of Telecommunications, Computing, and Entertainment." In *Competing in the Age of Digital Convergence*, ed. D. B. Yoffie. Boston: Harvard Business School Press, 1997.

are therefore less chancy.[83] Noteworthy among great sequel series ("franchise" films) is the James Bond series (25 films), with a worldwide box office of $7.1 billion. *Star Wars* (seven films) generated $6.7 billion. True, there is also a sub-market of people who prefer the newness and nonconformity of an entirely novel product, but that is a much smaller audience. Most consumers (and financiers) seek to reduce the risk of a bad experience or waste of time by picking a familiar product. To the producer, however, a sure thing in audience terms is not necessarily an economic success. Those who control its essential features—from story, to brand, to star participation—will extract its value and require major compensation. Sequels are therefore more expensive to make. And this pushes the project back into financially risky territory.

In order to reduce such financial risk, it is important for a producer to lock-in sequel costs in advance by contracting and securing sequel rights in the intellectual property, and, if possible, by reducing dependency on a particular star.

3.4.2.3 Insurance

Typically, about 1.5% of a film's budget is spent on general insurance that covers the production if something goes wrong. General Production Insurance is of the type used by any business to cover general liability, workers' compensation, equipment failures, fires, and so on. Errors and Omissions Insurance protects production companies against lawsuits for libel, slander and copyright infringement.

For movies with outside funding, banks or investors require a completion bond to ensure that investors do not lose everything if the film runs out of money. Completion bonds are similar to insurance. They are purchased from a guarantor. Major bonding companies are owned or backed by large insurance companies. The guaranty fee is typically 3–6% of the production budget.

Insuring helps producers absorb costs when things go wrong. A typical Hollywood film production costs half a million dollars or more per day to shoot, and involves hundreds of people on the payroll. In film and live performances, a small injury by a star can become a big deal. The tragic extreme occurred when Natalie Wood drowned during the filming of *Brainstorm*, canceling the entire production and costing $15 million. In 2000, actress Nicole Kidman injured her knee while shooting *Moulin Rouge*.[84] Two claims were made to compensate for the delays, resulting in $3 million of insurance losses. The same injury caused Kidman to drop out of shooting *Panic Room* a year later and exposed insurers to a claim of $54 million. The producers then went with a different actress but still had an insurance claim for $7 million for delays and expenses. Similar things can happen for music performances. In 2010, the rock band U2 had to cancel a series of concerts owing to lead singer Bono's back injury, which cost the insurance company an estimated $17.5 million.[85] To mitigate its own exposure, the insurer can require risk reduction during shooting. For the film *The People vs. Larry Flint*, the insurer worried about actress Courtney Love's alcohol and drug problems, and required the constant presence of a chaperone.

In finance terms, a completion bond provides an enhancement to the producer of its subordinated debt (low-priority, high-risk) to an investment-grade (low-risk) level.[86] The guarantor's existence also keeps a producer and director on their toes to avoid losing control. While bonding companies rarely assume control of a film, in those cases where they do they can decide how the movie will be completed and delivered. For example, the 1998 film *The Adventures of Baron Munchausen* had originally been budgeted by British director Terry Gilliam and German producer Thomas Schuehly for $23 million. When the film went over budget and reached $31 million, the film's guarantors took over. The film required an infusion of another $15 million and its US box office total was a dismal $8 million. In another example, the 1992 film *Malcolm X* was taken over when its expenses reached $33 million by the end of principal photography. It had been planned at $28 million.[87]

In the 1990s the French insurance giant AXA insured about 150 films for a total of about $500 million. AXA went into the insurance of "gap financing" for the many films that could raise only 70–80% of their budgets. This enabled American independent producers to secure loans from banks. Of the approximately 150 films which AXA insured, only about 30 could repay their loans. AXA faced at least $250 million in losses plus huge legal bills.

3.4.2.4 Step-Wise Investment (Option Contacts)

One major way to lower risk is to decompose a project into several phases, each with a different risk level, with the option to proceed or not to proceed to the next phase. Such arrangements are common in venture financing as well as for film and music investments.

In selecting a project for development, financial analysis typically uses a Return on Investment (ROI) approach or its variations, Discounted Cash Flow and Net Present Value (NPV). The NGV approach is discussed further below. Such a financial analysis has problems, because the estimates of future returns and expenses are often quite weak and never more so when it comes to the success of content. But even in economic terms, the analysis is weak, because it does not factor in a step-wise process, and hence discriminates against longer term and riskier projects.[88] Yet the methodology

83 Hirsch, Paul M. "Cultural Industries Revisited." *Organizational Science* 11, no. 3 (May–June 2000): 357.

84 Epstein, Edward J. "Nicole Kidman's Knee: Or, how the insurance business runs Hollywood." *Slate*. May 23, 2005. Last accessed April 17, 2011. ► http://www.slate.com/id/2119328/.

85 94.7 FreshFM. "Bono's Injury Costs Insurance Firm $17.5 Million." Last updated July 30, 2010. ► http://947freshfm.cbslocal.com/2010/07/30/bonos-injury-costs-insurance-firm-17-5-million/.

86 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

87 Goodell, Gregory. *Independent feature film production: A Complete Guide from Concept Through Distribution*. New York: St Martin's Press, 1998.

88 Mitchell, Graham R. and William F. Hamilton. "Managing R&D as a Strategic Option." *Research-Technology Management* (May–June, 1988): 153.

Table 3.9 Example for the distribution of revenues

Movie	Cost	Probabilities and revenues								Expected value	Net profit
A	10 M	30%	10 M	40%	5 M	20%	4 M	10%	−1 M	5.7 M	−4.3 M
B	50 M	20%	70 M	20%	60 M	30%	40 M	30%	10 M	41 M	−9 M
C	100 M	35%	200 M	15%	100 M	20%	90 M	30%	2 M	102.4 M	9 M
D	200 M	50%	300 M	25%	250 M	15%	190 M	10%	−150 M	226 M	26 M

assumes a one-time investment decision—go or no-go. There is no possibility built into the analysis to stop, abort, and cut one's losses. To remedy this deficiency, an alternative methodology decomposes the investment decision into several stages, with each investment seen as an "option" to proceed to the next stage.[89] This "real options" approach is discussed, with numeric examples, in ▶ Chap. 4 Technology Management in Media and Information Firms, and will not be repeated here. It analyzes an investment as a multistep process in which a company can take a first step in a project and can then determine whether to proceed to a second investment. The option approach may therefore justify in some cases a riskier strategy when there is an opportunity to abort a project.[90]

And indeed, the approach of step-wise investment commitment—an option contract—is prevalent in film and theater. For example, a producer might acquire rights to a book under an option contract for $10,000, and commission a screenplay from a writer for another $40,000 to $100,000. The producer and distributor, at each step, can proceed under pre-negotiated terms that give them an exit strategy in case they choose to get out of the project, and cut their loss.

3.4.2.5 Risk-Shifting

Content producers and distributors will reduce their risk by shifting it to others (beyond insurers), in particular to:

- *Outside investors*, by sharing potential losses with them when they are sequenced into a late position on the ladder of those receiving payments. Being last to be paid, they bear a disproportionate share of losses.
- *Talent and performers*, by profit-sharing-based compensation, which makes them a part of the downside risk. Here, too, they might be last in line for their payout for the upside, whereas the producer receives "first dollar" which is less risky. Risk can be shifted through control over the accounting of profits, in which direct costs and overhead are inflated, while revenues are understated. Fewer than 5% of released films show a profit for "net profit participation" purposes.
- *Suppliers*, by pushing inventory-holding requirements to them.
- *Buyers*, by requiring foreign distributors and other distribution platforms to "pre-buy" as-yet-unproduced projects.

Together, these techniques may make a content project profitable to the producer even if it is a loss to others involved.

3.4.2.6 Content Portfolios and Diversification

If risk reduction is the key for the lowering of capital cost, diversification is the central element of such reduction. Financial theory shows that an investment can achieve a lower risk by being part of a portfolio. This is called diversification.

The first type of diversification is a "product extension," where a company uses its expertise in one area to extend into a related area. For example, the publisher of a business newspaper may also create a real estate magazine. The British firm Pearson has been successful in expanding in such a way into business information publishing, broadly defined. The company diversified its range beyond newspapers (*Financial Times*, until its sale to Nikkei) into other print and broadcasting products, for example FT business magazines, FT online services, and FT newscasts.

The second type of diversification is that of portfolio creation. If there is a slate of four movies, A–D, each with a different probability of success, the expected value of the overall outcomes is the sum of the products of the probability times the result.

Suppose Movie A costs $10 million to make (see Table 3.9), and may return in revenues, based on past experience and depending on the occurrence of certain events, either $10, 5, 4, or -10 million with the probabilities of 30%, 40%, 20%, and 10%. The sum of the probabilities of all possible events for a film must equal 100%, because one of them will occur. After determining the probability of all possible outcomes, one can multiply the probability of each outcome by the dollar value.

The expected revenue for Movie B, for example, is:

$$(0.2\times 70)+(0.2\times 60)+(0.3\times 40)+(0.3\times 10)=41$$

Together, the expected revenue for the portfolio is:

$$5.7+41+109+226=381.7$$

89 Morris, Peter A., Elizabeth Olmstead Teisberg, and A. Lawrence Kolbe. "When Choosing R&D Projects, Go with Long Shots." *Research-Technology Management* 34, no. 1 (1991): 35–40.

90 Boer, F. Peter. "Risk-Adjusted Valuation of R&D Projects." *Research-Technology Management* 46, no. 5 (2003): 50–58.

The expected returns on investment are as follows:

- Movie A: (5.7–10)/10 = −43%.
- Movie B: (41–50)/50 = −18%.
- Movie C: (109–100)/100 = 9%.
- Movie D: (226–200)/200 = 13%.
- Overall Portfolio: (381.7–360)/360 = 6%.

One can see that the expected return on the investment is a moderate return of each separate project, ranging from a positive 13% to a negative −43%. The overall return of the portfolio is 6%. Thus a variety of titles attracts a range of audiences and reduces a media firm's vulnerability to a flop.[91] Of course, the upside is also reduced.

Should film project D be selected? Film D has the highest expected profit ($26 million), and the highest expected rate of return (13%). It has a small but non-negligible probability of losing $150 million, and this could potentially bankrupt the company. Thus one also needs to take into account the tolerance of the firm to high risk. This risk is measured by the variance of the asset's returns from the expected value. That expected value could be the same for two projects, but one of them might have a much greater variance than the other in terms of potential outcomes.

In the media world, portfolio diversification is created, for example, by a music group owning dozens of labels (each of which in turn might have dozens of artists), or by a publishing company with numerous magazine titles, or by a book publisher with many imprints (sub-brands) and titles.

There is a third dimension of risk reduction by diversification. It is based on the possibility that the separate items are not independent of each other but are correlated. People tend to plan to see a movie during the weekend. If they decide against film A, the likelihood that they will see film B increases, and vice versa. A and B are negatively correlated.

The incremental risk of an asset depends on whether its returns tend to vary with or against the returns of the other assets held. If it varies against, then it reduces the overall variability of a portfolio's returns. As long as returns on assets are negatively correlated (when one does poorly, the other does well), even with extremely volatile individual assets a portfolio as a whole may have a low overall volatility.

Finance theorists have used the concept of beta to describe stock portfolios. Beta describes its sensitivity to broad market movements. The overall stock market (represented by an index such as the S&P 500 or FT-100) is assigned a beta of 1.0. By comparison, a portfolio which has a beta of 0.5 will tend to participate in broad market moves—but only half as much as the market overall. In contrast, a portfolio with a beta of 2.0 will tend to benefit or suffer from broad market moves twice as much as the overall market.[92] The formula for beta is:

$$\beta = \frac{\mathrm{cov}\left(Z_p, Z_m\right)}{\sigma_m^2}$$

$\mathrm{cov}(Z_p, Z_m)$ is the co-variance between the portfolio return and the overall markets return. σ_m^2 is the variance of the market's return. The square root of a variance is called the standard deviation. The standard deviation is a good measure of risk of an asset: the more an asset's returns vary from that asset's average return, the more volatile is the asset said to be. A co-variance describes the volatility of an asset relative to another asset. In our example, the co-variance describes the volatility of the likelihood that a person who watched film A will also watch film B. The larger that number is, in positive terms, the more of a complement the films are to each other. An example would be a film and its sequel. The larger a negative co-variance is, the more substitutes they are for each other.

In finance theory and practice, beta is generally calculated from historical price time series. For example, 60 trading days of stock prices might be used to estimate covariance and variance of a stock. The same approach can be used for film assets. One would measure the co-variance of different film categories against each other.

To calculate the variance of a portfolio, one takes the asset's deviation from the average rate of return for its asset class and squares each of them. The resulting number is the variance for the asset. The higher the number, the higher the potential risk of the asset.[93] The standard deviation for the asset (σ_a), is the square root of the variance. The closer σ_a is to zero, the closer the expected outcome is to complete certainty.

The goal of diversification is to reduce the variances of the portfolio as a whole. In order to estimate the rate at which two asset categories co-vary, one multiplies the deviation of category A by the deviation of category B in each of *N* weekends and then average the products:

$$\text{Co-variance}(A,B) = \left(\left(\text{Deviation } A_1 \times \text{Deviation } B_1\right) + \left(\text{Deviation } A_2 \times \text{Deviation } B_2\right) + \ldots \left(\text{Deviation } A_N \times \text{Deviation } B_N\right)\right) / N$$

91 Picard, Robert. *The Economics and Financing of Media Companies*. New York: Fordham University Press, 2002.

92 RiskGlossary.com. "Beta." July 9, 2009. Last accessed August 2, 2012. ► http://www.risk-glossary.com/link/beta.htm.

93 Brealey, Richard A., Stewart C. Myers, and Alan J. Marcus. *Principles of Corporate Finance*. New York: McGraw Hill, 2004.

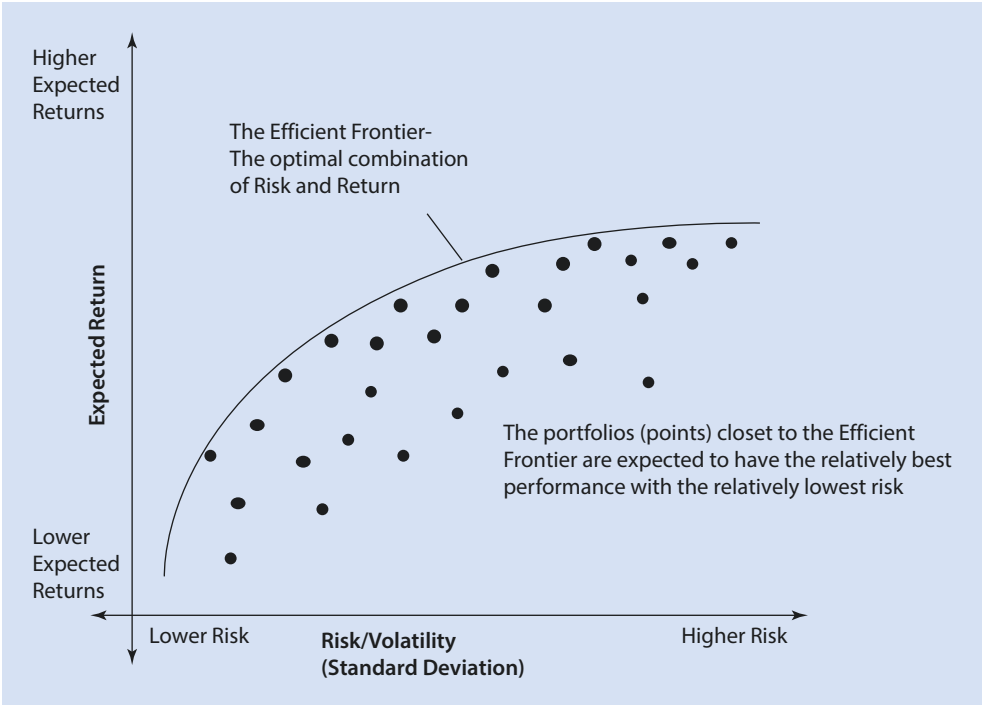

Fig. 3.3 The efficient frontier of risk and return combinations

For the covariance coefficient ρ_{ab}, divide that covariance by the product of the standard deviations of Asset A and of Asset B:[94]

$$\rho_{ab} = \frac{\text{Covariance}}{\sigma_a \times \sigma_b}$$

These correlations can be used with statistical packages of financial analysis to determine the most efficient combinations of risk and return. The asset categories are correlated with each other. These correlations can be used to find a set of efficient portfolios—efficient in the sense that for a given level of risk no other portfolio exists that has a higher expected return. This is known as the Markowitz Frontier. Figure 3.3[95] shows such a Markowitz Frontier where for each level of risk the highest return is found. Or, put differently, for each level of return the lowest risk level is determined.

One can think of a film (or any other item of content) as an asset. That asset has certain attributes and is part of a category of assets with the same attributes. Consider a slate of films. The different films for the season can be categorized along several dimensions; for example, according to their genre, their production budget, and their audience maturity rating. The statistical variance and mean returns (profit) of every combination of these attributes can then be found. The mean return shows the expected profitability while the variance shows the risk. The statistical correlations between all asset categories can then be calculated. It becomes possible to identify the efficient portfolios: combinations of assets where, given a level of risk, one cannot find higher expected returns; or, put differently, where for a particular level of expected returns one cannot find a portfolio with lower risk characteristics. Among the efficient portfolios on such a Markowitz Frontier the distributor or investor can pick the desired portfolio based on its attitude toward risk.

As mentioned, for this illustration, film projects are classified by three attributes: genre, production budget, and the audience maturity rating. Genres are comedy (C), drama (D), and romance (R). Budgets are at two levels: moderate (M) or high (H). Maturity ratings are based on the classifications of the motion picture industry's film rating board. Ratings of G, PG, and PG-13 are combined as "unrestricted" (U), while ratings of R and NC-17 are combined as "mature audience" (M).

The number of asset classes is thus 3 × 2 × 2 = 12. Each film can then be categorized along the three dimensions. An asset of category "HDU" means high budget, drama, unrestricted. An example for a film of this class is Disney's *Pirates*

94 If the returns on the two assets in a portfolio vary in perfect lockstep, the standard deviation of the portfolio would be the weighted average of the standard deviations of both assets:

$$\text{cov}(a,b) = \sum_{i}^{N} \frac{(a_i - \bar{a})(b_i - \bar{b})}{N}$$

The standard deviation of Portfolio (A, B) = $(X_a \times \sigma_b) + (X_b \times \sigma_b)$
- X_a = the fraction of genre A in the portfolio
- X_b = the fraction of genre B

95 Graph based off of image from Smart401K. "Modern Portfolio Theory and The Efficient Frontier." Last accessed April 17, 2017. http://www.smart401k.com/Content/retail/resource-center/advanced-investing/modern-portfolio-theory-and-the-efficient-frontier.

of the Caribbean: Curse of the Black Pearl. The movie had a $140 million budget (high, i.e. H), it was a "drama" genre (D), and had a film rating of PG-13 (i.e. unrestricted, U). The box office receipts of the film were $654 million. From the data for hundreds of these films, three variables can be calculated.

- Mean return per asset class;
- Mean standard deviation per asset class;
- Correlations between all asset classes

For each risk level, one can calculate the share of the 12 asset classes that should be included in the portfolio.[96] In the case of the 300 films for 2009–2011, such a portfolio, for risk category 5 (intermediate) would include 27.1% of asset class HRU (high budget, romance, unrestricted rating), 14.2% of asset class HDM (high budget, drama, mature audience).

As part of a portfolio, the expected profit of a given movie in a genre may be high enough to justify its production within a desired risk level. But such risk may be too high for producers who cannot afford to diversify, and can produce only a single film.

The arrangement in which studios distribute numerous films, or music groups own multiple music labels, or print publishers own multiple magazine titles, reduces risk by pooling many risky projects into a much less risky portfolio. This makes their aggregate cash flow much safer for the lenders. By reducing risk, portfolios reduce the cost of capital for media companies and increase their access to financing. This is one of the major factors for a content company's success: to deal with high-risk projects at a medium-risk financing cost.

3.4.2.7 Funding Levels

Partly as a result of the various techniques of risk reduction, some companies and industry clusters have access to higher levels of project funding at a typically lower cost. In the period 1996–2006, US annual investment in film production grew from $8.7 billion to $14.7 billion, which was 59.6% of world total investment. Europe's growth in production investments has been proportionally larger but from a much lower base, from $2.3 billion to $5.8 billion, which is 23.7% of worldwide film production investment.[97]

To counter-act this Hollywood resource advantage, many countries have assisted their film companies. The major approaches are direct subsidies, tax advantages, and import and exhibition quotas.[98]

Why are countries providing such support? Beyond the cultural and political, the creative sector is believed to have a multiplier for economic development. In the USA, states and local governments have increased their efforts to attract film and television production through tax-based subsidies. The effectiveness of these tax subsidies has been challenged by economists.[99] Film production locates itself less due to tax advantages but more through the presence of supportive film-oriented services and expertise—specialized lawyers, investment bankers, location scouts, agents, production crafts, tech support, creatives, and so on. These need enough steady volume to be economically viable.

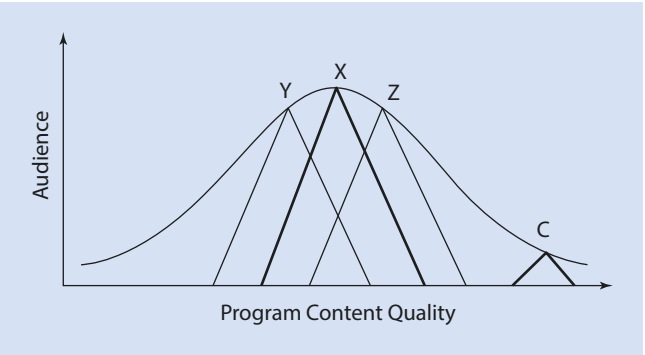

Fig. 3.4 Audience distributions for program styles

3.4.3 Product Development

As presented above, organizational structure and risk reduction are two major factors for advantages in production. Product development is the third key factor and will be discussed now.

3.4.3.1 Concept (Style)

A product needs to be designed based on an understanding of users and the market. For innovative products the design may be ahead of market demand. A product will often fail if it is too far ahead. This is true for media technology as well as for media content. Originality is important for success but radical originality will often miss the mass audience. To be one step ahead of mass taste is innovative; to be three steps ahead is risky in business (and artistic) terms. A media manager can analyze the impact of audience preferences using the distribution shown schematically in Fig. 3.4.

The content producer's business decision (as opposed to the artistic one) is to choose the "pitch" (the quality level) for its product, along some relevant dimension: for example, "high-brow" versus "low-brow" or "middle-brow." Figure 3.4 shows schematically the relation between audience size and content pitch quality. It orders content pitch quality along the horizontal axis, ranging from low quality

96 Bai, Lihui, Paul Newsom, and Jiang Zhang. "Teaching Utility Theory with an Application in Modern Portfolio Optimization." *Decision Sciences Journal of Innovative Education* 9, no. 1 (2011): 107–112.

97 In absolute terms, US film investments increased the gap with Europe: 68.6% of European film theater (tickets) sold for American movies, while European films' share in America, in contrast, was 5.6%. Americans also attend more films than Europeans (4.88 in 2006, vs. 2.21 in Europe). Parrdo, Alejandro. "Europe-Hollywood: Face to Face Comparative Discussion by Sector." *The Europe-Hollywood Cooperation*, no. 8 (2007): 25–39.

98 Lee, Hyangsun. "An economic analysis of protective film policies: A case study of the Korean screen quota system," (paper presented at the annual meeting of the International Communication Association, Sheraton New York, New York City, NY, May, 25, 2009).

99 Christopherson, Susan and Ned Rightor. "The Creative Economy as "Big Business": Evaluating State Strategies to Lure Filmmakers." *Journal of Planning Education and Research* 29, no. 3 (2010): 366–352.

level to high. Shakespeare may be on the right, mud-wrestling on the left. Audiences are willing to watch content in a general range of their first preference, though at a declining rate as one moves away from the first preference. This is depicted by an audience triangle, which shows the overall audience for a program quality.

The maximum area of a triangle (audience) is reached where the content pitch is at the peak of the distribution curve. Popular content, by definition, operates on a broad appeal and aims at the peak of distribution of tastes. A single content provider such as TV network X will position its content pitch quality at the center of the distribution. The second and third content producers such as TV networks Y and Z will position themselves relative to X so as to maximize their audience triangles—not quite identical in quality, because they would then share the overlapping audience, but close to X. As more content providers are added, the spread of offerings moves (rightward) toward higher quality. But it also moves leftward toward the lower-quality offerings. If one seeks a high-quality option (such as triangle C on the right) there are several options:

1. A state-supported public institution with quality mandates, such as public service TV, a municipal theater or symphony, or a university press book publisher.
2. An increase in the companies that supply content. As their number grows, they will expand their offerings both to the left (low quality) and to the right (high quality).
3. Direct payments by audiences where such was free before: on demand, pay-TV, and so on.

It is a misperception that intellectually more demanding media products are harder to create than popular ones. Actually, creating a success in either is similarly difficult, as the numerous failures in gaining critical or audience success at every level attest. It is not easier to create strong episodes of popular shows such as, say, *Friends*, *The Good Wife*, or *Gilmore Girls* on a weekly basis than it is to film a new version of *Romeo and Juliet*.

Media products typically either aim at a mass market or a niche market.[100] Mass-market media products will be near the center of the taste distribution. They are typically short-term oriented and marketing-driven.[101] Niche products will be more at the edges of the distribution, seemingly with low demand. However, the center is likely to be crowded with other products while niches may well be less contested and their audiences may therefore be just as high, while higher prices may be achievable and shelf-life is longer.

Niche-driven content is often less well-known but has a considerable aggregate volume. An example of niche-driven content is the genre Christian Contemporary Music, which has a solid base of millions of listeners in the USA but rarely gets covered in the news or culture pages. Niche books with sales below 40,000 account for almost half of Amazon's revenues. Each niche-driven content is constrained by a limited target audience but the niches add up. As storage and distribution become cheaper, niche products become economically more viable. The opportunities to mass-market niche media products increase as potential users can be identified and targeted, as global distribution becomes easier and cheaper, and as cultures open up to the outside world. This permits a worldwide aggregation of such niche audiences.

Book publishing has always combined a niche orientation with a mass-market orientation ("best-sellers"). An orientation toward specialization is obvious for professional books, but even in fiction publishers have ventured far to attract niche audiences through finely tuned sub-genres.[102]

The divergence of the popular culture approach from the niche approach is one of the differences between Hollywood film and "artsy" films. In film, there are two major perspectives on style. The Hollywood orientation toward popular style is that of the business culture: "Film is show business. No business, no show." In several other film centers, greater reverence is given to the creator than to the audience. The film-maker's orientation is to critical success (*succes d'estime*), and even disdain for the general public. The famous French-Swiss film-maker Jean-Luc Godard put it provocatively: "Who is the enemy? The audience!"[103] This dichotomy is not new. Alexis de Tocqueville, the French political thinker, wrote in 1830, after visiting America: "In aristocracies a few great pictures [paintings] are produced; in democratic countries a vast number of insignificant ones."[104]

The business problem with the "auteur" approach that is centered on the creator/director is known to economists as the "moral hazard" issue. Creators tend to strive more for artistic recognition by their peer group than for creating a business success for the media firm that pays for their services. A media company needs to be able to control such a situation and to balance its economic interests, in order to enable long-term support of production with the need to maintain the commitment of its creative workforce.

Elements of popular culture in film (as well as popular novels, where applicable) include:

- Brisk pacing;
- Sexual tension;
- Episodes of action, violence, and suspense;
- Special effects;
- Intrigue;
- Mood music
- A novel approach to an old fable;
- Happy ending or "wow finish."[105]

100 A third category are "true talent" products which are driven by exceptional artists whose performance cannot be readily replaced. See Aris and Bughin.

101 Aris, Annet and Jaques Bughin. *Managing Media Companies: Harnessing Creative Value*, 2nd Edition. West Sussex: Wiley, 2009.

102 For example, Atria, an imprint of Simon & Schuster, publishes erotic African American romance novels. Another romance novel sub-genre is the Hispanic historical genre. Danford, Natalie et al. "Toujours L'Amour." *Publishers Weekly*. December 1, 2003. Last accessed April 17, 2017. ► http://www.publishersweekly.com/pw/print/20031201/29546-toujours-l-amour.html.

103 Glazebrook, Philip. "Movies versus films." *The Spectator*. May 31, 1997, 39.

104 De Tocqueville, Alexis. "In What Spirit the Americans Cultivate the Arts." In *Democracy in America Volume II*. Charlottesville, VA: University of Virginia. Last accessed April 18, 2017. ► http://xroads.virginia.edu/~HYPER/DETOC/ch1_11.htm.

105 Wasko, Janet. "The Magical-Market World of Disney." *Monthly Review* 52, no.11 (April 2001): 56–71.

The top-grossing films of the period 1999–2004, all with total revenues over $1 billion, were *Harry Potter 1* and *2*, *Spiderman*, *The Lord of the Rings* films, *Star Wars—Episodes I and II*, *Finding Nemo*, and *Pirates of the Caribbean.*

As Edward Epstein observed, all of these successful movies had these characteristics[106]:

- Based on children's stories, comic books, serials, cartoons, or a theme-park ride.
- Featured a child or adolescent protagonist.
- Had a fairy-tale-like plot in which a weak or ineffectual youth is transformed into a powerful and purposeful hero.
- Contained only chaste relationships between the sexes.
- Featured bizarre-looking and eccentric supporting characters that were appropriate for toy and game licensing.
- Depicted conflict in spectacular but non-realistic ways, and were bloodless for a rating PG or PG-13.
- Ended happily, with the hero prevailing over powerful villains and supernatural forces (most of which remain alive for potential sequels).
- Used animation to artificially create action sequences, supernatural forces, and elaborate settings.
- Cast actors who were not ranking stars and thus did not command high compensation.
- Were costly to make: just production costs averaged $105 million.

There is no inherent reason why other countries' studios cannot produce similar popular content. Most European, Japanese, Indian, Korean, Australian, and Egyptian films are not "artsy" but aim at popular taste too. In other words, they also often try to be commercially successful but succeed less, at least when it comes to exports. (Usually only the "high culture" films get exported, thus creating a skewed image of quality.) The Indian film industry, known as Bollywood, aims squarely at popular taste, where (chaste) love conquers all. Bollywood films rarely mention politics, poverty, or the grim social realities of India.[107] They were produced mostly for audiences in South Asia, yet have been moving toward globalization, paralleling the broader shifts in the Indian economy. Both Hollywood and Bollywood succeed with audiences because their orientation is demand-driven and popular.

Media firms must determine the right mix between popular and niche content. This means deciding on the optimal portfolio mix, as described earlier in the analysis of portfolios. Within mass products media companies seek the "comfortable novelty." The content must not repeat past audience experiences, but still be familiar and accessible. Even leading-edge creators who try to be different and unconventional follow many conventions, such as length, pacing, genre, and so on. Based on audience and advertisers' feedback and research, media companies may create "engineered" content. Examples are putting together bands with members who are attractive to various audience demographics, the selection of reality show heroes; the endings of films, and the composition of a film's cast to appeal to multiple nationalities.

Similarly, some books are first conceived as a popular rather than artistic concept, and the publisher then hires writers to create the book. This often happens for non-fiction titles such as travel guides or "how to" manuals. But in fiction, too, editors initiate and encourage projects and even design them. An example is the "Gossip Girl" books series. An editor at Alloy Entertainment, Cecily von Ziegesar, created the concept, story, plots, and the characters, and wrote the first eight books in the series. She also recruited writers who followed the basic format. In April 2006, Alloy Books ranked at Nos. 1, 5, and 9 on the *New York Times*'s children's paperback bestseller list.[108] "In the distant past, the film studios themselves had a recognizable differentiation, not just the individual films.[109] MGM was known for musical fantasies, Warner Bros. for crime dramas, Universal for horror films, Twentieth Century-Fox for social realism, and Paramount for biblical epics. More recently, no brand differentiation exists, with the exception of Disney with its wholesome family-entertainment image. Instead they cover the same broad spectrum and create fairly similar content portfolios."

Innovation, however, is important for long-term survival. Large media companies often try to encourage content innovation by allowing "boutiques" to exist within larger organizations. Film distributors create semi-independent production companies and artistic studios. Book publishers, too, acquire small publishers or create small sub-publishers ("imprints") run by especially valued editors. The music industry uses this model of small creative entities within the large organization. Small independent labels, which are better at spotting new artists, are often bought by the big firms.[110] A similar model applies to the technology sector where small innovative start-ups, if successful, are often bought out by established firms.

3.4.3.2 Product Selection

Selection among content ideas is a key media industry function. The typical investment per content production is significant at the level of major media companies.

- Hollywood film: $70 million;
- Network TV series/pilot: $8 million;
- Video game: $10 million;
- CD: hit potential: $1million;
- Book with bestseller potential: $0.5 million.

Any project competes for access to funding and to other scarce resources such as management attention, marketing

106 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
107 Mehta, Suketu. "Welcome to Bollywood." *National Geographic.* February 2005, 52–69.
108 Rich, Motoko and Dinitia Smith. "First, Plot and Character. Then, a Book Needs an Author." *New York Times.* April 27, 2006. ► http://www.nytimes.com/2006/04/27/books/first-plot-and-characterthen-find-an-author.html.
109 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
110 Halbfinger, David M. "California Considers Tax Breaks for Filming." *New York Times*, August 18, 2005. ► http://www.nytimes.com/2005/08/18/movies/california-considers-tax-breaks-for-filming.html.

and promotion priority, production facilities, and release timing.

The main phases of such a process are:

- Understanding the market and identifying needs;
- Attracting, receiving, or generating ideas;
- Selecting the project;
- Monitoring, testing, and modifying the product;
- Feedback.

It is claimed that of 10,000 theater scripts, one play is being produced; of 5000 proposals for TV shows, one is chosen; of film scripts, one in 5000 is made; and of novel manuscripts, one in 15,000 is published. The president of the Doubleday book publishing house reported that of 10,000 submissions he received "over the transom" (i.e. unsolicited) each year, only three or four were accepted. Fox claims to receive 10,000 film screenplays, treatments, books, and oral pitches yearly.[111] Of these, 70–100 projects move into development. Of these, only 12 films are created.[112] And, if only 20% of films break even, that would mean that about two are ultimately successful, out of 10,000 that enter the pipeline.

For TV program selection, out of thousands of proposed ideas for series, in the USA about 600 are chosen each year for further development. Of these only several dozen make it to the pilot stage test production. About 15 shows are then picked for regular programming by each major network, with a funding commitment for about 13 episodes, and an option contract for additional episodes. Most of these shows are not renewed owing to insufficient audience success.

Proposals for content production are received through three major channels:

- Media company managers, independent producers, and established writers, all create concepts (story ideas) and make a pitch for a production decision ("green-light").
- An agent presents a content idea such as a script or manuscript to the media company.[113]
- The work is sent directly by the writers/performers, but without the filtering role of an established agent, their chances are low.

Business factors for selection are as follows:

- Artistic quality;
- If based on a play, concert, or a book, the sales history in that medium;
- Associated talent: directors, producers, authors, and stars, and their track record;
- The track record of past sales of work associated with this talent;
- The potential for sequels, merchandise, and movie-related books and video games;
- Competitive offerings;
- Fit with the company's brand;
- Fit with the company's portfolio;
- Whether the product will enhance the reputation of the firm;
- Pre-existing financing deals[114];
- Anticipated marketing effort (hard sell? likely word of mouth?);
- Sales forecasts;
- How promising the author/artist is for future creations.

Screeners read/listen to submitted proposals, demos, and manuscripts and write internal evaluations. At music labels, content is selected by artists and repertoire (A&R) managers. The initial selection of new artists is usually done by small or independent labels. The selection by a major label is then often based on the success of the artist's previous work or that of the genre more generally.[115] A&R managers also assist with the selection of songs, producer, and recording studio. Some scan the music industry to find underserved market niches and then seek out artists who will fit. Others follow leads by trusted sources or visit live music venues to find new talent.[116]

In any selection process there will inevitably be wrong calls followed by finger-pointing. Universal Pictures, after spending more than three years developing the script of *Shakespeare in Love*, decided in the end to pass on it. Disney's subsidiary Miramax then bought the rights and produced it, and the film went on to win seven Oscars including for Best Picture. To avoid taking blame there may be a built-in incentive to play it safe by accepting projects associated with well-known producers, directors, and stars.[117]

Of course, designing an effective selection system is important. But any selection system, whatever it might be, will be denigrated by many of those left out as biased, prejudiced, and ignorant. And since-inevitably-most projects will be rejected, any selection mechanism will be unpopular with the artistic community.

In practice, the screening is a logistical challenge. Initially it requires so many hours of professional attention that firms are trying to cut the effort (and cost) required. Book publishers may use unpaid interns to go through the "slush pile" of manuscripts. They may also ask potential employees to read an unsolicited manuscript and talk about it as part of their interview process. As a major screening mechanism, many publishers, film producers, or music labels do not accept submissions unless they come pre-screened through a trusted intermediary such as an agent or a person whose judgment is valued. These agents endorse the scripts, in effect. They are filters for quality as well as legal firewalls. They have to

111 One must be somewhat skeptical about all these numbers.

112 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

113 Levison, Louise. *Filmmaking and Financing: Business Plans for Independents*. (New York: Focal Press, 2013), 64.

114 Levison, Louise. *Filmmaking and Financing: Business Plans for Independents*. (New York: Focal Press, 2013), 47–49.

115 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

116 Klein, Allison. "How Record Labels Work." *How Stuff Works*. May 25, 2003. Last accessed June 13, 2014. ► http://entertainment.howstuffworks.com/record-label1.htm.

117 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

do repeat business with a media company and hence must protect their own reputation by maintaining a balanced and objective perspective about their client's work, while at the same time promoting it.

Given the large number of submissions and the need to keep track, a database must be created, including relevant pieces of information. A book manuscript/proposal is then reviewed by an acquisitions editor or similar professional. The screener writes an internal report on recommended projects, and possibly also on those that require significant revision or rejection.[118] The report may include an estimate of market potential and production cost. An author's future potential is factored in.[119]

To make evaluations and selections more objective, transparent, and less prone to personal favoritism there need to be standards and criteria. These must also reflect the company's values and strategies.[120, 121] Being part of a large organization exacerbates the problem. Peter Chernin, when President of News Corp., observed that the business benefits of size—leverage, synergy, and scope—are also fundamentally the enemies of creativity.

At a university press, a professional editor, after an initial screening, sends the manuscript to independent expert "peer reviewers" for evaluation.[122] The manuscript's author may be anonymized to reduce personal bias, as are the identities of the referees, in a "double-blind" system of evaluation.

In film and TV, some companies try to use computer tools to do the initial screening on the script. Scripts that pass are then reviewed by a studio reader who creates a "coverage" report, which very succinctly summarizes concept, plot, principals, commercial prospects, and evaluation. This is reviewed by managers in charge of creative affairs, and goes up the chain for approval. The script may go through a dozen executives. Input must also include that of marketers and financial managers (a sensitive issue for creators).

Economic Tools for Product Selection

Project selection is done in every industry; it is not unique to content industries. How is it normally done?

Table 3.10 NPV of a film project

Year	Cash flow, discounted	Present value
$t = 0$		-$7,000,000
$t = 1$	$\frac{5,000,000}{1.12}$	$4,464,286
$t = 2$	$\frac{2,500,000}{1.12^2}$	$1,992,985
$t = 3$	$\frac{1,250,000}{1.12^3}$	$889,725
$t = 4$	$\frac{625,000}{1.12^4}$	$397,199
$t = 5$	$\frac{312,500}{1.12^5}$	$177,321

Financial tools for project selection are:

- Payback period
- Discounted payback period
- NPV
- ROI
- Internal Rate of Return
- Real Options (RO)

All of these are related and look at profitability over time. Most common is the technique that considers net "present value" (NPV) of a stream of income.

$$\text{NPV} = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

C_t is the net cash flow in year t, r is the discount rate (the lower value of future cash over present cash), and t is the time of the cash flow.

Consider a film in which the total production cost comes to $7 million. The revenue, after the theater's share of half of the box office receipts, decreases each year by half, from $5 million in the first year to $2.5 million in the second year, and so on. We assume a discount rate of 12%. Table 3.10 shows revenues and their discounted value.

Total NPV is

$$\sum_{t=0}^{n} \frac{C_t}{1.12^t} = \$7,921,516 - \$7,000,000 = \$921,516$$

The film is profitable, with a ROI that is about 13%. [($0.921 M)/$7 M].

The problem with this tool is that the future-oriented revenue numbers are highly uncertain. Statistical tools for project selection were therefore developed to improve the odds on prediction. For film, an example is MOVIEMOD, a decision support system for pre-market evaluation of motion

118 Curwen, Peter. *The World Book Industry.* New York: Facts on File, 1986.

119 Authonomy. "How book publishers decide which books to publish." Last accessed June 13, 2014. ► http://authonomy.com/writing-tips/how-book-publishers-decide-which-books-to-publish/; Legat, Michael. "What Do Publishers Want?" *Writer Services.* 2001. Last accessed April 18, 2017. ► http://www.writersservices.com/resources/what-do-publishers-want; Zacharius, Steven. "To Publish or Pass: The Editorial Meeting &Selecting Books for Publication." *The Huffington Post.* Last updated March 8, 2014. ► http://www.huffingtonpost.com/steven-zacharius/to-publish-or-to-pass-the_b_4542548.html; Bennett, Jeffrey. "How Publishers Choose Manuscripts." *Ezine Articles.* February 10, 2007. Last accessed June 13, 2014. ► http://ezinearticles.com/?How-Publishers_Choose-Manuscripts&id=449959.

120 Legat, Michael. "What Do Publishers Want?" *Writer Services.* 2001. Last accessed April 18, 2017. ► http://www.writersservices.com/resources/what-do-publishers-want.

121 Zacharius, Steven. "To Publish or Pass: The Editorial Meeting & Selecting Books for Publication." *The Huffington Post.* Last updated March 8, 2014. ► http://www.huffingtonpost.com/steven-zacharius/to-publish-or-to-pass-the_b_4542548.html; Bennett, Jeffrey. "How Publishers Choose Manuscripts." *Ezine Articles.* February 10, 2007. Last accessed June 13, 2014. ► http://ezinearticles.com/?How-Publishers_Choose-Manuscripts&id=449959.

122 Arnold, Gordon B. "University Presses." In *Encyclopedia of Education* 7 (2nd ed.) ed. James W. Guthrie. (New York: Macmillan Reference USA, 2003), 2601.

pictures that was proposed by several marketing professors.[123] This model produces forecasts of box office performance and offers diagnostic insights into the drivers of box office performance, including marketing strategies. Another example is that of Worldwide Motion Picture Group, which was founded by a former statistics professor. It charges up to $20,000 to compare the story structure and genre of a draft script with past movies and their success rate.[124] The software looks for elements that attract (or repel) target audiences. For example, in horror movies there could be demons who either "target" people or "are summoned" by them. A "targeting demon" is much scarier and has a higher audience appeal than one that is summoned. A second example is bowling scenes, which statistically do not do well. Therefore, from a commercial perspective, they should be avoided. The problem is that this modeling basically mimic whatever has worked before. Generally, it does not work well in the selection process (though might help later in designing marketing campaigns).[125] If it did work, the success rate of films (or books) would improve, and production companies not using such models would suffer; and there is no evidence for this.

3.4.3.3 Product Development

"Development" is the process by which a story idea or editorial concept is written, revised, and improved. For technology projects, it is the "D" in "R&D." According to one estimate, in 2002 the six Hollywood studios and their subsidiaries had more than 2500 ideas in some stage of development with producers. Most do not get produced in the end. For example, 90% of projects under development by Paramount were not green-lighted. Projects that fail to get green-lighted are either put in "turnaround," which gives the producers the right to sell them to another studio, or are simply abandoned. The basic idea for a piece of content must be developed into a full outline of a work. The process is divided into defined stages, with an option at each step to continue for another round.

A film screenplay goes through dozens of drafts, and is rewritten as late as during the shooting or in the editing process.[126] The original writer often has no role or say in the changes. For Broadway theaters, labor union contracts give playwrights veto rights.[127] High end "script doctors" may be paid substantial fees for last-minute emergency revisions.

Feedback to content designers is constant. Films get tested through "sneak previews" to help make changes. In theater, plays and production are tested through public performances, cascading from:

- Informal workshops, sometimes by non-profit organizations, to small non-profit, to commercial theater, to maybe TV and film;
- To off-off-Broadway;
- To off-Broadway;
- To commercial Broadway;
- Maybe to TV pilot episode (for series);
- To a regular TV show.

The development process is even more structured for technology-based content such as video games. Here, the process starts with a lead designer/visionary, who is responsible for the concept. The game is then broken down into a series of levels and missions for a player to complete.[128] The specialized tasks are managed by level designers, software planners, lead architects, and managers responsible for art, sound, and quality. A game design plan also includes an overall budget, a schedule,[129] then sub-schedules for engineering, art, various features, testing, and so on.[130] Most video game console development teams require 20–50 people, and some over 100.

Market Research

Especially for expensive products, the development process will often be dominated by marketability rather than art. This will include a search for appealing endings and special effects with a "wow-factor." The studios will also use test screenings and focus groups to fine tune the film before the "final cut." That said, audience research often misses successes or failures. For example opinion surveys predicted that the film *Fight Club* would be a flop, yet it grossed more than $100 million.[131]

One type of market research is to recruit a focus group and preview audiences for in-depth interviews or more general survey responses. The demographic makeup is either random or selected. Test audiences are often used for film in advance of release. There are two types of such film "previews": for production and for marketing. Production previews help film-makers fine-tune the movie while it is being made, whereas marketing previews study an audience's reactions to complete films and assess marketing strategy.[132]

Many popular movies have been altered after being shown to test audiences. Originally, Glenn Close's character in *Fatal Attraction* as the vindictive, spurned woman survived but audiences hated her, and the ending was therefore changed to see her die.[133] Conversely, in the movie *ET*, the

123 Eliashberg, Jehoshua et al. "Moviemod: An Implementable Decision Support System for Pre-Release Market Evaluation of Motion Pictures." *Marketing Science* 19 (2000): 226–243.
124 Barnes, Brooks. "Solving Equation of a Hit Film Script." *New York Times*. May 5, 2013. ► http://www.nytimes.com/2013/05/06/business/media/solving-equation-of-a-hit-film-script-with-data.html.
125 Eliashberg, Jehoshua et al. "Moviemod: An Implementable Decision Support System for Pre-Release Market Evaluation of Motion Pictures." *Marketing Science* 19 (2000): 226–243.
126 Vascieck, Donald L. "How to Choose a Good Script Consultant." *DonVascieck.com*. October 13, 2010. Last accessed June 13, 2014. ► http://donvascieck.com/screenwriting/how-to-choose-a-good-consultant/.
127 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.
128 Newman, James. *Videogames*. New York: Routledge, 2004.
129 Long, Starr. "Online Product Development Management: Methods and Madness." Presented at the Game Developers Conference, San Jose, California, March 4–8, 2003.
130 Bethke, Erik. *Game Development and Production*. (Plano: Woodware Publishing, Inc., 2003), 19–95.
131 Barnes, Brooks. "Solving Equation of a Hit Film Script." *New York Times*. May 5, 2013. ► http://www.nytimes.com/2013/05/06/business/media/solving-equation-of-a-hit-film-script-with-data.html.
132 Friedman, Robert. "Motion Picture Marketing." In *The Movie Business Book*, Third Edition. Ed. Squire, Jason. (UK: Open University Press, 2006), 282–298.
133 Bay, Willow. "Test Audiences Have Profound Effect On Movies." *CNN*. September 28, 1998. Last accessed April 18, 2017. ► http://www.cnn.com/SHOWBIZ/Movies/9809/28/screen.test/.

lovable alien space traveler character originally perished before test audiences rescued him and sent him back to his galaxy. In *Pretty Woman*, Julia Roberts initially rejected her suitor Richard Gere, but audiences sought a happy ending and it was tacked on. Thankfully, test audiences do not always prevail. *Wizard of Oz* test audiences complained that "Somewhere Over the Rainbow" slowed down the movie, but the song stayed and became a classic.[134] The actual testing usually done by specialists with no particular axe to grind, National Research Group is a film testing company for Hollywood, specializing in test screening. Concept testing is unpopular among screenwriters and other creative Hollywood types, who suspect it to be responsible for rejecting their exciting, movie ideas.[135]

Test marketing is the next step, with a limited launching of the media product with full marketing and advertising efforts in several test cities. The consumer response is then tracked, for example from exit interviews. There are many problems in test marketing. It is slow, expensive, highly aggregate, and exposes the product to competitors.

In controlled studies, researchers manipulate the important variables to observe their effect; it can be fairly accurate but also costly and time consuming.[136] In contrast, in an uncontrolled study, researchers are the only observers.

The statistical approaches include factor analysis, which detects and locates current and potential preferences, and which narrows the many variables into a smaller number of factors. Some media firms have also used "psychographic" studies to categorize readers by psychological rather than demographic characteristics.[137]

These audience analysis tools are not used only by electronic media with audience maximization on their mind. Newspaper editors, too, use various types of audience analytics to help shape their selection and placement of stories. On the internet, it becomes much easier to track the popularity of individual stories, the time spent reading them, and potential sharing with others. This can be correlated with other data about the reader herself. Experiments become much easier on the internet. If Amazon.com wants to find out whether a new design of a webpage increases sales, it can run a controlled experiment. It will show the page design to, say, every hundredth visitor. Determination of whether the new design increases sales can be made within a few days.[138]

134 Bay, Willow. "Test Audiences Have Profound Effect On Movies." *CNN*. September 28, 1998. Last accessed April 18, 2017. ► http://www.cnn.com/SHOWBIZ/Movies/9809/28/screen.test/.

135 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies Used by Major Studios and Independents.* Burlington, MA: Elsevier Focal, 2005.

136 Holden, Reed and Thomas T. Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making.* 3rd edition. New Jersey: Prentice Hall, 2001.

137 Meyer, Philip. *The Newspaper Survival Book: An Editor's Guide to Marketing Research.* Bloomington: Indiana University Press, 1985.

138 Varian, Hal R. "Kaizen, That Continuous Improvement Strategy, Finds its Ideal Environment." *New York Times.* February 8, 2007. ► http://www.nytimes.com/2007/02/08/business/08scene.html.

3.5 Production Planning

3.5.1 Operational Challenges for Content Production

3.5.1.1 "Scientific Management"

"Scientific management" was a concept conceived in the early twentieth century by Frederick Taylor. He envisioned the firm as a well-oiled machine, with defined process rules, clear hierarchy, and each component being replaceable. Taylor introduced the stopwatch measurement of the time required for various tasks and indeed for each body movement. Taylor was lionized in his time, but his examples and stories were later revealed to be factually and analytically weak. Yet the basic concept of a management company operations based on models and numbers has survived.

Tools of operations management are:

1. Budgeting;
2. Capacity planning;
3. Scheduling;
4. Priority assignment;
5. Inventory control.

Software programs aim to guide managers, by using internal and external data and various analytical modules. Manufacturing Resource Planning systems are used to organize production.[139] They use models of operations research business process management and economic/finance analytical business models. But to reach a proper judgment, a manager needs to understand the elements of such programs. This will be the subject of the next sections.

3.5.1.2 Budgeting

For a successful development process, a firm must balance three essential variables: budget, time, and quality (◘ Fig. 3.5).[140]

In the real world, projects tend to achieve only two of these goals[141]:

1. On budget and on time while sacrificing quality;
2. High quality and on budget, but requiring more time;
3. High quality and on time, but requiring extra spending.

The challenge to production planners is how to reduce overspending, while maintaining the schedule and the required quality.

To create a budget, one needs to know comparative data for similar projects and activities. Some are available to the producer or publisher from their own past activities, others

139 Investopedia. "Manufacturing Resource Planning - MRP II." Last accessed April 19, 2017. ► http://www.investopedia.com/terms/m/manufacturing-resource-planning.asp.

140 Based on Bethke, Erik. *Game Development and Production.* (Plano: Woodware Publishing, Inc., 2003), 19–95.

141 Bethke, Erik. *Game Development and Production.* (Plano: Woodware Publishing, Inc., 2003), 19–95.

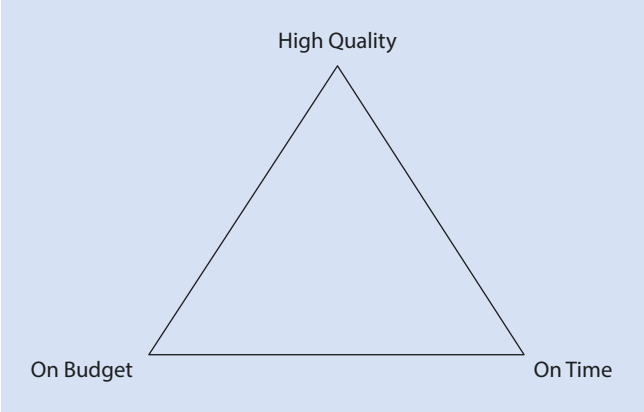

Fig. 3.5 Tradeoffs in the development process

must be found in databases, trade papers, and industry magazines.[142] The rest need to be calculated based on specific cost items, hours, pay levels, rental fees, and so on.

An example is the budget of several types of theater in New York City. Theater productions and their budgets vary greatly according to the nature of the production itself, whether it is a Broadway show (premium commercial), an off-Broadway (commercial or non-profit), or off-off Broadway (low-budget and non-profit). The figures were compiled for the year 2001 and no updates have been published. (Table 3.11).

For the high-budget theater categories, advertising/marketing and physical production account for about 40%. Within physical production, scenery is the largest expense, 12.5% of the entire budget.[143]

One particular thorny issue in budgeting is how to allocate costs among several different activities. Most media organizations pursue, at any given moment, more than one project. How then does one separate their revenues, costs, and investments? This is discussed in ▶ Chap. 13 Accounting in Media and Information Firms, Here, we introduce one element, that of activity-based costing or budgeting (ABC or ABB).

ABC enables budget accounts for various activities based on cost allocation for those activities. The full cost of each activity is calculated, and "cost drivers" are established that link cost elements to the various activities of the firm. ABC breaks down overall costs according to how many resources a particular activity consumes. ABC differs from traditional cost accounting, which assumes that the volume of the end product is the only driver of costs. ABC thus helps an organization to analyze which activities create what cost, and enables firms to control their costs based on tangible activities rather than general accounting reports. Steps are:

1. Identify all activities that are performed within the operation;
2. Categorize the activities as value-added or non-value-added;
3. Select cost drivers;
4. Allocate total budget to the activities;
5. Identify the relationships between cost drivers and activity centers.[144]

An activity-based budget, by enabling managers to create a clear relation between project costs and profits, permits managers: to uncover waste and hidden costs; view the cost structure, efficiency, and probability of projects; identify places to cut spending, or introduce technology changes that reduce effort requirements for the activity; and enable informed company budgets.[145]

Here is an example for ABC (with data provided in Table 3.12).

Suppose a company makes music CDs as well as video DVDs. CDs are sold for $10 wholesale and DVDs for $16. Of each type of disc, 20,000 are sold each week. Both use the same factory, same workers, and same materials. One would therefore think that DVDs are the more profitable product line, with a sales price of $16 versus $10 for CDs. But before reaching such a conclusion, one would have to allocate the various costs associated with production.

The two products have the same cost for a jewel case and the underlying disc. But the DVD manufacturing also requires a patent license fee per unit, whereas the CD patents have expired. Furthermore, the space requirements for DVD stamping are four times as high as for CDs, and rent should be allocated accordingly. The overall wage bill ($160,000) should also be allocated between the two product lines. Suppose it takes longer to make a DVD because 50 steps are required, whereas CDs require 20 steps. To calculate the share in wages, one first determines the number of total steps for making the CDs (20,000 CDs = 20 steps) = 400,000 and the number of steps for making a DVD = 20,000 DVDs × 50 steps = 1 million. The share of work steps in overall is, for CDs, 400,000/1.4 million = 28.57% of the total labor steps, and correspondingly 71.43% for DVDs. The total labor cost of $160,000 is then allocated accordingly.

Energy cost is allocated in a simpler fashion. Suppose that DVD machinery uses four times as much electricity. The percentage allocation then would be 80% for DVDs and 20% for CDs.

The results, after the ABC allocation are done based on our assumptions, show that the simpler and cheaper product, the CD, is more profitable in total ($92,280 vs. $57,720) and on a per unit basis ($4.61 vs. $2.89).

142 Levison, Louise. *Filmmakers and Financing*. 4th edition. (Oxford: Elsevier, 2004), 153–168.
143 Brown et al. *Wonderful Town: The Future of Theater in New York*. New York: National Arts Journalism Program, 2001.
144 Blackmon, Kate, Steve Brown, Paul Cousins, and Harvey Maylor. "Performance Measurement and Improvement." *Operations Management: Policy, Practice and Performance Improvement* (St. Louis: Butterworth-Heinemann, 2001), 313–314.
145 Shane, John M. "Activity-Based Budgeting: Creating a Nexus between Workload and Costs." *FBI Law Enforcement Bulletin* 74, no. 6 (June 2005): 11–23.

Table 3.11 Theater budgets[a]

Production type	Broadway	Off-Broadway (commercial)	Off-Broadway (non-profit)	Off-Off-Broadway
Capacity	1350 seats	287 seats	165 seats	60 seats
Length of run	Open-ended	Open-ended	56 performances	15 performances
Ticket price	$25–$70	$47.50–$50	$40	$15
	Cost $/%			
Physical Production	**$418,250 (20.9%)**	**$66,500 (11.1%)**	**$34,050 (15.5%)**	**$1250 (16.7%)**
Scenery	$250,000	$37,500	$18,000	$900
Costumes	$50,000	$7500	$2000	$250
Lighting	$50,750	$11,000	$3000	$100
Fees	**$179,300 (9%)**	**$42,789 (7.1%)**	**$22,500 (10%)**	**$3150 (42.1%)**
Director	$50,000	$9138	$3800	$1000
Author	n/a	$7000	$3600	$0
Designers	$100,300	$14,388	$10,000	$1300
Salaries	**$161,288 (8.1%)**	**$40,050 (6.7%)**	**$51,180 (23.3%)**	**$0 (0%)**
Actors	$75,120	$24,000	$23,760	$0
Understudies	$30,048	$2108	$0	$0
Stage Management	$36,670	$5958	$9770	$0
Rehearsal Expenses	**$187,000 (9.4%)**	**$55,100 (9.2%)**	**$12,900 (5.9%)**	**$1000 (13.4%)**
Stagehands, load-in	$130,000	$15,250	$11,500	$0
Rehearsal space rent	$13,000	$5000	$0[b]	$1000
Workshop expense	$0	$28,500	$0	$0
Front of House	**$40,000 (2%)**	**n/a[c]**	**$12,730 (5.8%)**	**$120 (1.6%)**
Box office	$40,000	n/a	$9460	$0
Programs	$0	n/a	$750	$120
Advertising/marketing	**$469,000 (23.5%)**	**$165,500 (27.6%)**	**$57,300 (26.1%)**	**$1955 (26.1%)**
Publicist	$8000	$5500	$2400	$1000
Opening Night	$60,000	$7500	$2500	$0
General admin.	**$211,162 (10.5%)**	**$75,459 (12.6%)**	**$15,423 (7.2%)**	**$0 (0%)**
Payroll taxes	$28,778	$10,727	$9323	n/a
Insurance	$25,000	$5000	n/a[d]	n/a
Legal	$20,000	$16,000	$0	$0
Contingency	**$166,500 (8.3%)**	**$100,000 (16.6%)**	**$0 (0%)**	**$0 (0%)**
Union bonds	**$167,500 (8.4%)**	**$54,602 (9.1%)**	**$13,678 (6.2%)**	**$0 (0%)**
Actors Equity	$150,000	$27,882	$11,014	$0
ATPAM (Association of Theatrical Press Agents and Managers)	$10,000	$2740	$0	$0
Total (pre-opening)	**$2000,000**	**$600,000**	**$219,761**	**$7475**
Per-week expenses	$223,281	$50,000	$5000–$11,000	$937.50

Brown et al. *Wonderful Town: The Future of Theater in New York*. (New York: National Arts Journalism Program, 2001), 49
[a]Budget sub-categories of "other" are omitted.
[b]Company pays annual rent
[c]Front of house expenses accounted for under other categories
[d]Included in annual company budget

Table 3.12 Activities-based cost allocation

Sales revenue	$10/CD	$16/DVD	Total
(20,000 sold in each product line)	200,000	320,000	520,000
Costs of goods sold			
$0.60 jewel case	12,000	12,000	24,000
$1.60 disc	32,000	32,000	64,000
$1.60 special license for DVD	0	32,000	32,000
Total cost of goods sold	44,000	76,000	120,000
Gross margin	156,000	244,000	400,000
Operating expenses			
Rent	20,000	40,000	50,000
Wages	45,720	114,280	160,000
Energy	8000	32,000	40,000
Total operating expenses	63,720	186,280	250,000
Net profit	92,280	57,720	150,000

3.5.2 Production Design

Production planning requires a time horizon. Some products such as a hit song are short-term oriented, for maybe a single year. Others aim at an intermediate duration for a handful of years such as a smartphone app. And still others are strategic and long range, such as the entry of Apple into the music distribution business.

To configure the production process, a firm needs to design a layout for equipment, people, and materials that must interact. The product moves through that process. This design may be expensive and require a commitment to a particular hardware, and it must therefore be planned carefully.

The configuration of the process can be designed either according to product or by function. In a functional layout, the job moves among specialized functions that process many products. A film is a good example. One unit dubs films, another adds music, a third produces the opening and closing credits, and so on. Once done, the same people and equipment then process other projects or products. By contrast, in a product layout, equipment, technology, and people and equipment are allocated and dedicated to a particular product. The production crew and post-production of a TV talk show are likely to be dedicated exclusively to the show. In planning its process layout, a firm needs to synchronize the speed at which various production stations function in order to avoid bottlenecks. This is known as line balancing. To achieve it may require speeding up the throughput of slower (or less predictable) segments, or in some cases the firm may reduce the throughput speed of a fast segment, thereby reducing cost. The greater the line imbalance is, and the more of an impact a bottleneck has on subsequent production tasks, the more important it is to deal with the problem. Tools for the planning and coordination of capacity are discussed further below. Thus, a firm needs to carefully plan its production and consider capacity needs, scheduling of activities, and its supply chain. At the same time, a firm needs to maintain flexibility and the ability to customize its products, something that is especially important in the media environment.

Assembly-line production is where machinery has made the greatest inroads. However, machines have become smarter in terms of ability to assemble mass elements in differentiated ways, and mass-customization has emerged that combine the advantages of mass production with the greater personalization of custom assembly of features. The way that the computer maker Dell assembles its computers is an example: mass-production, but each product being assembled based on the buyer's desired specifications.

We will now discuss three critical dimensions of production planning: the supply chain, production scheduling, and capacity planning.

3.5.3 Location and Supply Chain

An important management decision about production is its location and the extent of its outsourcing. Whether it is the assembly of electronic media devices or the editing of book manuscripts, production activities have been decentralized within highly developed countries and have also migrated to other countries. Factors are labor costs, taxes, local resources, market size and access to it, proximity, distribution costs, regulatory environment, and governmental support.

For film, high labor cost and subsidies elsewhere have led to the out-migration of some production activities from Hollywood to North Carolina, Florida, or Canada. This kind of "runaway production" to flexible-union, subsidy-embracing territories has enabled the production of films for 40% less than in Hollywood.[146]

Book publishers, too, have moved production activities, especially to India. For example, Springer Science Publishing employs 1200 Indian typesetters and editors for English and German language works.[147]

Outsourcing to other firms allows firms to concentrate on their core activities while benefiting from the economies of scale of specialist firms.[148] For example, the UK public service broadcaster BBC has not been engaged in the technical aspects of actual broadcasting since 2001, but has used the transmission service company Red Bees (a commercial BBC spinoff that also transmits for Virgin Media TV,

146 Labor union contracts allow studios to finance low budget non-union movies and TV shows as long as the studio has no creative control.

147 Srinivasan, S. "German publisher Springer to shift 1550 jobs to India." *Rediff*. September 14, 2005. Last accessed April 19, 2017. ► http://www.rediff.com/money/report/jobs/20050914.htm.

148 Outsourcing has different categories. BPO (business process outsourcing) is the outsourcing of a specific operational task, such as payroll or invoicing. KPO (knowledge process outsourcing) involves technological, analytical, and R& D skills. PPO (production process outsourcing) is provided by a contractor to manufacturing.

Channel 4, Canal Plus, Channel 5, RTE, and others).[149] This has lowered costs for the BBC and gained access to updated broadcast technology and infrastructure with expert engineering support.

One must also recognize the downsides: most outsourcing relationships are unsuccessful: the failure rate is said to lie between 40% and 70%.[150] For building solid relationships with suppliers, particularly those in distant countries with different legal systems, trust is a crucial element.[151] Such a relationship develops slowly. Typically, the first contracts with a new supplier will be on a project-by-project or shipment-by-shipment basis, and lengthens and deepens from there. A contract includes a service level agreement (SLA) between the buyer and the supplier. If the supplier fails to meet the agreed levels of service, SLAs usually provide for compensation, often in the form of price rebates.

Such an agreement is followed by constant co-ordination and careful attention.[152] It requires:

- Co-ordinating production schedule of buyers and vendors;
- Updating vendors on strategic changes or new products early on;
- Engaging in forecast of sales and sharing this in real time;
- Using a purchase order system to monitor the purchases;
- Paying bills promptly;
- Integrating each other's inventory planning or forecasting systems, electronic data interchange (EDI) and enterprise resource planning.

The supply relationships have costs, of course. They include, besides the direct procurement costs, the costs of transactions, relationship handling, and supply management. Some relationships have a high involvement, with extensive operational and personal interaction. Low-involvement relationships work best when the products and services in question are stable, specified, and standardized. But overly detailed specifications may reduce innovation by a supplier. Conversely, there may be hidden costs in a loose relationship, because in the absence of tight co-ordination the buyer might need to build up inventories as a buffer against surprises.

A typical way for a buyer to lower cost is to use several vendors to split orders and to rotate among them. However, multiple sourcing can also include hidden costs. Relationship handling costs are multiplied, and there will be lower economies of scale by a supplier and hence a higher cost.[153]

An "arm's length" relationship to a supplier may therefore not be the best approach. Instead, vendors become part of a stable production network relationship across the value chain. In that scenario, suppliers do much more than delivering low-priced items. The supplier relationship becomes an important asset of a company and it requires investment and maintenance. It is a two-way interaction with intense co-ordination of various activities and mutual adaptation of resources. Such tight relationships may also have downsides as they may tie a company to a particular design. Operating these interdependencies is part of supplier relationship management.

As these production relations become more efficient they strengthen a firm. At a certain point competitive advantage is no longer based on a company's own capabilities but rather on its relationships with other companies. Its production moves from one of internal value chain to one of an external/internal value network.[154] This is a management approach which Hollywood studios have mastered for a long time in their interactions with independent producers and the numerous specialist vendors that are part of a production and distribution project.

3.5.4 Inventory Management

Operation research (OR) is a collection of mathematical and statistical techniques for decision-making and management tasks. It often incorporates stochastic elements of uncertainty and random variables.

An example is the management of the supply chain, in other words how to obtain the inputs for the production process. A firm must find and select suppliers, provide storage for its inputs, and store the finished products while awaiting distribution. The challenge is to reduce an expansive inventory that is sitting around without creating value, but incurring cost. At the same time, the inventory level must be consistent with the risk levels the firm seeks.

For several media products, there are also a reverse logistics chain. Books and magazines, in particular, are returned by the retailers to the publishers if they are left unsold; and for many products, buyers can engage in returns if they are unsatisfied.

It is usually important to maintain a sufficient and reliable inventory of inputs and outputs for future use. Inventory provides the following positives:

- Protection against unforeseen supply interruption;
- Smooth production flows;
- Meeting a higher demand than expected;
- Improved delivery speed;
- Flexibility.[155]

149 "Outsourced Broadcast." *Cable & Satellite Europe* no. 261 (September 1, 2006): 1. ► http://ezproxy.cul.columbia.edu/login?url=http://search.proquest.com/docview/221819396?accountid=10226.

150 Overby, Stephanie. "The ABC's of Outsourcing." *CIO*. June 8, 2007. Last accessed April 19, 2017. ► http://www.cio.com/article/2438784/outsourcing/the-abcs-of-outsourcing.html.

151 Outsourcing requires considerations beyond direct cost. There are legal considerations. Who is liable if a product causes harm? What is the recourse in case of a dispute (which will be frequent)? How reputable is the supplier?

152 Board of Trade of Metropolitan Montreal. "Manage Your Suppliers." *InfoEntrepreneurs*. Last accessed May 22, 2014. ► http://www.infoentrepreneurs.org/en/guides/manage-your-suppliers/.

153 Gadde, Lar-Erik and Ivan Snehota. "Making the Most of Supplier Relationships," *Industrial Marketing Management* 29 (2000): 305–316.

154 Gadde, Lar-Erik and Ivan Snehota. "Making the Most of Supplier Relationships," *Industrial Marketing Management* 29 (2000): 305–316.

155 Brown, Steve et al. *Operations Management: Policy, Practice and Performance Improvement*. (St. Louis: Butterworth-Heinemann, 2001), 202–237.

Examples are:

- Paper supply by printers of magazines and newspapers;
- Printed books to meet orders by retails and libraries;
- Copies of DVDs in a retail store for buyers and renters;
- Parts and components for producers of electronic devices;
- Advertising space or minutes in media to provision ad agencies.

Inventory, however, is expensive to maintain since it ties up capital and requires the expense of storage. In some circumstances, inventory holding costs may account for as much as 60–80% of the total cost of a product or service. On the other hand, inventory shortages also end up costing money by losing present and future sales.

Perhaps the best organized supply chain system is the renowned Japanese just-in-time (JIT) system. A JIT system requires major co-ordination and reliability of all participants, with constant communication and interaction. It reduces inventory and waiting time. It favors production clusters that are geographically proximate.

More generally, the supply chain process is being increasingly helped along through taggings such as bar codes and radio-frequency identification (RFID). For internal production management, especially for supply chain management, software tools include EDI. With this a buyer's internal system contacts the supplier's system and transmits the information, instead of having a buyer generate a purchase order and transmit it to a supplier (via humans operating fax, mail, digital transmission), and the supplier then entering the order into the system. A related software language XML (Extensible Markup Language), is used for documents to communicate across organizations. XML is more flexible than EDI as it does not require a standard across the organizations. Instead, it uses tags which allow information to be passed in different formats and be understood based on these tags.

Another set of software tools is material requirement planning software. This takes target output figures and calculates input quantities, identifies necessary delivery schedules, organizes the ordering of inputs, and tracks performance.

The computer maker Dell has an inventory strategy where it basically has no inventory at all. "Inventory is a four letter word at Dell."[156] The company claims that it turns over inventory 107 times per year. CEO Kevin Rollins says, "The longer you keep it the faster it deteriorates—you can literally see the stuff rot … Cutting inventory is not just a nice thing to do. It's a financial imperative." Dell used to carry 20–25 days of inventory in a network of warehouses. It created a Japanese-style JIT manufacturing model, and this has cut costs drastically. On the other hand, it makes the company more vulnerable to future labor strikes, natural disasters, and other disruptions.

Dell gets paid immediately by customers but does not pay suppliers for over a month. It has no inventory cost because its suppliers must hold it for Dell. When a customer places a purchase order, Dell immediately generates orders for parts from its main suppliers, who are located around Austin, Texas, and have 90 minutes to deliver the parts. But if something goes wrong in the supply chain, production is jeopardized, given the skimpy buffer of inventory. A close attention and planning are important. Thus when Dell was alerted to the possibility of a labor lockout in American port facilities, it created a "tiger team" and developed contingency plans. Well in advance it chartered 18 Boeing 747 jumbo jets to carry parts and products from Asia to the West Coast.[157] Each plane could hold enough parts to make 10,000 Dell computers. After the lockout began the charter rates for cargo planes rose by nearly half a million dollars on every Boeing 747, but Dell was covered. It survived a ten-day supply-chain interruption while holding only three days of inventory.

Inventory order management can be done either in a fixed-order system or in an economic order system. In a fixed order system a specific amount is reordered whenever the level of inventory drops below a certain point.[158] For example, if the minimum desired inventory is 1000 units, and the reorder quantity is set at 200, then when the inventory dips to 999, 200 new units will be ordered. In contrast, an economic order quantity (EOQ) minimizes total inventory cost, which consists of the cost of ordering, purchasing, and holding. The calculation for an EOQ uses the Wilson Formula. Its simplest form assumes that demand for the product is constant and known, no quality discount is obtainable, replenishment is instantaneous, and orders take place when supply is down to zero. EOQ minimizes the sum of purchase cost, holding cost, and ordering cost.

The Wilson Formula for the optimal ordering quantity is

$$\text{EOQ} = \sqrt{\frac{2AB}{C}}$$

where A is annual demand, B is the ordering cost per order, and C is the holding cost per unit.

Consider this example. A maker of 3D devices requires a special twizzle for each pair of 3D goggles. It wants to minimize its inventory costs. It estimates its annual demand as 24,000 twizzles. There is a $10 cost per order for twizzles, and a $5 holding cost per twizzle per year. By using the Wilson formula, the EOQ would be $\sqrt{[2\ (24000)(10)/5]} = 310$ units, in other words about every three business days. Ordering less, or more, would raise its cost. If the holding costs double, the order size would decline to 219, with a frequency of an order every other business day.

However, the assumption of the Wilson model is restrictive. Suppose that demand is uncertain: when the seller does not have enough product on hand it will lose the sale. On the other hand, unsold merchandise might be worthless at the end of the period. This problem is known as the news vendor

156 Breen, Bill. "Living in Dell Time." *Fast Company*. November 1, 2004. Last accessed April 19, 2017. ► http://www.fastcompany.com/magazine/88/dell.html.

157 Breen, Bill. "Living in Dell Time." *Fast Company*. November 1, 2004. Last accessed April 19, 2017. ► http://www.fastcompany.com/magazine/88/dell.html.

158 Brown, Steve et al. *Operations Management: Policy, Practice and Performance Improvement*. (St. Louis: Butterworth-Heinemann, 2001), 202–237.

BREAKDOWN SHEET

Page:_____

Show:_____ Production #:_____

Location:_____ Date:_____

Description			# of pages
Scene #		[Ext] Road leading to the lake [Day]	
6		Boys walk toward lake	1/8
8&9		The boys hide	5/8

#	Cast	Atmosphere	Props
Stand-ins			
		Camera	Wardrobe
Stunts			
		Special effects	Visual effects

Makeup	Transportation	Sound/music

Fig. 3.6 Example of film production planning

model—one cannot sell today's extra newspapers tomorrow, or make up for missing papers today. The calculation has to balance the cost of being overstocked with that of being understocked.

3.5.5 Production Scheduling

A major operational challenge for content production is scheduling: production timetables, release dates, sequencing, and so on. Software packages make this easier and faster. For film, in particular, planning must be elaborate. Each day of production costs a lot of money. For example, the film *Terminator 3* was running a daily operating cost of $300,000. Stars may become unavailable after certain dates. It is therefore important to organize the production process.

In the James Bond film *Tomorrow Never Dies*, while the main star Pierce Brosnan was playing the 007 hero in London, a stuntman playing James Bond was being filmed at another English location, a third Bond was parachuting out of a plane in Florida, a fourth Bond was piloting a speedboat in Bermuda, and a fifth Bond was shooting a swimming scene in London. The co-ordination of these scenes and their logistics requires elaborate planning, especially since they included many uncertainties such as weather.[159]

An important function of production management is thus the scheduling of facilities and people. In a flow job operation, with a high and standardized process, this is a more predictable task. A rotogravure printing company, for example, will schedule the various magazines it prints very tightly in order to optimize the very expensive machine. In order not to create problems for other magazines with their varying distribution schedules, they must adhere absolutely to these times.

The scheduling issue becomes more complex for job shops where no two products might be the same, and thus their production is non-routinized as well as often volatile.

Another task of production management is sequencing. This leads to the question of prioritization: which jobs get priority, and under what principles (e.g. is it 'first com, first serve'; or, is it 'closest to deadline'; or shortest time to complete').

For a film, the script is broken down into scenes. Each scene must be planned in a breakdown sheet, which includes) locations, cast, props, wardrobe, extras, stunts, visual and special effects, animals, vehicles, and so on.[160] The number of work days required at each location. The length of each scene is estimated by its page count, measured in eighths of a page (Fig. 3.6).

Planning is similar for a monthly magazine, with tasks that need to be done by specific days before publication. Table 3.13 illustrates this.

For example, the editorial copy may be started 49 days before publication date. The first stage of editorial work

159 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

160 Honthaner, Eve Light. *The Complete Film Production Handbook*. (Burlington, MA: Focal Press, 2010), 57.

Table 3.13 Production schedule—working days prior to publication day

	Copy	Page proof	Page OK	To printer
Editorial				
Start	49	45	40	37
First third completed	41	37	35	31
Second third completed	34	30	28	24
Final third completed	29	26	23	19
Covers completed	34	32	28	26
Advertisements				
First			28	
Final new copy			26	
Supplied images			19	
Final flat-plan[a]			21	
Editorial Cromalins[b]			23–15	
Advertising Cromalins			20–15	
Band[c] artwork			34	
Bound inserts			19	
Sections to printer			13–11	
Imposed proofs OK			11–9	
Print order/close date			14	
Press date—cover			10	
Press date—text			10–8	
Bind commence			7	
Subscription delivery			6	
Wholesalers delivery			5	
Publication date			0	

Kobak, James B. *How to Start a Magazine*. New York: M. Evans & Company, 2002
[a]Flat-plan is an imposition that shows the position of advertisements and editorial
[b]Cromalin is a type of color proof
[c]Band refers to a printed band encircling each issue, either promoting the issue or concerning an advertisement

must be completed 41 days before publication. The pages are then proofed and finalized, and that copy goes to the printer 31 days before, and back to editorial on day minus 24, and so on. The schedule incorporates other items, such as the cover, advertising, printing, and delivery. The planning of this process includes a "thumbnail" version with blank text pages.[161] This permits decisions about the design of the issue and its layout. Production artists can then be tasked to create and arrange text, photos, artwork, and ads into intermediary proofs and then final versions of page layouts.

Gantt Chart

A popular planning tool is the Gantt Chart, which displays how a project proceeds over a timeline, and where the project stands in terms of overall completion.[162] An example, as applied to book production, is the graph that appears here as Fig. 3.7.[163]

The Critical Path Method

A different tool used for scheduling is the critical path method (CPM). The CPM methodology was developed in

161 Daly, Charles P., Patrick Henry, and Ellen Ryder. "How Magazines Are Made." *The Magazine Publishing' Industry*. (Needham Heights, MA: Allyn & Bacon, 1997), 217.

162 Gantt, H.L. *Work, Wages and Profit*. New York: The Engineering Magazine, 1910.

163 Based on McKay, Hannah. "The Production Timeline." *Shadow Time Writers*. May 30, 2014. Last accessed April 19, 2017. http://shadowtimewriters.com/tag/production-timeline/.

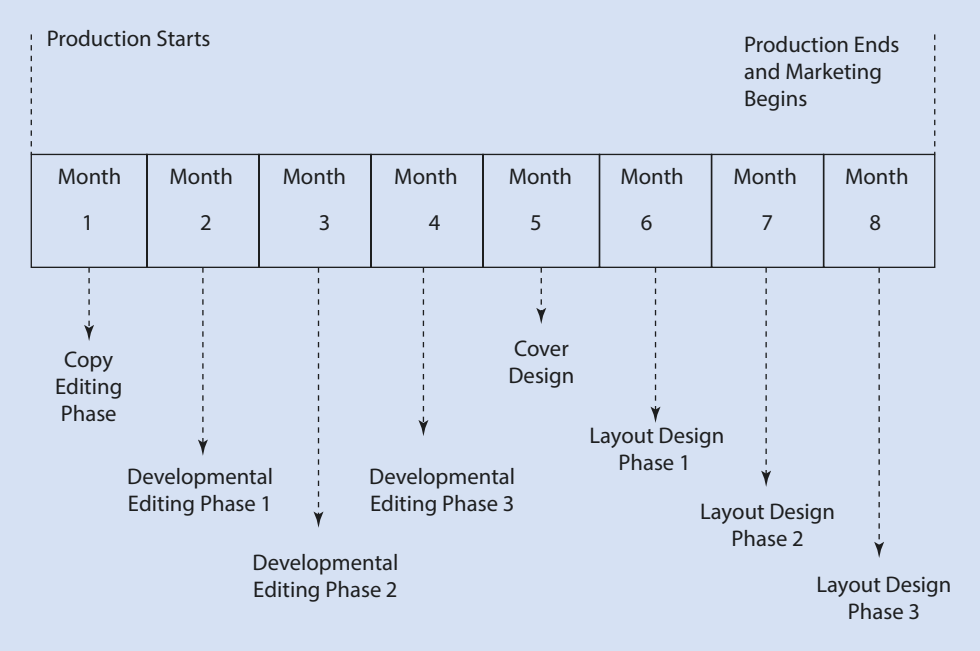

Fig. 3.7 Gantt schedule for book production

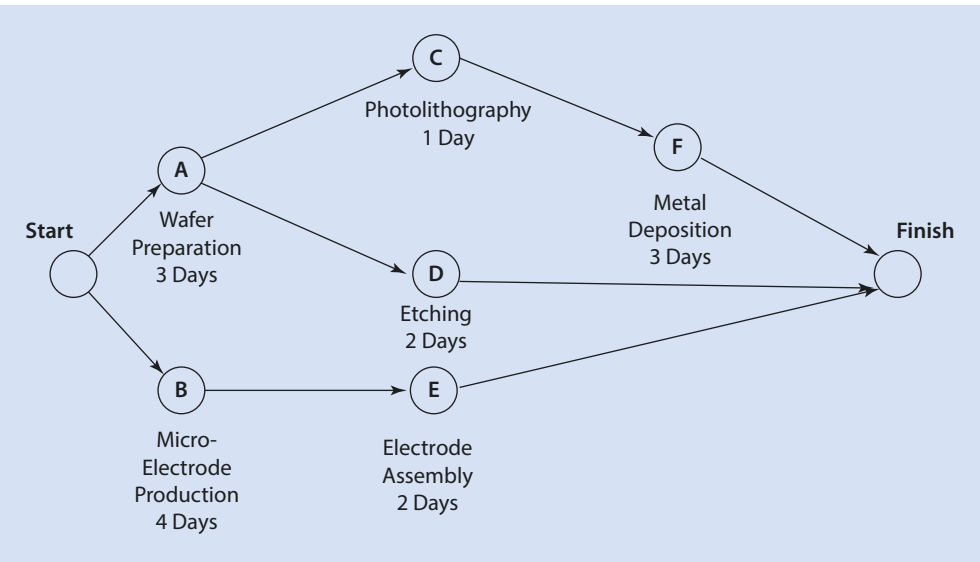

Fig. 3.8 Critical path method (CPM)

1957 by the chemical company DuPont. A critical path displays a timeline of the project development, but additionally prioritizes different parts and identifies activities that could delay the entire project.

The steps in CPM project planning are:

- Specify individual steps;
- Determine the sequence of steps and draw a diagram;
- Estimate time for each step;
- Provide a graphical view of project stages;
- Show which activities are critical to maintaining the schedule and which are not;
- Identify bottlenecks and slack activities;
- Identify the critical path (longest path through the network) (Fig. 3.8).[164]

A hypothetical example for a CPM diagram is a production of a new microchip. The project comprises the task of (A) wafer preparation—three days, (B) micro-electrode production—four days, (C) photolithography—one day,

164 Figure based on "CPM Diagram." *NetMBA* ► http://www.netmba.com/operations/project/cpm/.

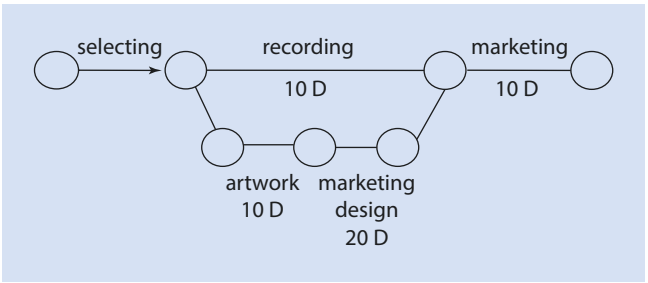

Fig. 3.9 PERT chart example for music video production (schematic)

(D) etching—two days, (E) electrode assembly—two days, and (F) metal deposition—three days. These tasks have their own start and end date. Activities C and D cannot be started unless activity A is completed. If task A is delayed then C and D will be delayed as well, as would the entire project. Conversely, there is no point in tasks D and E being completed, as they are, in days five and six and then sit idle while F is scheduled to be completed only after seven days, even without delays. Therefore, the project manager has to accelerate the finish of F by one day, possibly by using resources from D which would slow down that activity by a day. This juggling would result in all tasks being completed at the same time, on day six.

CPM works best as a scheduling tool for projects with a fairly high certainty as to the completion times of the various stages. Applications include the scheduling of magazines, books, and regular TV series, where the estimated completion times tend to be predictable. Many other projects, however, present uncertainty in this respect. Here, a closely related methodology, the product evaluation and review technique (PERT) is applied.

The PERT chart approach helps to plan where different activities are involved. It defines required activities that are part of the project, their estimated completion period, with a certain probability, and whether they are a prerequisite to other steps.[165] The methodology was initiated in the 1950s for large defense systems where hundreds of contractors with thousands of tasks each contributed to a project with a certain probability distribution for completion. For each activity the expected time is approximated by incorporating the most optimistic, the most pessimistic, and the most likely, in this weighted average:

$$\text{Expected time} = (\text{Optimistic} + 4 \times \text{Most likely} + \text{Pessimistic}) / 6$$

An example for a PERT chart is the production of an online music video. The process is broken down into five activities: selecting, recording, artwork, planning marketing, and marketing. Each of these activities has an expected length of time (in days) in which it is to be accomplished (Fig. 3.9).[166]

The expected time is based on an optimistic scenario (O), a pessimistic one (P), and the most likely one (L). $E = (O + P + 4L)/6$.

For example, suppose that for recording the scenario would mean, in days, either 8 (optimistic), 16 (pessimistic), or 9 (most likely). The expected time would be $E = (8 + 16 + (4 \times 9))/6 = 60/6 = 10$.

In a similar way, the other expected times can be estimated for each operation. Two parallel tracks are designed for the production. While recording is taking place, artwork and marketing design is taking place. Their expected time is 10 + 20 = 30. This is a considerably longer time path than the expected time for recording, which is 10. Thus the recorded music would have to wait for 20 slack days for the other necessary tasks to be completed. The only way for the two tracks to converge in time would be for recording to perform on the worst-case (pessimistic) scenario (20 days), while the marketing design and artwork performs on the most optimistic scenario (5 and 15). This is a conceivable scenario, but highly unlikely. Its probability is

$$\left(\frac{1}{6}\right) \cdot \left(\frac{1}{6}\right) \cdot \left(\frac{1}{6}\right) = \frac{1}{256}, \text{i.e. four chances in a thousand.}$$

The alternatives would be to speed up the artwork and the marketing design to match the expected recording activity time, which could be expensive, or to deliberately slow down recording (for potential cost savings but slower output), or to create a parallel track for artwork and marketing.

This is a simplistic example, of course, but imagine its extension to a more complex project such as making a film, with numerous activities—some that can be in parallel, others that must be sequential, and all with varying likelihood of on-time performance.[167]

3.5.6 Capacity Planning

A major question in production is the upper limit of the organization to create output. This capacity must match expected demand. This is true for quantity but also for diversity. If capacity falls short the firm will have problems with distributors and customers. But the other extreme, over-provision of capacity, is costly. The proper balance is determined by demand analysis but even more so by a production process that can adjust its capacity rapidly. And this also requires tight co-ordination with suppliers, who in turn must be rapid in adjustment. There are various analytical tools for capacity planning. Generally, "flow-oriented" media with repetitious operations makes more use of these planning techniques than "job oriented" projects. Examples include:

1. Design and construction of telecom and cable infrastructure;
2. Physical production of books, magazines, CDs, DVDs;

165 NetMBA. "PERT." *NetMBA Business Knowledge Center*. Last accessed April 19, 2017. ► http://www.netmba.com/operations/project/pert/.

166 McGraw-Hill Technology Education. "Multimedia: Making It Work." *Lesson 15-Planning and Costing* (2003): 14. ► http://ewibowo.files.wordpress.com/2009/02/10-planning-costing.pdf.

167 Manchester Metropolitan University. "PERT Analysis Toolkit." *MMU*. Last accessed April 19, 2017. ► http://www2.mmu.ac.uk/media/mmuacuk/content/documents/bit/PERT-toolkit-v1.pdf.

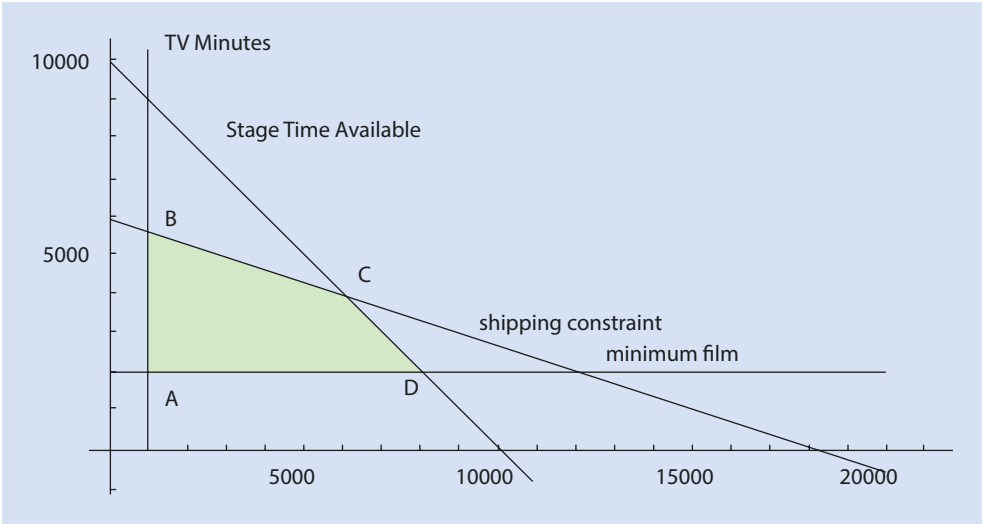

Fig. 3.10 Production studio linear programming

3. Production of media consumer electronic devices;
4. Soap operas and TV series ("batch jobs").

3.5.6.1 Linear Programming

Linear programming is a technique for solving some operation management problems. It uses an algebraic linear expression that defines the production as an objective function that must be either maximized or minimized (depending on the task definition), and uses other equations (or inequalities) as the constraints on that function.

For this type of linear programming one can use the Simplex Method to find the optimal solution. One can plot the objective function, show the constraints, find their corner points (vertices), and then check the vertices with the objective function to find maximum and minimum.[168] There is a fundamental Corner Point Theorem, according to which a maximum or a minimum of an objective function with constraints will be found at a vertex.

An example: a film production studio produces two products, films and TV shows. The profit for the studio is $10,000 per minute of a TV episode, and $20,000 per minute of film. The following conditions must be met:

1. Only 10,000 minutes of sound stage time is available for shooting.
2. The studio has a TV network contract to produce at least 1000 minutes of TV shows.
3. The studio has a private contract to produce at least 2000 minutes of film.
4. To protect against piracy and bootlegging, both products are delivered in armored trucks with an annual delivery capacity of 180,000 miles
5. The TV show recordings are delivered to a network located 10 miles from the studio.
6. The film recordings are transported 30 miles to the film distributor.

How much of each product should be produced for maximum profit?

Let x represent the number of minutes of TV shows and y represent the number of minutes of film. Then the profit function is $p(x,y) = 10{,}000x + 20{,}000y$. The constraints are as follows:

$$x + y \le 10{,}000$$

$$x \ge 1000$$

$$y \ge 2000$$

$$10x + 30y \le 180{,}000$$

To find the optimal solution one should first graph the constraints to find all the vertices (Fig. 3.10).[169, 170]

As mentioned, the maximum will be at one of the vertices that are bounded by the constraints (A, B, C, and D). Thus, maximum profit is at vertex C, where $X = 6000$ minutes of TV shows and $Y = 4000$ minutes of film, for a total profit of $140,000.

The underlying assumption of the approach of linear programming is linearity, in contrast to, for example, an exponential relationship that increases or decreases more rapidly. Linear programming generally ignores the effects of uncertainty, instead assuming that the results of decisions are predictable and easy to foresee. A variant is non-linear programming where the objective function or constraints are not linear. Such a model is much more difficult to solve.

Linear programming can also be used in the creation of a movie production schedule. The main task is to find a feasible start time for each activity. Each activity has a set of required resources. These required resources are added up when the movie script has been broken down into activities.

168 Pease, Katie. "Simple Linear Programming Model" (M.A. diss., Earlham College, 2008).

169 Boehm, George A.W. *The New World of Math.* New York: The Dial Press, 1959.

170 Figure based on Pease, Katie. "Graph for the Refinery Model" in "Simple Linear Programming Model" (M.A. diss., Earlham College, 2008).

Constraints for the activities arise from resource limitation from, for example, working day time constraints and blocked times. There can also be different and conflicting objectives, such as to minimize location changes.[171] A small film project might have 40 activities and require 120 resources (actors, electricians, stagehands, etc.) to be planned around and scheduled. A larger project might include 600 activities and 200 different resources.[172]

3.5.6.2 Queuing Models

A sub-area of OR is queuing theory, which is a mathematical and statistical analysis of waiting lines. The methodology permits the calculation of performance measures such as the average time spent waiting in a queue, the total number of people waiting or receiving service, and the likelihood of people giving up and abandoning their wait.

Waiting lines for service or production processing are formed in many operations: customers in a movie box office line, callers for a cellphone customer service representative, installation orders for cable TV, artists seeking time in a recording studios, films requiring time on a sound stage, or components needed in an assembly line.

The optimization question is partly how to reduce wait times (shorten the queues). But doing so also raises costs. To calculate the balance between capacity and output is easy enough when demand is constant. In that case, capacity should be equal to demand. But usually demand is not a constant but fluctuates unpredictably. In statistical terms, demand follows a stochastic processes: variables take on values according to some probability distribution.

Queuing problems can be solved by analytical formulas or simulation methods. Analytic models can be used for simple situations and approximations. Simulations are used for complex situations or more precise solutions.[173]

3.5.7 Quality and Contingency Planning

Production management includes the management of product quality. This does not mean the assurance of the highest possible quality, the creation of a premium product, but rather, for a chosen level of quality, a consistent result in terms of performance and expectations. For media products, the chosen level of the product might be called the "pitch" of the product, for example a 'high-brow' versus a popular culture product. Within the chosen pitch level the quality of the product should be consistent. For a TV series, an inconsistent episode—either at a lower or higher pitch level than expected—will create disappointment.

The costs of quality defects are considerable. Product design and the production process may need to be redone and retested. Products will be delayed in reaching the market. There might be warranty and liability issues, complaints, and the development of a poor reputation. On the other hand, it is also costly to control and maintain quality, and this might delay a product's introduction to the market.[174]

Examples where the consistency of quality is important are the production of DVDs and CDs. Almost always a certain percentage of products is defective. Similarly, in film shooting, the technical quality of the take might not be at the expected level. In mobile phones, batteries might not work properly.

Another example is software design, where there are many ways in which a new product can malfunction in unexpected ways.[175] Each module within the software product undergoes testing. Selected users perform acceptance testing.[176] Statistical testing is based on random usage,[177] with "beta testing" being undertaken by people who do not work for the company but use the product.[178] At the beta testing stage, the product has been completed and tested, and no serious errors have been left unaddressed.

To assure quality, companies have engaged in a variety of initiatives. One process is *Total Quality Management*, where the entire organization is engaged in continuous improvements over a product's entire life-cycle. This requires the firm to determine and specify a customers' needs, then design a product to meet that need, monitor the results for feedback, incorporate improvements, and expand the process to suppliers.

Another approach is *Six Sigma*, whose goal is to reduce variation in a mass-production process. This kind of quality control is statistically driven by performance statistics, thereby applying more to flow job production such as telecoms or consumer electronics and less to the production of unique content. Sigma is the standard deviation that shows how much variation there is from the expected result. The ideal target, six standard deviations, means a probability of 99.99966 of a feature not having a defect, or 3.4 defects in a million. Six Sigma is a management tool that identifies where firms need to make improvements in order to reach their desired sigma. Motorola introduced Six Sigma in the late 1980s, followed by Honeywell and GE.[179]

Failure Mode and Effect Analysis (FMEA) is a methodology that analyzes the potential ways in which a product might fail.[180] It is a way of identifying potential reliability problems before they occur. This methodology was initially developed

171 Bomsdorf, Felix and Ulrich Derigs. "A model, heuristic procedure and decision support system for solving the movie shoot scheduling problem." *OR Spectrum* 30, no. 4 (October 2008): 751–772.

172 Tague, Nancy R. *The Quality Toolbox*, Second Edition. (Milwaukee: ASQ Quality Press, 2004), 236–240.

173 Schroeder, Roger G. *Operations Management*. New York: McGraw-Hill, 1981.

174 Schroeder, Roger G. *Operations Management*. (New York: McGraw-Hill, 1981), 528.

175 Coleman, M.J. and T.S. Manns. "An Approach to Software Quality Assurance Training." *The Statistician* 36 (1987): 493–498.

176 Harter, Donald E., Mayuram S. Krishnan, and Sandra A. Slaughter. "Effects of Process Maturity on Quality, Cycle Time, and Effort in Software Product Development." *Management Science* 46, no. 4 (2000): 451–466.

177 Kenett, Ron S. and Emanuel R. Baker. *Software Process Quality: Management and Control.* New York: Marcel Dekker, Inc., 1999.

178 Kaner, Cem, Jack Falk, and Hung Quoc Nguyen. *Testing Computer Software* Second Edition. New York: John Wiley & Sons, Inc., 1993.

179 Cavanaugh, Roland, Robert Neuman, and Peter Pande. *The Six Sigma Way: How GE, Motorola, and Other Top Companies Are Honing Their Performance*. New York: McGraw-Hill, 2000.

180 Tague, Nancy R. *The Quality Toolbox*, Second Edition. (Milwaukee: ASQ Quality Press, 2004), 236–240.

for the military in order to assure system-wide reliability. It makes no sense to have some components of a system designed to be much more reliable than others of equal importance. Thus the failure probabilities of each component and the impact of such failures need to be analyzed. In a typical application, the probability of failures of a component are classified as being one out of five levels: extremely unlikely, remote, occasional, reasonably possible, and frequent. The severity of the failure is classified in six steps, from very minor to catastrophic. The detection probability is classified in five levels, from certain to low or undetected. Together, one can obtain a score that prioritizes and highlights problems. Problem components can be classified according to their risk level (probability x severity x detection) into categories of low, moderate, high, and unacceptable.

Where all three factors are high the risk becomes unacceptable. If two of them are high but the third is low, the risk might become moderate or even low. A threshold of unacceptable failure can be set. For example, if for an activity detectability is moderate (4), while probability is reasonable, possible and repetitive (4), and severity is critical (5), the overall failure risk score is $4 \times 4 \times 5 = 80$. If the firm sets its unacceptable rate at a moderate 37 ($3 \times 3.5 \times 3.5$), then the activity would fail that threshold. The consequence is for the firm to improve its operations such that detection and probability are reduced, and possibly the severity mitigated, in order to reduce its FMEA score.

Toyota, for example, assigns measures of 1–10 for each of severity, probability, and detection, and prioritizes improvement actions based on the overall scores (0–1000). After addressing these items, it then recalculates the improved score, and addresses the remaining issues accordingly.

The FMEA process can be used to analyze a movie production in its early planning. It can be used to deal with movie shoot scheduling and increase its reliability. FMEA can identify potential problems, failures, their probability, and their effect on the film shooting. It suggests responses to mitigate the failures. Of course, one can never anticipate every single possible failure, but one can deal with a long list of potential failures.[181]

Such planning needs to take into account resource constrains.[182] One could reduce each potential problem by vastly overprovisioning resources to deal with every conceivable worst-case scenario, but that would not be economically efficient.

There is software to help manage the schedule, track actual performance, and adjust the plan. The problem with this approach is that some of the most severe consequences are hard to conceive in advance. There are also interactive risks, where each component on its own seems quite safe, but not in some unforeseen combination with others. It also does not function well in assessing the risk of human operators who control and intervene in the system. That said, FMEA is helpful in identifying and dealing with quality and risk issues in complex systems.

3.6 Production Control

To control and run the success of a business or product, one must be able to measure performance. Traditionally, performance measurement has been financial, going back to the double-entry book keeping of fourteenth-century Venice and to cost accounting adoptions by Josiah Wedgwood and Alfred Sloan as part of modern cost accounting. Measurement techniques became more refined for the continuous-flow type of production. Cost, however, is not the only measure to be measured. In media products, performance metrics also include:

- Audience size and trend;
- Audience composition;
- Market share;
- Churn and loyalty;
- Speed to prototype[183];
- New subscriptions;
- Number of new products launched.

3.6.1 Budget Control

Once production has started, expenses rise rapidly, and it is essential to maintain control over them before it is too late to take action. There is nothing new about cost overruns. The very first book ever printed, Johannes Gutenberg's Bible, went greatly over budget and schedule, and his financier, Johann Fust (or Faust), obtained a court order in 1455 to get control over all the printed Bibles, selling them subsequently at a profit.

Monitoring of actual time used, cost of various activities, performance, and a comparison of planned (budgeted) and actual figures helps decide whether corrective action is needed. There are several cost tracking techniques. For a "job shop" production, job-costing is used, which compiles direct costs (materials and labor) as well as a share of overhead and indirect costs attributed to each project. "Flow shop" firms with repetitive production of homogeneous goods use process costing, and calculate unit costs or total costs divided by the number of units.[184]

Budgeting needs to be continuously adjusted. Software packages make this easier and faster.[185] To control cost, high

181 Crow, Kenneth. "Failure Modes and Effects Analysis (FMEA)," *NPD Solutions*. Last accessed April 19, 2017. ► http://www.npd-solutions.com/fmea.html.

182 Brucker, Peter et al. "Resource-constrained project scheduling: notation, classification, models, and methods." *European Journal of Operational Research* 112, no. 1 (1999): 3–41; Demeulemeester, Erik L. and Willy S. Herroelen. *Project scheduling — a research handbook*. Norwell: Kluwer Academic Publishers, 2002; Strong, Kraig. "Using FMEA to Improve Software Reliability." *Tektronix*. August 16, 2013. Last accessed April 19, 2017. ► http://www.uploads.pnsqc.org/2013/papers/t-026_Strong_paper.pdf; U.S. Department of Energy. "Failure Modes and Effects Analysis Flowchart". Last accessed April 19, 2017. ► http://www.hydrogen.energy.gov/permitting/risk_flowchart.cfm.

183 Aris, Annet and Jaques Bughin. *Managing Media Companies: Harnessing Creative Value*, 2nd Edition. West Sussex: Wiley, 2009.

184 Wild, Ray. *Production and Operations Management*. London: Cassell, 1995.

185 Honthaner, Eve Light. *The Complete Film Production Handbook*. (Boston: Focal Press, 2001), 27–34.

Show_____*Another Day, Another Dollar*_____ Prod. #_2777_____

Date____07/05/2017_____Day#_4_____

Start Date:_07/01/2017____Scheduled Finish:_07/18/_2017____Revised Finish:__07/20/2017_____

	Per Call Sheet	Shot	Ahead/Behind
# of scenes	6	4	2 behind
# of pages	5 3/8	4 5/8	6/8 behind

	Budgeted	Actual	Cost Overrun (-)
Cast overtime	$5000-	$6500-	$1500-
Shooting hrs.	12	13	$20,000-
Meal Penalty	$500-	$300-	$200
Extras	$632-	$577-	$55
Catering	$840-	$960-	$120-
Tech Equipment	$2,250-	$1,687-	$563
Unanticipated	Addt'l prop asst.	10hrs. @ $22/hr.	$242-
	Fringe		$44-
		Total for today_____	$21,088-
		Previous total _____	$4,000-
		Grand total_____	$25,088- (over)

Fig. 3.11 Example of daily cost overview accounting

budget activities such as film shoots utilize daily production reports. They state how many minutes were filmed or recorded, the estimated running time of the film created, the hours of all crew and cast members, and events on the set.[186] One measure of production effectiveness is the shooting ratio, which is the footage to be used for post-production editing relative to the footage shot.[187]

A daily cost overview is provided in Fig. 3.11[188] as an example.

What does this daily cost sheet show? It was the fourth day of shooting the film *Another Day, Another Dollar*. During the day, four scenes, accounting for four-eighths and five-eighths of script pages were completed. However, this was two scenes and six-eighths of a page behind schedule. At the same time, cost ran over by $21,088, chiefly owing to an extra hour of shooting, which also led to various other charges. A few budgeted items such as extras and a meal penalty, however, came in at less the cost, and slightly offset the day's deficit. Thus, on that particular day the production was behind schedule, took longer, and cost more than planned.

3.6.2 Productivity Measurement

Productivity describes how efficiently a company transforms inputs into outputs. It measures the units of product or service produced per inputs such as employees or unit of time, space, and capital investments. This can be expressed, in principle, by the ratio $\frac{\text{Output}}{\text{Input}}$. The higher the ratio, the greater the productivity. Operationalizing this, the following are measures for such an output/input relationship:

1. Revenues/employee;
2. Value-added/employee;
3. Revenues/cost of inputs;
4. Total factor productivity (output not caused by individual inputs).

Different methods of measuring productivity yield different insights, as Table 3.14 shows, which compares productivities for film for the USA, Europe, and India. When outputs are measured in physical units (i.e. films or TV shows), Hollywood's productivity is much lower than that of India's or Europe's (in the investment required per unit produced). It is $70 million per film in the USA, versus $7.5 million in Europe and $1.5 million in India. But when output is measured by tickets sold per invested dollar, India is highest (2.33), while Europe is very low (0.08). The USA is in between at 0.24. The

186 Patz, Deborah S., *Surviving Production: The Art of Production Management for Film and Television.* (Studio City: Braun-Brumfield, Inc.), 114–122.

187 Kindem, Gorham and Robert Musburger. *Introduction to Media Production*. 2nd ed. (Woburn: Focal Press, 2010), 55–60.

188 Table based off of "Daily Hot Costs" figure from Honthaner, Eve Light. "Basic Accounting." *The Complete Film Production* Handbook. New York: Elsevier, 2010.

Table 3.14 Film investments, revenues, and ROI

	Investment/film (US$ M.)	Worldwide tickets/film	Worldwide tickets/ investment	Overall rev./ investment	ROI
US	70	17	0.24	1.27	0.27
Europe	7.5	0.6	0.08	0.40	−0.60
India	1.5	3.5	2.33	1.19	0.19

Hollywood big budget is spread over a much larger audience, and its production budget per actual viewer is hence smaller than for a European film. For each ticket that is sold, Hollywood spends significantly less than its European counterparts. Its budget is much higher, but so are the number of tickets it generates per film.

On a per-ticket basis, Bollywood is even more efficient. But when output is defined as revenues generated per investment, Hollywood at $1.27 per dollar of investment becomes more productive than India ($1.19) and much more productive than Europe ($0.40). In Europe, films on average thus lose 60 cents on the dollar, and the deficit is made up by non-theater revenues, subsidies, and co-production with TV networks. In India, films return 0.19 cents on the dollar, while in the US they return 0.27 cents on the dollar.

When it comes to the productivity of individual creators, this is difficult to measure and such measurement is deeply unpopular with creatives. It is most accepted for software programming, where metrics for measuring productivity in software development exist and data can be tracked and collected fairly easily. This includes measures such as:

1. Lines of code or function points[189];
2. Number of software products completed;
3. Number of features delivered in products.

For other types of writing, one method of measurement involves tracking production output, such as articles or pages, completed by journalists, scriptwriters, or editors.[190] A daily one-hour soap opera episode requires the production of about 75 pages of script per day by a writer or a team.[191] However, such output-oriented approach lacks considerations of quality or of difficulty. It takes much less of an effort for a journalist to cover a routine sports event than to break a local corruption story. Other ways to measure journalistic productivity therefore include measuring input activities done by journalists, such as interviews conducted. A third and more recent approach, made possible by online publishing tracking technology, is to count "clicks," "hits," or time spent by readers; in other words, measuring the ratings of a story in terms of audience. What size of a readership does the writer generate? Neither of these approaches is particularly satisfactory for an individual story or day, let alone for the quality of journalism, but over time the numeric aggregates might reveal trends.

3.6.2.1 Production Functions

To estimate the efficiency of production, economists and managers use a production function or its close relative the cost function. A production function describes a relationship between the quantity of the outputs and the quantity of inputs. Given the right data, managers can use production functions to determine the least-cost combination of inputs for a given output or given levels of inputs to determine the maximum output. These are short-run decisions. Production functions can also support long-run strategic decisions. They can show the direction for a company to expand its production levels.

An example. A newspaper prints 10,000 newspapers per day, which it sells for $1 each. It employs four print workers. An additional worker would cost $300 per day and would result in 1000 additional newspapers printed per day. The marginal revenue is therefore $1000 and the marginal cost of hiring the additional printer is $300. As long as there is enough demand for the increased output, the firm should hire the new worker. But as more printers are hired, their marginal product will decline because they crowd each other. The firm should stop hiring when hiring the extra printer results in fewer than 300 extra copies being printed and sold. How can the relationship of printers and output be measured? One estimates production functions by identifying and measuring a firm's output relative to input factors such as capital, labor, and materials. The analyst chooses among several forms (specifications) of the equation to be measured based on the data available, and picks the techniques of regression analysis for an estimation of the parameters.

A linear production function with two input factors capital (K) and labor (L) is:

$$Q = aK + bL. \tag{3.1}$$

The output level Q is the sum of capital and labor inputs, each multiplied by their respective productivity coefficients. These coefficients are found by using the data with a statistical method of estimation.

189 Zells, Louis. *Managing Software Projects: Selecting and Using PC-Based Project Management Systems*. Wellesley, MA: QED Information Sciences, 1990.
190 Picard, Robert G. "Measuring and interpreting productivity of journalists." *Newspaper Research Journal* 19, no. 4 (Fall 1998): 71–84.
191 Allen C. Robert. *Speaking of Soap Operas.* (Raleigh, NC: University of North Carolina, 1985), 46–73.

Equation 3.1 is a linear approximation of the reality. But since it does not reflect trends in the output quantity, such as a steadily increasing or decreasing productivity, a linear production may not be a sufficient approximation. Therefore, the exponential Cobb-Douglas function offers a better approximation of the reality (Eq. 3.2).

$$Q = AK^{\alpha}L^{\beta}. \tag{3.2}$$

The exponential parameters α and β are also known as the elasticities of the output with respect to capital or labor.[192]

In the "Cobb-Douglas" specification, where $\alpha + \beta = 1$, there exist constant returns to scale. An increase of K and L by 10% would also increase Q by 10%. Where $\alpha + \beta > 1$, increasing returns to scale exist, and where $\alpha + \beta < 1$, there are decreasing returns to scale.

To find the parameters of a Cobb-Douglas function, one needs to first take its logarithm, making an exponential equation into a linear one that can be readily estimated statistically.

$$\log Q = \log A + \alpha \log K + \beta \log L \tag{3.2'}$$

If one has enough observations of Q, K, and L, this kind of equation can be readily estimated by econometric software packages.

How would one get the data to estimate production functions? One way is an engineering approach based on the performance of machinery and the required people. A second method is the statistical approach, by collecting observations from either time series data (usually from the firm's own production over time), cross-section data (over several firms/industries in one time period) and using them as data points, or a combination of the two.

Example 1

A simple linear production function for the newspaper printing plant mentioned above, with two variables (see Eq. (3.3)). Using the linear equation:

$$Q = a_1 + b_1K + c_1L \tag{3.3}$$

The observations of outputs, machinery, and labor (number of workers) for each quarter over seven years permits the estimation of the best line that fits the scatter of these data points. Using an ordinary least square (OLS) regression, one finds that the production relations can be expressed as:

$$Q = \underset{(0.58)}{-35.654} + \underset{(5.31)}{3.120}K + \underset{(4.62)}{1.951}L$$

with a statistical fit of $R^2 = 0.805$ (fairly good), and an f-statistic of 47 (significant). The numbers in parenthesis show the so-called t-statistic for the coefficients, which show a high statistical significance.

Interpretation: Adding \$1 million of machinery raises the printing capacity up to 3,120,000 newspapers per period. Adding one additional worker can raise the printing capacity up to 1,951,000 newspapers per period.

In a scenario of 200 workers and \$80 million of capital, the output quantity is 604.15 million newspapers per period.

Example 2

For the same data of the preceding example, we apply the Cobb-Douglas function by using its logarithmic function:

$$\ln(Q) = \ln(A) + \alpha \ln(K) + \beta \ln(L) \tag{3.4'}$$

The results of the regression estimation are

$$\ln(Q) = \underset{(2.05)}{3.5198} + \underset{(6.2)}{0.413}\ln(K) + \underset{(4.55)}{0.629}\ln(L) \tag{3.4''}$$

$$R^2 = 0.839\,(\text{high}); F \quad \text{Statistic} = 59.89\,(\text{significant}).$$

This can also be expressed as:

$$Q = 33.777\,K^{0.413}L^{0.629} \tag{3.4}$$

$\alpha + \beta = 1.042$, which is slightly bigger than 1; therefore, slightly increasing returns to scale exist, of about 4% per doubling of output.

We find that the result of the logarithmic Cobb-Douglas function gives us better results in statistical terms, and also allows for a more realistic non-linear relationship.

An example for the Cobb-Douglas production function relates to several industries in the country of Oman.[193] Using data for the years 1994–2007, the regression estimates for several industries are as noted in Table 3.15.

Paper/paper products and machinery show almost constant return to scale ($\alpha + \beta \approx 1$), whereas chemicals have decreasing scale economy (0.57) and printed materials increasing returns to scale (1.61).

3.6.2.2 Cost Functions

Gathering data for the production function can be difficult, as information is usually not easily available on capital, machines, or labor, and these measures are often inconsistently defined. It is usually easier to obtain information about aggregate cost and prices. Firms usually know how much money they spend, and the price of an input, and such data can be used in a cost function, which is closely related to the production function. A cost function tells us how the total cost varies as the output level is changed or as the factor prices vary.

Generally speaking, cost functions show how a firm's cost relates to determinants such as the output level, the input prices, the technology, the size of the plant, or other factors. It helps managers to estimate the effects on cost of expanding the output level or of the plant. Consequently, the cost function is especially helpful for the production

192 A third type of specification for a production function is the translog function, a generalization of the Cobb-Douglas function. It is defined as

$$\log Q = \beta_1 + \beta_2 \log K + \beta_3 \log L + \beta_4 (\log K)^2 + \beta_5 (\log L)^2 + \beta_6 (\log K)(\log L).$$

When $\beta_{4,5,6} = 0$, the translog function equals the C-D function.

193 Hossain, Mohammad Zakir and Khalid Said Al-Amri. "Use of Cobb-Douglas production model on some selected manufacturing industries in Oman, Education, business and society." *Education, Business and Society: Contemporary Middle Eastern Issues* 3, no. 2 (2010): 78–85.

Table 3.15 Industry regression estimates (Oman)

Industry	*K* (capital)	*L* (labor)	Returns to scale	R^2
Paper/paper products	0.01	0.98	0.99	0.83
Printed materials/recorded media	0.64	0.97	1.61	0.77
Chemicals	0.48	0.09	0.57	0.95
Machinery	0.27	0.79	1.06	0.74

planning purposes. Generally, we can denote total cost C as a function of the price levels of the inputs I and of output level Q.

$$C = f(P_i, Q)$$

While cost functions tend to be easier to measure than production functions, they also have some problems. Output data is based on units of products, but these might vary greatly across firms or within a firm. Films or computers made by different producers are not identical. Output levels are often aggregated across several products. And, perhaps most fundamentally, cost data is based on accounting numbers and often does not include depreciation.

A linear specification of a cost function might look like this:

$$C = a + bQ + cC_K + dC_L \quad (3.5)$$

C_K is the cost of capital and C_L the cost of labor. Together, they define the cost C of production for a certain level of production Q.[194] The cost of capital is expressed as the rate of return that capital could be expected to earn in an alternative investment of equivalent risk. C_L is the wage rate.

It is more realistic to opt for an exponential cost function, one where the added contribution of labor or capital cost gradually declines with the size of operation.

$$C = aQ^b C_L^h C_K^h \quad (3.6)$$

When $b + h = 1$, cost will increase proportionally with output (constant return to scale).[195]

This helps managers to estimate the effects on cost of expanding production on changing costs. This makes the cost function useful for planning purposes.

Using linear regression:

$$\ln(C) = \ln(a) + \alpha \ln(Q) + \beta \ln(C_L) + \gamma \ln(C_K) \quad (3.6')$$

$$\ln(C) = -1.25 + 0.415 \ln(Q) + 0.351 \ln(C_L) + 0.274 \ln(C_K) \quad (3.6'')$$

$$\text{With } R^2 = 0.96(\text{high}), F\text{-statistic} = 189.4(\text{significant})$$

This can also be expressed as:

$$C = 0.2865 Q^{0.415} C_L^{0.351} C_K^{0.274} \quad (3.7)$$

This becomes relevant in real life, for example, when labor unions push to raise salaries (C_L) by 10%. This would raise the total cost (holding the other variables constant) by 0.1 × 0.351 = .0351, that is, by about 3.5%. Similarly, when the cost of capital (C_K) rises by 10% owing to higher interest rates, overall costs would rise by 2.7%. If the firm wants to ramp up production by 10%, its costs would rise by 4.15%. By varying one or all the variables (Q, C_K or C_L) the company can calculate the impact of the change on total costs (C).

Suppose C_K = 8, C_L = 9.5 and Q = 580. Then the overall cost C is

$$C = (0.2865 \times (580 \wedge (0.415))) \times (9.5 \wedge (0.351)) \times (8 \wedge (0.274)) = \mathbf{15.6522}$$

3.7 Revenue Shares of Producers in Media

The overall revenues of a medium must, in the final analysis, be split up among producers, creators, distributors, suppliers, wholesalers, retailers, and so on. For all of their efforts, what is the share, approximately, that the producers get from the overall consumer spending for their medium? A table in ▶ Chapter 12, Distribution of Media and Information, shows average numbers for various media industries.

On average over average, of 18 media industries, the share in revenues that is going to producers is above 44%, by far the largest share, much higher than for retailers, wholesalers, and creators. However, the producers' share also covers various inputs, components, and materials bought from suppliers. The producers' share is particularly high for print publications that are based on advertising—newspapers and magazines—because advertising revenues remain with publishers. For magazines, the publishers' share in revenues is 70%. This is because of the low share of creators (hired writers) and distributors (most distribution is conducted and subsidized by the mail service). The substantial advertising revenues flow to the publishers.

194 Modigliani, Franco and Merton H. Miller. "The Cost of Capital, Corporation Finance and the Theory of Investment." *The American Economic Review* 48, no. 3 (June 1958): 261–297.

195 Pindyck, Robert S. and Daniel L. Rubinfeld. *Microeconomics,* 3rd Edition (Englewood Cliffs, NJ: Pearson/Prentice-Hall, 1995), 233.

For music, the producer (label/music group) obtains about 40% without including the music group's compensation for its distribution role (18%). (Often, labels, distributors, and music publishers are vertically integrated.)

For consumer electronics, the producer's share is substantial at 50% (not including 5% for its creatives—the designers, programmers, and engineers), from which a major share goes to component manufacturers. For instance, for the Apple iPhone 6S+ the components cost Apple $216,[196] for a phone that retails at $749; that is, 29% of the retail price of which Apple's share, before its expenses, is $570. Apple's revenue share is 76% of the retail price.[197] The component cost share in Apple's revenues is then 38%. For a 2013 Samsung TV set, the retail price was $2300 and the component costs were $1008.52, 43.8% of the retail price.[198] The share of consumer electronics revenues going to wholesale distributors is low since their role is mostly logistics. It is also low for retailers (25%) given price competition.

For theatrical film, the producers' share is low at 14%, the share of distributors (i.e. the studios) is 30%, of theaters (exhibitors) 45%, and of creators 11%. Film producers' share rises to 20% for pay-TV and to 22% for online distribution. These increases can be explained by the lower share of retailers.

3.8 Content Production in the Next Generation of Technology

Although the cost of production hardware has declined, thus enabling the entry of small independent producers, it would be a mistake to believe that overall production costs have therefore dropped. Hollywood's average "negative costs" rose for a film from $47.7 million in 2001 to $88.6 million in 2011. This rise in production cost will be even greater with next-generation content that is based on broadband and ultra-broadband connectivity throughput. These elements will create entertainment experiences with user immersion, user participation, and some user control.

The lower costs of technical equipment apply to everybody, and as a result much more content is being produced and supplied. As content supply grows relative to the fairly steady stock of attention, the general expectations related to production quality standards rise, and with them the cost of production. There will thus be an even greater pressure for "blockbuster" content that stands out from the crowd, and for content that makes the most of the multimedia and interactive features of broadband communications.

To produce such content is expensive. It requires creativity, programmers, performance testing, and continual new versions. The production of the film *Avatar* required 900 graphic designers.[199] Such content exhibits strong economies of scale on the content production side, and strong network effects on the demand side.

At the same time, the broadband internet means that such content can be distributed globally at a relatively low cost. This has been termed the death of distance. People in Peru, Panama, and Portugal can select, click, and download. The protection of distance is thus giving way, as are many of the protections of regulation and licensing.

To produce this kind of content involves several elements. None is a necessary or sufficient condition for success in next-generation video media, but each is helpful, and in combination with the others important:

- Access to investment funds;
- Diversification of risks;
- Access to distribution over multiple platforms;
- Recognized brand;
- Ability to co-ordinate specialized inputs;
- Ability to create product tie-ins;
- Ability to establish global user communities.

The content itself exhibits strong economies of scale. Once produced, it can be reproduced at almost no cost. Of course, there will also be opportunities for other producers to create and distribute specialized programs for niche and general audiences. Providers and producers will also emerge in other production centers, such as India, Europe, and Japan. They them will be based on those regions' cultural, technological, and financial resources.

There is also room, in creating innovative content, for new ideas about content, format, and interactivity to come from new directions and new firms. New types of content production specialists will emerge on the technology side, often in the Silicon Valley cluster of innovation.

The major audiences will still be attached to big-budget and technically sophisticated productions that combine glitz with technology. In this environment, Hollywood will be even stronger, because it will have a more direct link to global audiences. It does not have to go through the intermediaries of TV networks or pass through the regulation of governments. It has also the ability to fine-tune prices, and it can deploy in its network of specialists talent and creativity from everywhere—animators from Japan, special effects software in India, post-production in Shanghai, venture finance in London, technologists in Silicon Valley, advertising companies in New York.

Such a networked-firm structure can cope with change and innovation. It is strengthened by more powerful communications pipes, since the clustering can spread beyond those of geography. "Hollywood" will thus become less of a description of geography and more of an industry structure.

196 Hesseldahl, Arik. "Teardown Shows Apple's iPhone 6 Cost at Least $200 to Build." *Recode.* September 23, 2014. Last accessed April 19, 2017. ► http://www.recode.net/2014/9/23/11631182/teardown-shows-apples-iphone-6-cost-at-least-200-to-build.

197 Smith, Dave. "A Full Cost Breakdown of Apple's New iPhones." *Business Insider.* September 24, 2014. Last accessed April 19, 2017. ► http://www.businessinsider.com/iphone-6-iphone-6-plus-cost-breakdown-2014-9.

198 Electronics 360. "Samsung LN-T4665F 46 Inch LCD Television Teardown." Last accessed April 19, 2017. ► http://electronics360.globalspec.com/article/2211/samsung-ln-t4665f-46-inch-lcd-television-teardown.

199 Webneel. "3D Animation Movie Making Process and Behind the Scenes - Avatar." Last accessed April 19, 2017. ► http://webneel.com/3d-animation-movie-making-process-and-behind-scenes-avatar.

3.9 Conclusion of Case Discussion

Canal Plus and the Hollywood Advantage

In pursuit of a global role in content production comparable with that of the Hollywood content companies, Canal Plus has strategic options, or could use a combination thereof:

1. Buy Hollywood (and European) studios;
2. Seek governmental support;
3. Vertically integrate content and distribution;
4. Integrate multiplatforms;
5. Expand language reach;
6. Globalize content;
7. Sign up stars;
8. Use advanced technology;
9. Allocate high budgets;
10. Use cheap and substantial financing;
11. Diversify;
12. Shift to a two-tier system of independent producers and co-producers.

First Strategy: Buy Hollywood (and European) Studios

In the early 1990s, Canal Plus bought the library of the failing Carolco Studio in Hollywood. More significantly, in 2001, the parent company Vivendi bought Universal Film and Universal Music—both of them top American and global media firms. But in 2004, in financial distress, Vivendi sold 80% of Universal Film to the American conglomerate GE in return for $14 billion and a 20% partnership in NBC Universal, which GE created by combining its NBC TV subsidiary with Universal. In 2011 Vivendi sold these remaining 20%, for $5.8 billion, to GE.[200] Thus this strategy ended up unsuccessfully for Vivendi.

Second Strategy: Seeking Governmental Support

The French film industry is subsidized in a variety of ways. The Centre Nationale de la Cinematographie (CNC) contributed about $500 million a year. There is also support by several regional governments. France requires theaters to reserve 20 weeks of screen time a year for French (now European) films. DVDs cannot be sold or rented out for six months after the end of theatrical distribution.

There are also subsidies from the EU. There is a budget of €1.46 billion for the Creative Europe Programme. Although publicly advocating an absence of national support programs, the EU Commission, in *New State Aid Rules for Cinema*, in 2013 adopted new film-support rules that permitted aid to be "limited" to 50% of the production, distribution, and promotion budget. Co-productions funded by more than one member state may receive aid of up to 60% of the production budget. There are no limits on aid for script writing or film-project development or for "difficult" audiovisual works, and definitions are left open. Territorial spending obligations are permitted as long as they do not exceed 80% of the production budget.[201] There are also subsidies in other countries for film where Canal Plus films are being created, and tax shelters in France known as Sofica (Societes de Financement du cinema et de l'audiovisual), where wealthy investors can write off 40–50% of the investment against tax. France's financial auditing body Cour des Comptes ► warned in 2014 that the system of film subsidies had grown opaque and inefficient, and that direct public financing of film had grown four times as fast as overall public spending in the preceding four years.[202]

This is possible because France, and Canada, were successful in inserting a "cultural exception" into international trade agreements in 1993. Cultural goods and services are left out of international treaties and agreements that otherwise preclude states from subsidizing industries in ways that affect trade.[203]

The strategy enlisting government support for cultural activities is traditional in France, as it is in many countries. Canal Plus has been effective in making use and extending it, and receiving significantly more governmental financial and tax support than Hollywood studios. This has raised French film production above that of other European countries, but it has also had drawbacks. French film, as observed in 2016, is much less political than US cinema, or German, Spanish, or Italian films. One reason for the decline of politics in French films may be the business model.[204] In that system of subsidies various bureaucratic bodies in effect decide what will be produced. As one young director put it – anonymously since he did not wish to offend the funding committees – "Every one seems to have a suggestion on what to do—add a character here or there, change the ending, etc."[205]

Third Strategy: Vertical Integration of Production and Distribution

A common view is that Hollywood firms dominate through their greater vertical integration. Canal Plus therefore set out to do the same. It became the predominant French and European distribution system (through pay-TV and film distribution) and a major producer of filmed content. There are similar vertical integrations of production and distribution in Germany (Bertelsmann with its divisions RTL and Ufa); in Italy with Mediaset and its film and TV production, including the large Dutch TV producer Endemol Media. Canal Plus/Vivendi has been successful in pursuing this strategy to provide its pay-channels with in-house content. But such content would have been forthcoming anyway from other providers, given the dominant role in retail pay-TV distribution which Canal Plus has. Neither European nor American content can easily bypass Canal Plus, and this, not the vertical integration, gives the company an economic advantage.

Fourth Strategy: Multiplatform Integration

A common view is that Hollywood content providers dominate through their greater horizontal multiplatform, multimedia integration.

Actually, no Hollywood company has been as much horizontally (and vertically) integrated as Canal Plus and its parent Vivendi. Vivendi's activities include (or

200 "Vivendi Sells Its Last Stake in Universal." *Contact Music*. January 27, 2011. Last accessed on June 25, 2013. ► http://www.contactmusic.com/news/vivendi-sells-its-last-stake-in-universal_1197129.

201 Katsarova, Ivana. "An overview of Europe's film industry." *European Parliamentary Members' Research Service*. December 2014. ► http://www.europarl.europa.eu/RegData/etudes/BRIE/2014/545705/EPRS_BRI(2014)545705_REV1_EN.pdf.

202 Briançon, Pierre. "Politics fade from French Cinema." *Politico*. Last updated November 2, 2015. ► http://www.politico.eu/article/politics-fade-from-french-cinema-movies-culture/.

203 Members' Research Service. "TTIP and the Cultural Exception." *European Parliamentary Research Service*. August 29, 2014. Last accessed April 19, 2017. ► http://epthinktank.eu/2014/08/29/ttip-and-the-cultural-exception/.

204 Olivier Séguret, a French culture journalist, author, and critic writes: "These movies [Hollywood films about Iraq and the corridors of power in Washington, for example] can be very good or terrible, but they do exist. France has what you could call a social cinema, not a political one. Social cinema doesn't bother anyone, you don't need to take sides, you just look at things. It's either that, or stories about couples and their problems." Briançon, Pierre. "Politics fade from French Cinema." *Politico*. Last updated November 2, 2015. ► http://www.politico.eu/article/politics-fade-from-french-cinema-movies-culture/.

205 Briançon, Pierre. "Politics fade from French Cinema." *Politico*. Last updated November 2, 2015. ► http://www.politico.eu/article/politics-fade-from-french-cinema-movies-culture/.

included) music, television, film, publishing, telecommunications (mobile) and wireline, internet, and video games. For example, Vivendi acquired video game leader, Activision Blizzard, which created successful franchises such as *Call of Duty* and *World of Warcraft*.[206] Vivendi acquired the film businesses of Universal, and Universal Music Group, the leading music producer in the world with more than 20% of the global market. Universal Music Group has produced and distributed successful artists such as Mariah Carey, Lady Gaga, Justin Bieber, Bon Jovi, Eminem, Jennifer Lopez, Madonna, Sting, Elton John, U2, the Rolling Stones,[207] Björk, Metallica, Pearl Jam, and numerous classical, jazz, and country artists.

In advertising, Vivendi took control of Havas, one of the world's largest advertising groups. In telecommunications, Vivendi acquired SFR, France's second largest mobile telecommunications company and a major internet provider. Vivendi also acquired Maroc Telecom, Morocco's leading mobile, landline phone, and internet provider. Obviously, these platforms could be used for content distribution. However, the platforms cannot discriminate against other content providers and distributors. Nor would Canal Plus limit its content exclusively to SFR subscribers and leave out the other 75% of French mobile subscribers. That would make sense only if its content was so important that the mobile subscribers of Orange and others would switch their subscription to SFR just to receive it; and this is unlikely. It is therefore not surprising that in 2014 Vivendi sold 80% of SFR to the French telecom and cable company Altice for $23 billion.[208] Additionally, Vivendi acquired GVT, the leading high-speed internet and connected television company in Brazil.

Subsequently, control of Vivendi fell into the hands of French billionaire Vincent Bolloré, a close friend of former French president Nicolas Sarkozy. Bolloré, a major investor in Africa, also started the Direct 8 TV station and *Direct Soir*, a free newspaper. Bolloré then acquired enough shares in Vivendi to become its largest stockholder, and in 2014 was appointed chairman of the board.

In comparison, major US media companies also have a conglomerate structure, but this is not as strong and diverse as Vivendi's. But did this create much success for Vivendi? There is no evidence that conglomerate ownership of music, or games, or mobile phones has strengthened Vivendi beyond making it a more powerful presence as a company. The multiplatform integration, while it may make for an interesting story, did not seem to create much of an advantage in terms of synergy. Indeed, it is possible to argue the opposite; that the conglomerate structure ended up dragging down Vivendi financially. After billions of Euros in losses, Vivendi sold or spun off SFR, GVT, Havas, Activision Blizzard, Universal Pictures, and Maroc Telecom. It explained these deals not as based on financial revenue but as a way to "unlock" shareholder value. At the time, its P/E (stock price to earnings) ratio was 3–6, whereas US media companies had a multiple of about 10. In other words, Vivendi was undervalued by investors.

Vivendi is left with the music group Universal Music Group, possibly because the music business has dropped so much that no one is willing to buy it at a decent price. It is not clear how ownership of music labels and distribution helps Canal Plus or a film. This leaves Vivendi with one major asset—the Canal Plus group. That unit is strong, but not because of a conglomerate structure.

Fifth Strategy: Expanding the Language Reach

Film companies in smaller language markets are often said to be disadvantaged in comparison with those of English-language countries. Traditionally, the French government has made major efforts to spread the French language. Canal Plus, however, took the opposite approach with a strategy to join the widespread English language rather than fight it. In 2006, when Olivier Courson became StudioCanal's CEO, 90% of StudioCanal's films were in French, but by 2012, 70% of its films were in English.[209] To deal with the criticism of cultural language advocates, Courson argued that the goal was to add a "European touch" to English-language films. The strategy, successful on the whole, illustrates the point that reaching world export markets can be done by companies from a smaller language market, but that it requires a reduction of country-specific characteristics such as language and national culture components.

Sixth Strategy: Content Mainstreaming and Globalization

Courson began to support international co-production and local films that could be distributed globally to a bigger market.

StudioCanal's stated production priorities were the following:

1. International co-production;
2. Family entertainment;
3. Elevated genre (e.g. *The Last Exorcism*) and complex films;
4. Local productions with international appeal.[210]

Of these priorities, the first two and the last are export-oriented and focus on popular films, whereas the third is more culturally ambitious. Managing director Frederic Sichler said that StudioCanal is a production company but it is still a segment of Canal Plus—meaning that production initiatives need to be in line with the needs of the channel. Sichler defined this as producing more entertaining and more commercial films, although he clarified that StudioCanal is still "interested in any project that has an artistic and commercial value."[211]

StudioCanal still presents its brand as aiming at audiences with intellectual and artistic tastes. But its focus has become increasingly films that have mass appeal. Inevitably this has led to a blockbuster orientation in which the revenue successes of its films are touted. Officially, the shift to a commercial orientation was downplayed. Courson stated that, "We at [StudioCanal] are developing more entertaining movies, but we also keep the link we have with auteurs."[212] *Brotherhood of the Wolf* (2001) is a film in which StudioCanal was the senior partner and which was described as a "horror historical comic-book detective western," and it maintains commercial film techniques with wide appeal through the action-packed and fast-paced nature of the movie. With a budget of $29 million, it became one of StudioCanal's most successful films and grossed over $11 million domestically and $70 million worldwide. Furthermore, the movie was produced like a Hollywood blockbuster and used

206 Hall, Jessica and Scott Hillis. "Guitar Hero meets Warcraft in Vivendi-Activision deal." *Reuters*. December 2, 2007. Last accessed June 4, 2013. ► http://www.reuters.com/article/2007/12/02/us-activision-vivendi-idUSN0236714920071202.

207 Pereira, Miguel Mendes. "Vertical and Horizontal Integration in the Media Sector and EU Competition Law." (Presented at The ICT and Media Sectors within the EU Policy Framework, Brussels, April 7, 2003). ► http://ec.europa.eu/competition/speeches/text/sp2003_009_en.pdf.

208 Altice tried to acquire the remainder of SFR with a stock swap, but was blocked in October 2016 by the French securities regulator.

209 Pereira, Miguel Mendes. "Vertical and Horizontal Integration in the Media Sector and EU Competition Law." (Presented at The ICT and Media Sectors within the EU Policy Framework, Brussels, April 7, 2003). ► http://ec.europa.eu/competition/speeches/text/sp2003_009_en.pdf.

210 Barraclough, Leo. "Canal Plus at 25." *Variety*. November 2, 2009, A27-A28.

211 Hopewell, John. "Financial Sense Yields Solid Results." *Variety*. May 11, 2012. Last accessed April 19, 2017. ► http://variety.com/2012/film/awards/financial-sense-yields-solid-results-1118053320/.

212 James, Alison. "StudioCanal Restructures with Focus on More Mainstream Fare." *Variety*. May 10, 2004, 20.

similar techniques.[213] StudioCanal was also a senior partner in another project, *Carlos* (2010), about the terrorist Ramirez Sanchez's attacks in the 1970s–1990s, which won "best miniseries" at the Golden Globes. It aired as a miniseries on Canal Plus and was ultimately licensed it to 17 countries as a film and miniseries.[214]

StudioCanal was a senior partner in *My Piece of the Pie* (2011) (*Ma Part du Gateau*). The film is about a single mother who loses her factory job and moves to Paris where she is employed and cleans the apartment of a rich broker. The film was not well received in the USA, and an American critic, expecting a "French movie," noted that it was just "another glossy coffee table book of a film, presenting familiar content through handsome, instantly forgettable images."[215]

Canal Plus and StudioCanal took the commercial route through co-productions. In 2003, management decided only to co-produce films.[216] This often means to be a junior partner, mostly engaged in the financing. For example, StudioCanal financed and co-released *Tinker, Tailor, Soldier, Spy* as a junior partner. *Basic Instinct* is a film for which Canal Plus takes credit; however, the film was actually produced by Carolco, a Hollywood independent, written by Joe Eszterhas, and starred Michael Douglas and Sharon Stone. In 1992, after the film's release, Carolco experienced financial trouble and was rescued by an international partnership. When Carolco filed for bankruptcy, Canal Plus bought its film library, including that film.

Thus, StudioCanal's films might have become less "French movie" for critics, but their global box office (not including USA/Canada) increased by 32% over five years (2007–2011).[217] In France itself, in 2014, five of the top ten box-office hits were US movies, and the top three French movies were two light comedies of which one was *Lucy*, a Luc Besson film starring the American actors Scarlett Johansson and Morgan Freeman. This was considered French only because it was partially shot and produced in France.

Seventh Strategy: Technology

Canal Plus adopted some of the content and special razzle-dazzle effects which Hollywood employs. Audience interest led StudioCanal to finance and to distribute one major 3D computer-generated animated film per year, jointly with the Belgian 3D company nWave. This resulted in *Sammy's Adventure* (2010), *Sammy's Adventure 2* (2012), and *House of Magic* (2013), which had a substantial production budget of $34 million.[218]

Eighth Strategy: Sign up Stars

A stereotype is that "European films are less concerned with A-list actors."[219] But quite to the contrary, to broaden the appeal of Canal Plus films, its productions and co-productions include foreign stars in its own films or co-productions. Some have already been mentioned. Others include: *Unknown* (2011), Liam Neeson; *The Tourist* (2010), Angelina Jolie and Johnny Depp; *Serena* (2013), Bradley Cooper and Jennifer Lawrence; *Cliff Hanger* (1993), Sylvester Stallone; *Terminator 2* (1991), Arnold Schwarzenegger; and *JFK* (1991), Kevin Costner, Kevin Bacon, and Tommy Lee Jones. Thus, Canal Plus has taken a similar approach to casting as do the Hollywood studios, by anchoring its marketing appeal on expensive big-name stars.

Ninth Strategy: Large Budgets

European films typically have much lower budgets than Hollywood films. But StudioCanal's budget range is now $15 million to $25 million—lower than Hollywood but higher than in the past.[220] In several co-production deals where it was the junior partner, the budget was much greater for example, *The Tourist* (2010), was a big budget film that cost $100 million to make.

Tenth Strategy: Financing

In the past, most financing for European films came from the following sources[221]:

1. Direct governmental subsidies;
2. Private investments attracted to tax shelters for high-income individuals, set up by governments;
3. TV networks, in particular the public broadcasters with a mission to support national culture;
4. Private credit institutions and banks such as Credit Agricole, Société Générale, and Deutsche Bank.

When it comes to financing, it simply cannot be said that there have been no commercial funding sources for films in France aside from the governmental ones. Credit Lyonnaise (CL) was France's largest bank in the 1990s. It was owned by the French state, but became a leading lender to Hollywood in the 1980s. CL's top entertainment finance executive was Frans Afman, whose projects included movies by De Laurentiis (*Serpico*, *Three Days of the Condor*), and various Cannon Films. *Pirates*, with Roman Polanski and Jack Nicholson, cost $40 million and garnered a box office of $5 million. CL also financed other independents—Carolco, New World, Vestrom, Hemdan—and many of them went bankrupt or were reorganized. CL often funded second-rate films by second-rate production companies, usually with big names past their prime but impressive to the bankers.[222] These included Katharine Hepburn, Charles Bronson, Robert Mitchell, Faye Dunaway, Shelly Winters, Elliot Gould, Jon Voight, Brooke Shields, and Bo Derek. It also financed Grancarlo Parretti's disastrous takeover of MGM. After losing $5 billion the bank had to be bailed out by the government. CL filed for bankruptcy in 1993. In 1996, its headquarters burned down, and with it its data archives.

Canal Plus also diversified its funding beyond its own subscriber base. In 2011, it departed from the traditional use of bank loans and engaged in Europe's first slate financing to fund films.[223] In that slate deal, rather than buy a single film project investors bought into a whole portfolio of films.[224]

The Canal Plus system shifted much of the funding to a private pay-TV channel,

213 Turan, Kenneth. "Movie Reviews; A Pack of Cinematic Styles," *Los Angeles Times*. January 11, 2002. Last accessed April 19, 2017. ► http://articles.latimes.com/2002/jan/11/entertainment/et-turan11.

214 Hopewell, John and Elsa Keslassy. "'Carlos' gives French TV momentum." *Variety.* June 5, 2010. Last accessed April 19, 2017. ► http://variety.com/2010/scene/features/carlos-gives-french-tv-momentum-1118020227/.

215 Sachs, Ben. "My Piece of the Pie." *Chicago Reader*. February 2, 2012. Last accessed April 19, 2017. ► http://www.chicagoreader.com/chicago/my-piece-of-the-pie/Film?oid=5502884.

216 James, Alison. "StudioCanal Restructures with Focus on More Mainstream Fare." *Variety.* May 10, 2004, 20.

217 MPAA. "Theatrical Market Statistics: 2012." *Motion Picture Association of America, Inc.* Last accessed March 29, 2013. ► http://www.mpaa.org//Resources/3037b7a4-58a2-4109-8012-58fca3abdf1b.pdf.

218 Hopewell, John. "StudioCanal works 'magic' on sales." *Variety.* February 7, 2013. Last accessed April 17, 2017. ► http://variety.com/2013/film/news/studiocanal-works-magic-on-sales-1118065857/.

219 Dawtrey, Adam. "Euros Create Hits on Their Own Terms." *Variety*. May 10, 2010, A14, A33.

220 Hopewell, John. "Variety's Achievement in Int'l Film Award: Olivier Courson." *Variety.* May 11, 2013. Last accessed June 4, 2013. ► http://variety.com/2012/film/news/creative-punch-meets-biz-savvy-1118053319/.

221 Saigal, Kanika. "Slate financing: StudioCanal signs Europe's first slate financing." *Euromoney.* November 2011. Last accessed April 19, 2017. ► http://www.euromoney.com/Article/2928950/Slate-financing-StudioCanal-signs-Europes-first-slate-financing.html.

222 Stadiem, William. *Moneywood: Hollywood in Its Last Age of Excess.* New York: St. Martin's Press, 2012.

223 Saigal, Kanika. "Slate financing: StudioCanal signs Europe's first slate financing." *Euromoney.* November 2011. Last accessed April 19, 2017. ► http://www.euromoney.com/Article/2928950/Slate-financing-StudioCanal-signs-Europes-first-slate-financing.html.

224 The main investor was the European media fund, Anton Capital Entertainment, which put in about $200 million. Other investors included US-based Falcon Investment Advisors and the Bank of America, as well as the Union Bank of Switzerland and various European institutional investors representing private parties.

supported by its viewers who were charged non-competitive prices. In 2014, a monthly subscription to its channels was €40 per month/$52.83 per month.[225] In comparison, in the USA the HBO and Showtime packages cost, respectively, $14–18 per month on cable and satellite, and $15 per month on Verizon FIOS.[226] This is a huge price difference (about 350% over Showtime's price), and cannot be explained as based on scale. Instead, it is the result of market power. In return, Canal Plus is obliged to invest 12.5% of its revenues into European films (10% must be dedicated to French productions.)

Eleventh Strategy: Diversification

The stereotype is that only Hollywood has the scale to diversify in content and platforms. Yet StudioCanal currently releases around 40 movies per year in European countries and owns rights to around 5000 movies.

StudioCanal distributes around 15 feature films each year in France directly to theaters. Distribution activities include marketing, publicity, theater owner relations and transactions, TV/cable/VOD deals, and video releases. More than 2000 StudioCanal films are available online. StudioCanal also provides films for mobile phone viewing. Thus the company has considerable diversity in distribution and volume.

Twelfth Strategy: A Two-Tier System with a Shift to Independent Producers and Co-producers

Just as Hollywood has created dependent-independent producers, in France Canal Plus distributes independent films to theaters—in a shift to a two-tiered structure. With these independents, StudioCanal's involvement is mainly that of financing and distribution, but the company also makes decisions about the script and other artistic aspects and may also provide technical support.[227]

Government film policy in France pursues the goal of allowing artistically minded independent film producers to flourish. By law, 2.125% of its considerable revenues (17% of the 12.5% that Canal Plus must invest into other films) must be allocated to films that have a budget of less than $5.2 million per year. That comes to a pool of about $140 million per year. Canal Plus could thus cover half of the budget of 50–100 such films annually. Independent film producers account for 95% of films made in France.[228] Canal Plus helps to finance at least 64% of French films, plus any films that might have been licensed or are acquired later in negative pickup deals. On one level such support of independent producers is a positive contribution. On the other hand, when Canal Plus supports two-thirds of French film productions it also creates major dependencies and enormous cultural power. If its orientation in picking projects to support is increasingly commercial, then it also affects the entire content direction of the French film industry and thus French culture.

Conclusion: How Does It All Add Up for Canal Plus?

Canal Plus and its production subsidiary StudioCanal have become Europe's closest counterpart to a major Hollywood studio. They are rooted in a new financial model—a pay-TV near-monopoly of a commercial company based on a de facto exclusive government license.

The official mission of Canal Plus is to create "mainstream auteur films that have audience punch without sacrificing artistic ambition." Officially, it is trying to merge the popular and artistic, but is a "mainstream auteur," yet another oxymoron. Canal Plus has said that "StudioCanal needs to avoid dependency to any one market and develop line-ups that are common for each of the three main European markets that it serves."[229] Translation: less French. It is also declared that it also needs to further focus on UK productions which are popular throughout Europe. Translation: content that is more American-style. StudioCanal adopted a "mixed model of co-ordination and decentralization." This means it works with other distribution and production companies and often outsources production duties. Translation: the Hollywood production model.

Though it will usually be denied, in the process Canal Plus is becoming indistinguishable from a Hollywood major. The main difference is that it has a government-granted virtual monopoly over pay-TV, allowing it to charge high prices. There is also a government-mandated support quota for independent film-makers. In effect, it is a system that forces French consumers to subsidize French independent film-makers.

Thus, for the production and distribution of film content, certain fundamentals seem to operate. Hollywood majors, too, have moved in a direction that embraces more foreign stars, locales, themes, and funding. On both sides of the Atlantic, we observe a convergence from national to global. There is also a counter-trend to more small independent film-making, made possible by cheaper digital equipment and online distribution. But the main viewing around the world is that of expensively produced premium products, and these have their distinct business dynamics.

Lastly, where does this leave *Cahiers du Cinema*, that bible of cinephiles? *Cahiers* itself became commercialized and mainstreamed. It was first acquired by the main newspaper group *Le Monde*, then by Phaidon, a London publisher, in 2009. In 2012, Phaidon itself was bought by Leon Black, American owner of Apollo Global Management and son of the former owner of United Fruit Company (now known as Chiquita Banana and United Brands), one of the world's quintessential "neo-colonialist" companies.

Cahiers has therefore come a long way from its post-modernist and Maoist days. It is owned by the same people who control Caesar's Palace, Harrah's Casino, Elvis Presley Enterprises, Twinkies, Century21 Real Estate, Norwegian Cruise, American Idol, Veil Resorts, and Jacuzzi. Will it be the same trajectory for French cinema, whose renewal and character the magazine has shaped for decades?

225 "Canal+." *CanalPlus*. Last accessed August 22, 2014. ► http://www.lesoffrescanal.fr/homepage-univers-canalplus. In 2016 Canal Plus revamped pricing by offering intro package at €20/$21.51 per month for only the Canal Plus main channel. A sports package costs €50/$53.93, a Cinema/Series package €40/$43.12, a family package €50/$53.93, and a complete package about €100/$106.99 a month. Keslassy, Elsa. "Canal Plus Revamps Pay-TV Plans to Double Subscribers, Widen Scope." *Variety*. Last accessed April 19, 2017. ► http://variety.com/2016/film/global/canal-plus-revamps-pay-tv-plans-to-double-subscribers-widen-scope-1201887826/.

226 DirecTV. "HBO." Last accessed April 17, 2017. ► https://www.directv.com/premiums/hbo; DirecTV. "Showtime." Last accessed April 17, 2017. ► https://www.directv.com/premiums/showtime. Smith, Alex. "Verizon FiOS Custom TV – New Pricing, Deals in 2016." November 8, 2016. Last accessed April 19, 2017. ► http://www.catv.org/verizon-fios-custom-tv/.

227 StudioCanal. "Activities." Last accessed May 29, 2013. ► http://www.studiocanal.com/en/activities/france.

228 Goodfellow, Melanie. "French Producers boycott CNC over Crew Pay Deal." *ScreenDaily*. March 21, 2013. Last accessed June 17, 2013. ► http://www.screendaily.com/news/french-producers-boycott-cnc/5053189.article.

229 Hopewell, John. "Variety's Achievement in Int'l Film Award: Olivier Courson." *Variety*. May 11, 2012. Last accessed May 30, 2012. ► http://variety.com/2012/film/news/creative-punch-meets-biz-savvy-1118053319/.

3.10 Conclusion: Success Elements for Content Production

What does it take for success in content creation and production? Creativity and originality, of course; but that is not enough. Content creation requires "organized creativity." The image of content production is one of individualism. The reality, once one moves beyond an initial flash of inspiration, is collaborative effort, in the same way that individual inventors have largely been superseded for major innovation by organized R&D efforts by development teams from large or specialized firms.

In the media and communication sector, content creation has been an increasingly organized team effort. Newspapers, for example, rely on reporter teams, editors, a newsroom, and so on. Performance arts, such as theater, dance, and music, depend on troupes, orchestras, and bands. Software and game companies rely on large development teams. In novels, the author (still largely the solitary creator) works with teams of editors and marketers. Other books—such as educational, reference, and "how-to" books—do not depend on an individual creator but rely on author and editor teams.

Content creation is a high-risk activity, trying to meet the great but unpredictable audience demand for entertainment and information. There is an intense competition for audience attention.

Film may be the forerunner and path breaker for most types of content creation. By analyzing Hollywood, we may find the success factors for content production more generally.

So, what do we deduce to be the elements of success for commercial content production? People can imagine dark conspiracies that keep Hollywood successful, but they should instead look at it as a different business model. Most of its elements are only secondarily artistic, but firstly managerial.

Key success factors for media production are diverse and can be grouped by focus:

■ Risk-Reduction Techniques

Enable expensive production under uncertainty and risk through:

- A system of risk financing;
- Portfolio diversification;
- Transformation of discrete projects into a flow model.

■ Product Development

- Popular-taste oriented style and niches;
- A strong pipeline of project proposals;
- A strong system of selection and testing;
- Budget and cost tracking.

■ Organizational Structures

The most important success factor of content business is its evolving business model. That business model is important to all industries and all companies, not just in the media and digital sector.

- Project-based, ad hoc organizations with low fixed costs and high project entrepreneurship;
- Skewed reward system as incentive to creators.

■ Put Together, the formula seems to be: *Competitive Creation and Oligopolistic Distribution*

The elements of content production reinforce each other. There is geographic clustering, as well as constant artistic and business interchange, as well as interaction and information exchange. There is also a physical agglomeration of activities, which creates proximity to skills and restructuring (disintegration) of content production. We can see these developments now moving to the breakup of electronics and other companies, with some specialist firms doing the design, others making the components, others manufacturing, and others doing the marketing. Hollywood has developed this model not because of its superior access to management gurus, but because it has been engaged in a Darwinian process. Each year about 200 major films are being produced. Each of the major films costs about $70–100 million to make, and $40 million or more to promote. Many of these films disappear within days. Thus, under the pressure to sink or swim, companies and business practices evolved and reengineered themselves continuously.

In that model, the Big Six Hollywood studios are mostly in the business of distributing films made by small independent or semi-independent firms. The studios also finance some of them, fully or partly. They may rent them production facilities, but their share in the actual production of the major films they distribute keeps declining, and is probably less than 20% now. (There are many gray shades between outright studio production and truly independent production.)

The studio companies (and similar companies in other sectors of the media) are the integrators of this system, but they themselves are small relative to their activity level: low-central bureaucracy, low overhead, low risk assumption, and low employee benefits to support. Even much of management staff is project-based.

Content production in film today is thus in the hands of hundreds of small independent production companies, some established, some ad hoc, and some start-ups, which in turn use hundreds of specialized firms with special skills. This has restructured the industry from one of vertically integrated firms with in-house skills to one based on specialists for hire. It forces the central media companies to concentrate on the co-ordination of multiple skills and elements, with an emphasis on multinational, multicultural, and multimedia orientation. Their other major roles are in financing production and managing the distribution of the product.[230]

Such a model of the project-oriented, increasingly "virtual" production firm may be the forerunner model for many business operations in general, which integrates creativity with business needs:

- Decentralized;
- Networked;

230 Rifkin, Jeremy. "When Markets Give Way to Networks… Everything Is a Service." *The Age of Access: How the Shift from Ownership to Access is Transforming Modern Life.* (London: Penguin, 2000), 24–95.

- Virtual;
- Freelance;
- Global.

The major content firms then are mainly co-ordinators, integrators of the specialist firms, and branders of the final products. This might be, for many industries, the business model of the future. It would not be the first time that media has led the way for a general business transformation. The printing press led the way for an industrial mass-production system. Perhaps the film industry model, created in the Darwinian process described, is a forerunner for the next stage: the global post-industrial production system and economy.

3.11 Review Materials

Tools Covered

- Portfolio diversification for content
- Markowitz Frontier
- Options approach to project selection
- Project selection and valuation
- Queuing models
- Process flow diagrams
- Linear Programming
- CPMs
- PERT
- Release Sequencing
- Gantt Charts
- FMEA
- Six Sigma
- Production and Cost Functions
- ABC

Issues Discussed

- Diversification
- Role of distribution
- Development
- Budgeting and cost control
- Specialization and clustering
- Risk reduction strategies
- Diversification of content
- Selection and development of content
- Insuring movies
- Budgeting
- Integration
- Hollywood success factors
- Production types
- Globalization of content
- Film industry history
- Film industry worldwide
- Book industry production
- Music industry production
- Video game industry production
- Software industry production
- Theater industry
- Industry structures
  - Specialization
  - Industry clustering
  - Vertical integration
- Print process
- The role of stars
- The role of technology
- The impact of budget
- Productivity
- The future of content production.

3.11.1 Questions for Discussion

1. What is the effect of vertical integration of production with distribution and supporting industries (books, toys, music games) on the success of Hollywood?
2. What media production industry (book publishing, Hollywood, TV, video games) is least dependent on the others? Why? Is that an advantage or disadvantage?
3. Can lack of diversification be used as a risk reduction technique? When and how can it be successful, if at all?
4. What accounts for the high selectivity of the book industry since even bestsellers have the lowest investment cost when compared with blockbusters of other major content production industries?
5. Which characteristics of major non-Hollywood industries (automobiles, manufacturing, services) should Hollywood adopt to better itself?
6. How can one define and measure productivity in content production? Is it increasing?
7. How will advancements in technology influence the future of film production? Newspaper production?
8. How can the European film industries become more financially successful? Why, in contrast, are European book publishers more successful?

9. Is the Hollywood production model a suitable model for other industries of the economy? What is an example?

10. What are the ingredients of successful content production in music? What do they suggest for content production in general?

11. Can content production be organized on an industrial scale? How can mass-production accommodate individualized creativity?

12. Where can individual production processes be applied to the content industry?

3.11.2 Quiz

1. Of the following answers, which one is *not* a reason for the unfavorable economics of theater?
   A. Expensive to promote;
   B. Difficult to create special effects;
   C. Expensive to produce;
   D. Expensive to distribute.

2. When did Hollywood produce the most films annually?
   A. 1950s and 1960s;
   B. 1990s and present day;
   C. 1920s and 1930s;
   D. 1970s and 1980s.

3. The television and the film industries have always worked together to maximize their profits.
   A. False;
   B. True.

4. The video game industry is becoming more creative with its products and taking more financial risks.
   A. True;
   B. False.

5. Of the choices below, which country annually produces the most films per population?
   A. France;
   B. Italy;
   C. USA;
   D. Germany.

6. Films with which ratings are the most profitable for Hollywood?
   A. R rated;
   B. PG-13 rated;
   C. PG rated;
   D. G rated.

7. Which of the following is *not* a negative cost for a production company?
   A. Printing;
   B. Paying "below the line" cost;
   C. Film editing;
   D. Script development.

8. Which of the following is a disadvantage of vertical integration?
   A. Raising of entry barriers for competitors;
   B. Cross-marketing possibilities;
   C. Alternative distribution for independent films;
   D. Creation of captive suppliers and buyers.

9. What structure is today's media production firm taking on?
   A. Market model of the firm;
   B. Centralized firm model;
   C. Network firm model;
   D. None of the above.

10. In Hollywood, along with the music and video game industry, which is more important?
    A. Cost reduction;
    B. Revenue generation.

11. Which of the following is *not* a reason for Hollywood's project selection success?
    A. Hollywood has learned to influence legislation;
    B. Hollywood has a superior selection system to other film industries;
    C. Hollywood has first pick to the best projects;
    D. Hollywood has available investment funding for development.

12. A strong financing structure to invest significant capital into movies is missing from the European film industries relative to the structure of Hollywood financing.
    A. True;
    B. False.

13. Which of the following is *not* a risk-reducing strategy in production?
    A. Insurance;
    B. Shadow pricing;
    C. Step-wise investment;
    D. Diversification.

14. Which of the following statements is true of the magazine publishing industry?
    A. Despite the recent mergers of global media companies, magazine-only companies can still prosper as only 160 of over 22,000 magazines have a circulation over 500,000;

B. With the mergers of global media companies, there are only a handful of companies which print 22,000 consumer magazines;
C. Both are true;
D. Neither is true.

15. Which factor influences the production budget of a music recording?
A. How many recordings the label thinks it can sell of the artist;
B. Reputation and experience of artist;
C. Genre of music;
D. All of the above.

16. The primary co-ordinator for a new film in many countries outside the USA is:
A. The distributors;
B. The talent agency;
C. The executive producer;
D. The director.

17. Which of the following is *not* a media product content category?
A. profit-driven;
B. segment-driven/niche;
C. talent-driven;
D. marketing-driven.

18. What are the limitations of PERT (Program Evaluation and Review Technique)?
A. May only be a guess;
B. Consistently underestimates the expected project;
C. Activity time estimates somewhat subjective;
D. All of the above.

19. In a Broadway theater production, what two aspects make up nearly 40% of the budget?
A. Physical production and advertising/marketing;
B. Advertising/marketing and salaries;
C. Physical production and salaries;
D. Salaries and general administrative.

20. What percentage of films produced in India come out of Bollywood?
A. 50%;
B. 25%;
C. 100%;
D. 75%.

21. What is not a way to reduce risk in content production?
A. Market forecasting;
B. Insurance;
C. Shifting of risk to others;
D. Specialization;
E. Hedging.

Quiz Answers

1. A
2. C
3. A
4. B
5. A
6. D
7. A
8. D
9. A
10. B
11. B
12. A
13. B
14. A
15. D
16. D
17. A
18. D
19. A
20. B
21. D

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_4

4.1 Technology Management

4.1.1 Technology Drivers and Trends

The media sector consists of three broad segments: content creation, distribution, and media devices. This chapter focuses on the devices and their development, and more generally on the technology of media and communications that also underlies distribution networks and content production. The key question of technology management is how to reconcile an unpredictable and disruptive process of innovation with organized business management.

The issues addressed are:

1. How does a media company organize its technology function?
2. How does technology innovation affect media industries?

Technology transforms our lives, our work lives, and the way we produce and consume media. For media firms, technology is destiny; or, at least, it is a trajectory, a direction. Technology has always initiated big media innovations. The printing press created the publishing industry. The telegraph spawned global wireline networks. The phonograph created the music recording industry. Broadcast technology and TV screens shifted mass media to the home. More recently, personal computers (PCs), cellular mobile networks, and the internet have been rapidly transforming the creation, distribution, and location of media.

As mentioned, in the industrial revolution the main technology driver was the ability to create machine-based power as a substitute for human and animal muscle power. For the information revolution the main technology driver is the increased ability to create machine-based information processing as a substitute and complement for human brainpower. This is done through the ability to manipulate subatomic particles (electrons and photons) through a variety of devices, followed by an ability to string these devices together to create systems and applications, which can process all forms of information based on binary signals.

Not long ago, the various types of media employed specialized technology devices: text-based media such as newspapers used the printing press; audio-based media such as music used spinning vinyl records; film had its celluloid photographic technology; TV broadcasting transmitted various analog waveforms, while telephone networks enabled two-way audio signals over copper lines. Each of these media types was based on separate technologies, devices, suppliers, producers, industries, and regulatory systems. But, more recently, all are increasingly based on common technical elements:

- semiconductor electronic components;
- software programs and modules
- radio-frequency transmission and receiving devices;
- information processors;
- display screens;
- optical signal devices;
- storage devices and components;
- battery technology;
- fiber transmission and distribution links;
- signal switching and routing devices;
- information coding methods.

Because these components are usable across most types of media devices, the expectation was that this would also lead to a convergence in the underlying media technologies in media industries and firms, and thus of media themselves.

"Media convergence" thus became a concept much bandied about, but it was slower to emerge in reality. In the 1980s, the conventional wisdom was that the future electronic environment would be dominated by a titanic struggle between the giants AT&T and IBM, then dominant in their respective sectors of telecom and computers. Both were making big electronic boxes that were interconnected worldwide and which generated and controlled flows of digital information. Inevitably, they would become each other's greatest rivals. And indeed, AT&T joined the computer market, after the US government dropped its entry restrictions, while IBM started to operate global satellite communications and data networks. Soon, however, business reality set in. None of the forays proved successful. IBM withdrew from the telecommunications sector while AT&T abandoned its business in computers after incurring huge losses. There were other instances where successful companies moved beyond their core area and failed. Time Warner, in a major merger with AOL, wanted to enter the internet; Microsoft made major investments in cable TV; the Japanese consumer electronics (CE) giant Matsushita (Panasonic) bought a Hollywood film studio; Bertelsmann moved into online activities. The outcomes were disastrous for the companies involved.

Will the same happen to the new set of companies, in particular Google, Apple, Amazon, Facebook, and Samsung? Beyond company-specific rules, the more fundamental reason is that convergence is not the only business trend. A second powerful trend is the acceleration of innovation, and with it the incentives to specialization and differentiation in order to succeed in a highly competitive environment.

While technology has been converging, few firms have succeeded in keeping up with the pace of change in multiple fields. Why not? To answer this question, we will discuss throughout this chapter a major "convergence firm"—the Japanese electronics and entertainment company Sony.

4.1.2 Case Discussion

Sony and the Perils of Technology Convergence

Is Sony the exception to or a confirmation of the frequent failure of convergence companies in the technology field? Sony has been active in many media and media technology sectors: TV sets, radios, audio players, computers, cameras, film production, TV shows, music, film production equipment, game hardware and software, telecom handsets, and financial services.

The question is, can Sony be a technology leader in all these fields? Has Sony's technology strategy of convergence worked?

For 14 generations, the Morita family ran a sake brewery in Osaka. After Japan's defeat in World War II in 1945, Akio Morita broke away from family tradition and started, in a basement, the Tokyo Telecommunications Engineering Corporation, soon renamed Sony Electronics. In 1950, Sony came out with its first breakthrough product, the inexpensive transistor radio, TR-55. By the late 1950s, Sony had become a major producer of radios, television sets, and other home entertainment devices. In the 1970s, Sony changed its strategy from a low-cost producer to a technology leader with a wide array of smartly designed products.

In 1975, Sony introduced the first consumer video cassette recorder (VCR), the Betamax. But its rival Matsushita's Video Home System (VHS) technology prevailed. In 1979 Sony introduced the Walkman as a portable cassette tape audio device and sparked a revolution in portable music and in music cassette sales.

Sony's strategist in the 1980s was Norio Ohga, who had had a career as an opera singer and symphony orchestra conductor. Ohga negotiated Sony's acquisition of CBS Records for $2 billion, and this helped Sony launch the compact disc (CD). Based on the success of the CD, Sony entered the film business as well. In 1989, Morita bought the film studio UA-Columbia from Coca-Cola for $3.4 billion. Nobuyuki Idei, who handled the home video division, succeeded Morita as chief executive officer (CEO). Sony was nicely balanced across its business segments and geographic regions, deriving about a quarter of its sales each from Japan, Europe, the USA, and the rest of the world. Sony became, according to annual Harris Polls, America's number one "best brand" for most of the years 1996–2007, ahead of Coca-Cola, Ford, or General Electric (GE).

After 2000, however, Sony has been under pressure. Worldwide prices for CE products fell. New competitors emerged. Sony's revenues declined, as did its profits and stock price. By 2005, Moody's lowered its long-term credit ratings for Sony from A1 to A2. In that year, Sony's most profitable business was not electronics or entertainment but financial services.

Under fire, Idei's successor Kunitake Ando was forced to step down. Welsh-born Howard Stringer, a former news producer for CBS in New York, became Sony president. He spoke no Japanese, was no engineer, and operated mostly from Sony's American base in New York.[1]

Sony began rebuilding. It sold its real estate assets and financial services, and dropped 6% of its workforce (16,000 employees). It eliminated about 600 products, closing four plants in Japan and another four overseas. Another round of job reductions was started in 2012, totaling over 10,000. But this did not end the problems. Sony's products did not sell as they used to. It lost much money on its TV sets, fell behind in flat screens, laptops, and mobile phones, and was weak in MP3 players, despite the connection to its own huge music division (which also declined.) The questions are, therefore, whether Sony's technology efforts worked well, whether they were well managed, or whether they contributed to the decline of the company.

4.2 How Is Research and Development Managed

4.2.1 The Technology Function

Research and development (R&D) is the creation of new knowledge by the firm and the strengthening of its existing and future operations and products. "Research" expands the firm's scientific knowledge and engineering skills. "Development" applies this knowledge and makes it relevant to the firm's business through new products.

The image of innovation has been that of an individualistic endeavor. Lone (or duo) inventors indeed abound—Gutenberg, Fulton, Watt, Marconi, Morse, Bell, Tesla, the Wright brothers, the Lumière brothers, Jobs and Wozniak, Gates and Allen, Brin and Page. But the reality of corporate R&D is less glamorous than such heroic images of invention. Thomas Edison's major innovation might not have been the real lightbulb but the figurative one: the organized process of invention.

Edison established a free-standing laboratory in 1876 in Orange, NJ. In that laboratory a year later, the Edison team developed a rotating wax tin-foil cylinder with grooves, and created the first CE product. In 1891, Edison's lab came out with an early movie technology. In 1879 the lab developed the light bulb, which led to electric power generation and distribution, which in turn enabled and powered numerous new devices.

Following this model, major companies established large and organized R&D structures. They created sprawling research facilities such as Bell Labs, IBM Labs, RCA Labs, and GE Labs (◘ Figs. 4.1 and 4.2).[2] Similar big corporate laboratories exist in other countries.

This approach has not been the organizational path for start-ups, which follow more the lone-inventor model. However, some of the most innovative technologies were initially spawned inside the large labs by researchers who then went out on their own.

1 Schlender, Brent. "Inside the Shakeup at Sony." *Fortune Magazine*. April 4, 2005. Last accessed August 10, 2012. ► http://money.cnn.com/magazines/fortune/fortune_archive/2005/04/04/8255921/index.htm.

2 AT&T also operated a huge R&D facility at Murray Hill, NJ and several other research centers. Photo used under Creative Commons. Beaumont, Lee "Bell Labs Holmdel." ► https://commons.wikimedia.org/wiki/File:Bell_Labs_Holmdel.jpg.

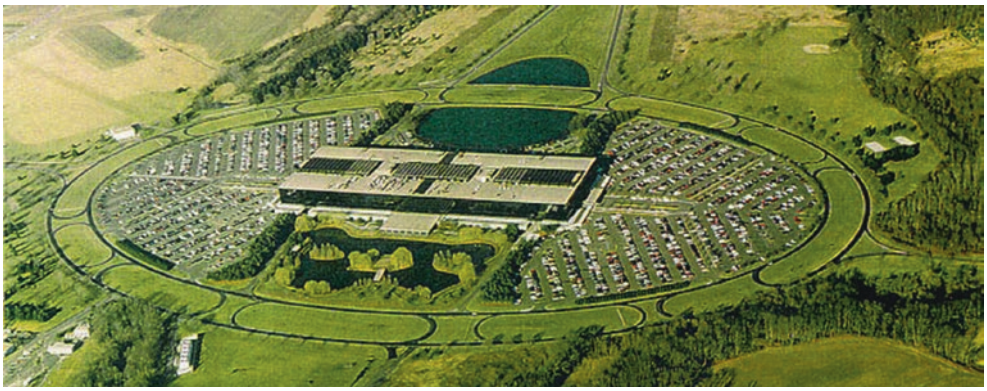

Fig. 4.1 Bell Labs R&D facility in Holmdel, NJ

Fig. 4.2 Bell Labs R&D Facility in Murray Hill, NJ

4.2.2 Chief Technology Officer

Inside a company, the technology function is often run by an executive with a title such as Chief Technology Officer (CTO) or Chief Scientist. The CTO is the link between business managers and technical personnel. His (or her) role must be distinguished from the Chief Information Officer (CIO), who is responsible for internal information technology (IT) adoption and support. It must be also distinguished from a more recent "C-level" position, that of the Chief Digital (or Data) Officer (CDO). The CDO's responsibility is to ensure that a company's digital databases and content are used effectively. The CIO role, too, has changed substantially over time and assumed greater importance.[3]

The CTO is not a lab director but rather a technical- and management-savvy businessperson (often with a tech background) who shapes part of the overall corporate strategy along the dimension of technology.[4] The CTO's role differs depending on company, industry, and personal qualifications. Generally, she oversees the process of technological innovation in products and operations. To do so, the CTO needs to be a change agent who can identify new technology and bring it into the company. Obviously, large companies are more likely to deploy a CTO than small ones, but conceptually even a grocery store needs someone who takes the initiative to bring in new technology.[5]

The tasks for the CTO are numerous, and include:

- technology assessment;
- supervising innovation and product development;
- selecting key R&D projects for funding;
- integration of R&D with firm strategy;
- placement of R&D;
- procurement and implementation of internal and outsourced technical systems;
- design of technical operations;
- structuring R&D activities;
- organizing the R&D lab;
- cost control of R&D;
- managing the globalization of R&D;
- implementing R&D alliances;
- working with independent developers and "Open Innovation";

3 Before the 1980s, CIOs were called Information Systems Managers. As with the CTO, there is no well-defined model. Strickland, Stefanos A., and Babis Theodoulidis. "Chief Information Officer: A Journey Through Time." Working Paper, Centre for Service Research, Manchester Business School, University of Manchester, 2011.

4 Lewis, W.W. and H. L. Lawrence. "A new mission for corporate technology." *Sloan Management Review* 34, no. 3 (1990). Taken from Smith, Roger D. "The Role of the Chief Technology Officer in Strategic Innovation, Project Execution, and mentoring." *Research Technology Management* 46, no. 4 (August 2002): 3.

5 Smith, Roger. "5 Patterns of the Chief Technology Officers." *Research Technology Management*. Last accessed April 30, 2017. ► http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.158.1721&rep=rep1&type=pdf.

- knowledge management (KM) for R&D;
- participation in standards strategy;
- participation in the internal adoption of technology;
- creating a climate of innovation.

We will now review several of these functions as a way to understand a company's management of technology, a critical function in the media and communications sector.

4.2.3 Key Tasks for the CTO: Technology Assessment

The CTO identifies present and future technology options and assesses their potential role for the company. Factors are technical viability and business potential.[6] A similar assessment effort must be conducted by investors when they evaluate a start-up firm that is based on new technology, or by a company when it tries to acquire another firm that holds special technologies and patents.[7] Technology assessment can use market research to find out what consumers want, but this will often disappoint. In most cases, the CTO must be ahead of consumers.

The technology assessment includes a review of:

- technological claims of the innovation;
- track record of the technology;
- track record of the lead innovators;
- rival approaches and competitive advantages;
- in-house R&D capabilities;
- implementation issues;
- patent and other intellectual property rights (IPR) issues;
- fit with company strategy;
- upside potential and downside risks;
- market opportunity;
- financial requirements to create or acquire the technology;
- financial requirements for product roll-out.

A forward-looking perspective is essential. When he was Microsoft's CTO, Nathan Myhrvoid observed: "my job at Microsoft is to worry about technology in the future. If you want to have a great future you have to start thinking about it in the present, because when the future's here you won't have the time."[8]

However, assessing technology is difficult even for experts. One of the greatest scientists of all time, Ernest Rutherford of Cambridge University, dismissed nuclear energy in a presidential address to the Royal Physics Society in 1933: "Anyone who expects a source of power from the transformation of these atoms is talking moonshine."[9] At the opposite extreme, another famous scientist, John von Neumann, predicted in 1956 that "a few decades hence, energy may be free, just like unmetered air." If two such leading lights can be so wrong, and diametrically so, how can a lesser technology manager have a chance to be right? The answer is that a CTO need not deal with the long-range future of science. Her role has to be to deal with the set of "plausible possibles," that is, with scenarios and opportunities that are composed of already existing building blocks.

How to go about looking forward in such a way? To stay close to the leading edge, information is key. This means close ties to academic laboratories and journals, attendance at trade shows, reading of trade and technology magazines, checking out websites, and the creation of a personal network of respected innovators and business analysts.

Another way to review the state and pace technology advances in a field is to look at published patents in one's sector.[10] Patent applications and grants are useful as a source of information about the "prior art" of technology innovations. Looking at patent applications one can identify competitors, innovators, and potential partners and licensees, as well as the velocity of technology in a sub-area.[11]

As mentioned earlier, in engineering terms the driver of the revolution in IT is our increased ability to manipulate sub-atomic particles—electrons and photons. The components to do so are the building blocks of IT devices, which in turn are constituent parts of systems and networks. These devices are governed by controls—software. The manipulated particles are used for the generation, distribution, storage, processing, and display of various forms of content and of applications.

Progress in the field of electronics has followed broad trends. A major way to assess a specific technology is to compare it with the more general rate of change in the electronic sector. Forty years ago, the computer electronics pioneer Gordon Moore observed that the power of semiconductors doubled every one to two years and predicted that this trend would continue. This rate of progress—about 40% a year—became famous as Moore's Law. And indeed, it described the progress over the next decades pretty well. Computer components became smaller, or more powerful, or cheaper, at roughly the predicted rate. Whereas in 1970 a memory chip would store 1000 bits, it holds up to 8 trillion in 2017 (1 TB). Such progress enables marvels of technology, from CAT scans to video over cellphones. It also provided an important anti-inflationary force to the economy.

Almost immediately, however, people questioned the validity of the law. Some objections were based on specifics of physics, electronics, systems design, and software.

6 Inside Jobs. "CTO." Last accessed July 11, 2011. ► http://www.insidejobs.com/jobs/cto.

7 Smith, Roger D. "The Role of the Chief Technology Officer in Strategic Innovation, Project Execution, and mentoring." *Research Technology Management* 46, no. 4 (August 2002): 10.

8 Smith, Roger. "5 Patterns of the Chief Technology Officers." *Research-Technology Management*. Last accessed April 30, 2017. ► http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.158.1721&rep=rep1&type=pdf.

9 Doyle, Jim. "Energy from Nuclear Fission." June 20, 2011. Last accessed July 12, 2011. ► http://www.btinternet.com/~j.doyle/SR/Emc2/Fission.htm.

10 The US government's website for patent searches is ► http://patents.uspto.gov. IBM's free site ► http://patent.womplex.ibm.com. In Europe, the European Patent Office is at ► http://www.epo.co.at:80/index.htm. And in Japan (with a fee for full text translations) ► http://www.intlscience.com and ► http://www.jpo-miti.go.jp.

11 Department of Commerce. "US Patent Office." May 27, 2011. Last accessed June 12, 2011. ► http://patents.uspto.gov/.

But the basic objection required no knowledge of advanced technology. It was simply that an exponential trend of this magnitude could not continue into the far future. Eventually improvements would become harder, costlier, less important, less profitable, and hence slower in coming.

And yet, confounding the predictions of its imminent demise, Moore's Law has shown remarkable resiliency. Further progress in processing power per cubic inch will come from a variety of exotic sources, such as three-dimensionality of components, carbon nano-tubes, quantum computing, X-ray lithography, system-on-a-chip, and new fabrication systems. Yet the basic point of an eventual slowdown is still valid, even if it is postponed.

Part of the secret for the law's resilience has been that it has moved from prediction to self-fulfilling prophecy. It establishes a time line for progress that everyone in this highly decentralized industry understands. When a company is engaged in developing the next generation of its components, software, or hardware, it knows that the overall pace of technology progresses at the rate of Moore's Law, and it must plan to match it. If it falls behind that pace it must add engineers, money, and partners to its development effort. If it is too far ahead, it might end up designing products that have no complementary devices or content and will not find buyers. If its production costs do not drop fast enough it must compensate by gaining scale or moving to cheaper shores. Thus, like a giant bell tower, Moore's Law has helped to synchronize global electronics.

Similar trends can be observed in the transmission throughput "speeds" achieved by engineers, which leads to ever-cheaper transmission "bandwidth,"[12] or to the increased amount of information that can be stored and processed in less and less space for less and less money. It also translates to an exponential trend in the cost per unit of distribution of information over time.

A firm can look ahead, identify the trends in the underlying components in terms of performance and cost, and then analyze in what direction this is taking the industry. There is no need to resort to science fiction. One can observe the trends, what leading edge adopters are already doing, and what technology companies are offering by way of hardware and applications. Of course, details of developments are unfathomable in advance, but the broad trend is a different story. When radio emerged in the 1920s, it was new, different, and unpredictable. But the same could not be said for broadcast television and satellite television. There, one could make strong predictions about where things would be going, based on the experience of the preceding media generation of radio. More recently, the internet was another paradigm shift whose impact went beyond advance analysis. But once established for text, its application to audio and video were much easier to analyze without resorting to science fiction. We can be quite certain, for example, that the trend of component consolidation will continue toward a computer (or system) on a chip, with multiple functionalities joined together that have been separate in the past, and that connectivity speeds will continue to rise. If there is a problem of analysis, it is often the gold rush mentality permeating the environment, which makes detached analysis difficult.

4.2.3.1 Selection of R&D Projects for Funding

According to one analysis, it requires about 3000 raw ideas to produce one substantially new commercially successful industrial product.[13] These 3000 new ideas are narrowed down to 125 small projects of which approximately nine evolve into significant projects for major development efforts and commercial launches (◘ Fig. 4.3).[14] Of these only one is commercially successful.

With these staggering odds, how is a firm to evaluate how to select among technology ideas?

Innovation is a discovery process and may not necessarily have a sure destination.[15] But it helps to define the task for the R&D project clearly. When Steve Jobs envisioned the iPod, he defined the goal as "1000 songs in my pocket." Once a task is well-defined, it is easier to develop a focused and actionable strategy. (However, many of the most important innovations cannot be willed but emerge serendipitously).

Ralph Waldo Emerson wrote, "If a man can write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door." But this is not necessarily true. Studies show that 40–90% of new products fail, many of them superior to what exists otherwise. Experts and early adopters loved TiVo's digital video recorder, but consumers were reluctant to sign up and the company lost over $600 million by 2005, and subsequently was in the red in six out of eight years because of low demand.

Why do consumers fail to buy innovative products? An explanation is supplied by behavioral economists such as 2002 Nobel Prize winner Daniel Kahneman, who showed, with Amos Tversky, that consumers have a "loss aversion," which means that they fear losses much more than gains of the same magnitude. The problem with introducing a new technology or applications is that is forces consumers to change their behavior, which is never easy. Studies show that people tend to overvalue the benefits of the goods they own and know over new ones, by a factor of 3:1. Innovators, at the same time, overvalue their new products by the same factor. Having put their ideas, hopes, energy, money, and time into a new product, innovators tend to lose a sense of realism.[16] Taken

12 Magee, Christopher L. "A Quantitative Functional Approach to the Study of Technological Progress." Massachusetts Institute of Technology. April 30, 2007.

13 Stevens, Greg A. and James Burley. "3000 Raw Ideas = 1 Commercial Success!" *Research Technology Management* 40, no. 3 (May/June 1997): 1–12.

14 Graph based on Stevens, Greg A. and James Burley. "3,000 Raw Ideas = 1 Commercial Success!" *Research Technology Management* 40, no. 3 (May/June 1997): 1-12.

15 Satell, Greg. "How to Manage Innovation." *Forbes.* March 7, 2013. Last accessed May 2, 2017. ► http://www.forbes.com/sites/gregsatell/2013/03/07/how-to-manage-innovation-2/.

16 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review* 84, no. 6 (June 2006): 98–106.

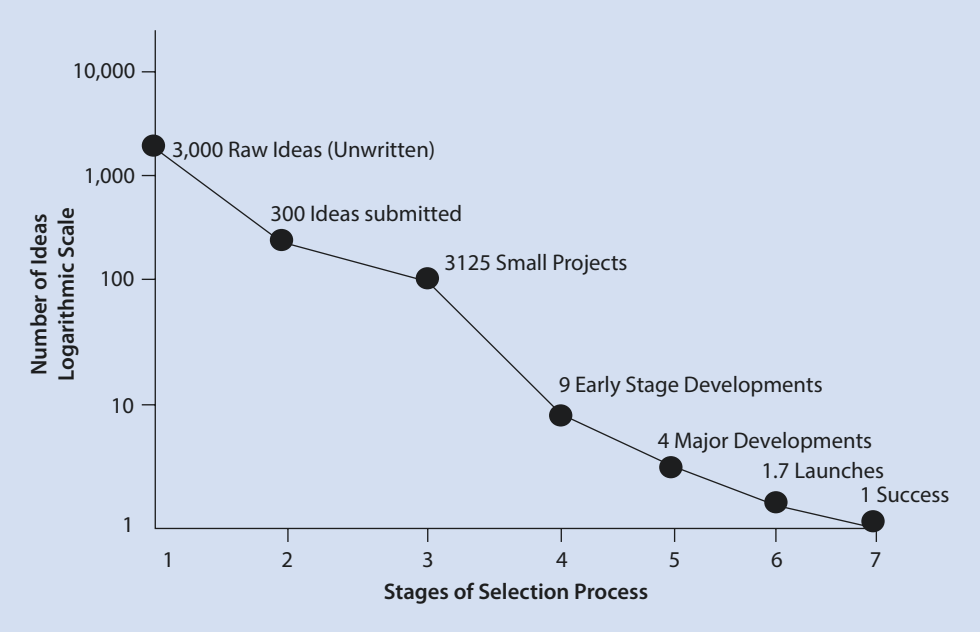

Fig. 4.3 R&D project selectivity and success rate

together, there is a mismatch of 9:1 between what innovators think consumers want and what consumers truly desire. A new product must therefore not be better by a small measure, but its gains must far outweigh the potential losses, or consumers will not adopt it.

In every active company, plenty of ideas bubble up that could lead to promising products. But money, time, personnel, and attention are scarcer than ideas. How then does a company select projects for R&D funding? Gut feeling and hunches are one way to go. Another is to formalize the process. There are several approaches:

- scoring;
- demand research;
- an economic-financial analysis:
  - net present value;
  - real options.

*Scoring method*s rank potential R&D projects according to several performance dimensions.[17, 18] Such dimensions might be the completion probability of a project, its duration, its budget cost, the number of researchers needed to complete the project, the potential use for follow-up products. As an example, assume that five projects (A to E) are assessed (Table 4.1).[19]

Projects are scored along criteria 1–7, with a grade ranging from 1–10 (column 3), and the weighting of the criteria, according to its importance. From 1–10 (column 2). For example, Project A scores a high 10 on criterion 1 and a low 2 on criterion 2. These scores are then multiplied by their weight factor (7.5 and 6.9), resulting in scores of 75.0 and 13.8 (column 4). These criterion scores are then added up, resulting in an overall score of 313.4 for Project A, 286.6 for Project B, and 268.0 for Project C. The projects can be ranked from high to low. Project A scores highest and Project B is second-highest.

However, the scoring method has problems. The formula and its weights tend to be inflexible. Yet if they were flexible and changeable they could be manipulated to get a desired result.

In addition, the decision to proceed with an R&D project is not only a technological one to be made by engineers, because that would lead to "supply-side innovation" and might fail in the market. Almost as important as understanding the technology potential is to analyze the market environment, the demand for a new product, and a competitors rival products. Technologists (and Emerson) often believe that a superior innovation will guarantee acceptance. Regrettably, that is not so. There is a difference between technical promise and business achievement. An R&D project requires, beyond the early technology effort, a sustained level of subsequent investment in commercialization.[20]

The weakness of the scoring method is that a technology-based formula is not linked to a market-based economic and financial analysis. Such an analysis is based on one of several interrelated methodologies: net present value (NPV), internal rate of return (IRR), return on investment (ROI), discounted cash flow (DCF), cost–benefit analysis (CBA), and payback period.

The following is an example for R&D selection based on the NPV and ROI (Table 4.2). Project A contains a new

17 Poh, K.L., B.W. Ang, and F. Bai. "A Comparative analysis of R&D project evaluation methods." *R&D Management* 31, no. 1 (January 2001): 63–75.

18 The Economist. "Out of the Dusty Labs – The Rise and Fall of Corporate R&D." March 1, 2007. Last accessed May 2, 2017. ► http://www.economist.com/node/8769863.

19 Rengarajan, S. and P. Jagannathan. "Project selection by scoring for a large R&D organization in a developing country." *R&D Management* 27, no. 2 (April 1997): 155–164.

20 Leonard-Barton, Dorothy and William A. Kraus. "Implementing new technology." *Harvard Business Review.* November 1985. Last accessed May 2, 2017. ► https://hbr.org/1985/11/implementing-new-technology.

Table 4.1 Ranking and scoring R&D projects

Criterion no.	Weightage factor (WF)	Project A		Project B		Project C	
		Marks	Marks × WF	Marks	Marks × WF	Marks	Marks × WF
1	7.5	10	75.0	10	75.0	8	60.0
2	6.9	2	13.8	10	69.0	8	55.2
3	6.8	10	68.0	2	13.6	2	13.6
4	7.0	10	70.0	10	70.0	8	70.0
5	4.6	8	36.8	2	9.2	2	9.2
6	5.1	8	40.8	8	40.8	10	51.0
7	4.5	2	9.0	2	9.0	2	9.0
Total score			313.4		286.6		268.0

Table 4.2 ROI of projects

Year	0	1	2	3	4	Net profit	ROI	NPV	ROI_D
Project A	−9000	−1000	4000	6000	10,000	10,000	1.0	4304	0.435
Project B	−3000	0	0	3000	6000	6000	2.0	3047	1.016

technology development with high initial research expenditures of 9000. However, the project is expected to have high returns after year 2. In contrast, Project B is a project with modest research expenditures (3000). However, it will not generate revenue for two years owing to authorization procedures. After the first two years, Project B is expected to produce significant returns in years 3 and 4.

If we compare net profits, Project A is superior (10,000 vs. 6000). But what about the return on investment? ROI is found by dividing net profit by the investment. For project A, this would be $\frac{10,000}{10,000} = 1.0$. For project B it is $\frac{6,000}{3,000} = 2.0$. Now, project B seems superior.

But this does not take into account the time-value of money. Some of the revenues are realized in future years down the road. To take this into consideration one discounts the future earnings by a discount rate, say 10% per year. We then obtain NPVs for A and B of 4304 and 3047. Now, Project A seems the superior option. Lastly, if the ROI is used with the time value of money considered (i.e. discounted) as would be the economically proper way, it would be, for A, $\text{ROI} = \frac{4304}{9000+900} = .4347$, and for B, $\text{ROI} = \frac{3047}{3000} = 1.0157$. Thus Project B is the superior choice.

These financial methodologies' chief problem is that it is difficult to forecast future net revenues. It involves subjective projections of sales, prices, the state of the economy, and the effectiveness of competitors. Company projections of future market penetration are often overly optimistic. One must also pick the appropriate discount rate, and that rate varies with risk.

One major problem with the financial analysis of R&D projects is the use of accounting information as the foundation for the data. In accounting, R&D is treated as an expense and not an investment. "Generally Accepted Accounting Principles" (GAAP) establish that R&D be fully expensed in the year it is spent rather than treated as investment that gets spread (amortized) over several years. Yet to expense an R&D project suggests that the project's value is used up during that year. This makes no sense since R&D is an investment in the future. Because of such expensing of R&D, many high-tech firms have a high multiple of their share price relative to earnings (P/E-ratio). Current earnings (E) are depressed by being charged with a high R&D expense, while their stock prices (P) incorporate investors' expected future payoff from that R&D and are thus relatively high.[21, 22]

21 Higgins, Robert. *Analysis for Financial Management*, 8th edition. (New York: McGraw-Hill/Irwin, 2007), 368.

22 The expensing of R&D rather than its capitalization amortization makes less of a difference as long as there is no growth in R&D expenditure. IN steady state, leaving R&D investment off the balance sheet (and amortizing them) and instead expensing them immediately has the same effect on earnings. Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.

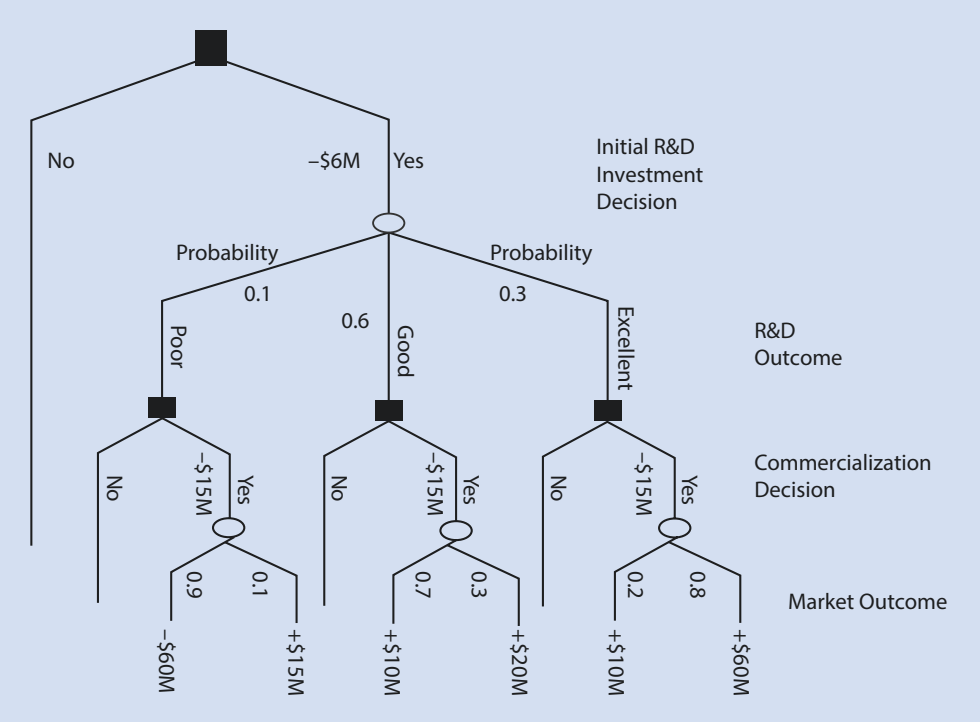

Fig. 4.4 Decision tree for R&D investment

A related financial approach to the valuation of competing R&D projects is to use the Real Options approach.[23] We discussed this approach in the preceding chapter on production. An NPV analysis assumes a one-time go–no go investment decision for an upfront investment. There is no possibility to stop, review, abort, and cut one's losses. It's all or nothing. Instead, one should view the R&D investment decision as decomposed into several stages, and each investment is like an "option" to proceed to the next stage.[24] The Real Options approach analyzes an investment as such a multistep process in which a company can take a first step in a project and then determine whether to proceed to a second investment. Instead of a one-time binary yes–no decision the investment decision becomes a series of several smaller yes–no steps.

The implication of this methodology can be significant. The NPV analysis, by overlooking the option potential of R&D thus biased against longer-term and riskier projects which may have a major impact on the company's future. Similarly, the NPV analysis does not incorporate the implications to a company of not pursuing an R&D project, which may foreclose many future options.[25] Suppose that an R&D project is proposed to develop a 3D printer for creating musical instruments such as flutes or clarinets. Financial returns on the products are uncertain.[26] The results of the proposed R&D project are also uncertain.[27] The decision tree in Fig. 4.4[28] shows these possibilities.

Suppose a firm considers a project with a total upfront cost of $21 million. This can be decomposed into two phases. The R&D stage would cost $6 million. It comes with a serious uncertainty whether it will be accomplished. This uncertainty will be resolved after one year. A "good" result has a probability of $p = 0.6$. There is a smaller chance ($p = 0.3$) of an "excellent" result, but also a non-trivial chance ($p = 0.1$) of a "poor" result. After the one-year R&D stage, there is a commercialization phase which requires an additional $15 million in investment. Then the product is released. Possible returns range from +$60 million to –$60 million.

Table 4.3 uses the numbers of the decision tree to calculate four different evaluations of the proposed project, based on different decision rules. Three of them are calculations dealing with the uncertainties of the market and the R&D. The *NPV #1* analysis assumes that one always chooses the most likely outcome. A 12% discount rate is used to bring the future $15 million commercialization investment to the present value in one year and the $10 million return to the present in two years. This results in an NPV of –$11.4 million.[29] The project would not be approved.

23 Bodner, Douglas and William Rouse. "Understanding R&D Value Creation With Organization Simulation." *Systems Engineering* 10, no. 1 (Spring 2007): 64–82.
24 Morris, Peter A., Elizabeth Olmstead Teisberg, and A. Lawrence Kolbe. "When Choosing R&D Projects, Go with Long Shots." *Research-Technology Management* 34, no. 1 (1991): 35–40.
25 Mitchell, Graham R. and William F. Hamilton. "Managing R&D as a Strategic Option." *Research-Technology Management* 50, no. 2 (2007): 41–50.
26 Boer, Peter F. "Risk-Adjusted Valuation of R&D Projects." *Research-Technology Management* 46, no. 5 (September 2003): 50–58.
27 Faulkner, Terrence W. "Applying Options Thinking to R&D Valuation." *Research-Technology Management* 39, no. 3 (1996): 50–56.
28 Based on Faulkner, Terrence W. "Applying Options Thinking to R&D Valuation." *Research-Technology Management* 39, no. 3 (1996): 50–56.
29 Faulkner, Terrence W. "Applying Options Thinking to R&D Valuation." *Research-Technology Management* 39, no. 3 (1996): 50–56.

Table 4.3 Evaluation methodologies of a project

Valuation method	Year 0	Year 1	Year 2	NPV
NPV #1: The most likely option	−6	$-\frac{15}{1.12}$	$\frac{10}{1.12^2}$	−$11.4
NPV #2: Consider market uncertainty	−6	$-\frac{15}{1.12}$	$\frac{(0.3)(20)+(0.7)(10)}{1.12^2}$	−$9.0
NPV #3: Consider all uncertainties	−6	$-\frac{15}{1.12}$	$\frac{(0.3)\left[(0.8)(60)+(0.2)(15)\right]+(0.6)\left[(0.3)(20)+(0.7)(10)\right]+(0.1)\left[(0.1)(-15)+(0.9)(-60)\right]}{1.12^2}$	−$5.4
Option valuation	−6	$-(0.3)\frac{15}{1.12}$	$(0.3)\frac{(0.8)(60)-(0.2)(15)}{1.12^2}$	$2.2

The *NPV #2* calculation incorporates the various possibilities of the market return, and looks only at the most likely R&D outcome. The *NPV #3* analysis factors in both R&D and market uncertainties and computes the probability-weighted expected values for each stage. In these calculations, too, the NPV comes out negative (the right most column). All three approaches assume that once the initial R&D investment has been made, the firm will continue with the product development. All of them yield negative NPVs, and this would stop the project from being launched. In contrast, the options analysis does not assume a commitment to the commercialization investment until one knows the outcome of the R&D phase. In the example, the commercialization investment will be undertaken only if the R&D result was "excellent," which would happen with a probability of (p = 0.3). There is, of course, a 0.7 chance that such an excellent result will not be reached. However, in that case the project would be fully terminated and the loss to the company would therefore be much smaller than if it had committed itself to the subsequent stages. At each step, a similar decision will be made, whether to pull the plug and cut one's losses, or to plow forward. In the example, such a way to proceed does produce a positive NPV, ($2.2), which means that the investment should be undertaken.

4.2.3.2 Portfolio of R&D Projects

If a company can pursue several R&D activities and have a portfolio of projects there are benefits, because the overall riskiness is reduced. Some projects fail while others succeed. But there is more to a portfolio approach than just the averaging of risk. When the company can choose projects whose success potentials are negatively correlated with each other, the risk of the collective R&D portfolio is lowered. This is similar to a portfolio of financial assets that are negatively correlated, and which we discussed in ▶ Chap. 3 Production Management in Media and Information. For example, if the firm pursues two rival research leads, one of which will work while the other will fail, though it is unclear *ex ante* which one will be which, the individual risk is 0.5 and the average risk of 0.5, but the portfolio risk is reduced to zero.

The two projects are assumed to have the same expected value, in other words potential payoff multiplied by its probability. The one with the greatest risk (the long shot) is the better choice, because of its higher upside. This may be surprising, but it is based on the fact that if in the early stage either project fails the much larger follow-on investment necessary for a project's commercialization can be avoided. Only the initial R&D investment is lost. Thus the riskier project cannot lose more money than the safer project. But the upside is higher for the riskier project in its commercial stages, and the riskier project therefore has a higher expected payoff if the R&D is successful. The safer R&D project is better only in rare situations: for a very low-risk project, or when the initial R&D investment is high relative to the total value of the company.[30]

A final observation: these technological and financial analyses are not be quite sufficient for an optimal selection of projects. Timing, marketing efforts, and market forces may greatly affect the success of a project. But this should not leave a company to rely on pure intuition. A formal framework of analysis forces disciplined thinking as a complement, not a substitute, for good judgment and vision.

4.2.4 Integration of Technology with Firm Strategy

Beyond the technological and economic performance of R&D there is also a question: is the R&D project aligned with the company's overall strategy?

R&D budgets are set for one or several years, but within the budget, decisions about projects are often left largely to R&D management. There is no assurance that the R&D

30 Morris, Peter A., Elizabeth Olmstead Teisberg, and A. Lawrence Kolbe. "When Choosing R&D Projects, Go with Long Shots." *Research-Technology Management* 34, no. 1 (1991): 35–40.

organization, left to its own devices, will pursue programs with a priority on how they relate to corporate strategy, either in focus or in business risk.[31]

Normally, R&D should not drag the company into a strategy different from the one it planned.[32] But there must also be flexibility to capitalize on fortuitous discoveries that are outside the strategic focus of the firm. Usually these should be sold or licensed to others,[33] but there can be exceptions. The 150-year-old Finnish company Nokia was mostly a paper product producer with a small electronics sideline before it seized on the newly opened Scandinavian cellular phone market, the world's first, and became for several years the leading global mobile handset manufacturer.

A company needs to consider a basic question when considering new technologies. How would the new technology affect its ability to create a competitive advantage?[34] The development of technology must be directed by business strategy; but at the same time technology developments define the opportunities to which the strategy must respond. Technology strategy and business strategy are therefore a dialogue.[35]

A major strategic decision for the firm is to select the scope of its activity. It could be a narrowly focused specialist or, alternatively, a broadly based diversified technology developer. Diversification has certain advantages in reducing risk. It allows for synergizing across several product lines and to what economists call "economies of scope"—cost saving in development, production, and marketing of multiple products.

But there are also disadvantages to diversification. In a fast-moving field, if a company is not fully focused on a particular product it may lose its competitive edge for that product. Diversification may also lead to a lower scale than for the specialist firms. Intel is a specialist focusing on microprocessors, and all its R&D goes toward making that product line better, faster, and cheaper. Andy Grove, famed former CEO of Intel, recalled: "The most significant thing was the transformation of the company from a broadly positioned, across-the-board semiconductor supplier that did OK to a highly focused, highly tuned producer of microprocessors, which did better than OK…" Specialized firms may have competitive advantages in their narrow field, with resultant market power.

But specialization means putting all your eggs into one basket.[36] Demand might fizzle or competitors might emerge. Staying specialized without the certainty of weak competition and ongoing demand is risky.[37] Intel, for example, missed out on components for the emerging portable computing devices of smartphones and tablets. Apple and Samsung, on the other hand, have multiple products to fall back on if their smartphones do not work out. But being a jack-of-all trades has disadvantages, too, where competition is strong in each segment. In recent years the debate between specialization and diversification has tended to go in favor of specialization.[38] Thus, a company must find the optimal degree of specialization, somewhere in the spectrum between a single-product orientation and a loose agglomeration of products.

One must also think about innovation across time.[39] The strategic question is how much of a firm's activity level should rely on improving already well-established products and how much of it should be based on products that must be newly developed. The answer would define the extent of R&D that must precede actual production by years. Reliance on the former to a firm's current strength but leaves it vulnerable in the future. Conversely, reliance on future products leaves it vulnerable to risk if things do not work out.

A useful perspective is that of the "three horizons" (Fig. 4.5).[40] One author, Tim Kastelle, suggests that a firm should create a balance between "improving existing products and processes," "searching out adjacencies," and "exploring completely new markets."[41]

The first horizon (H1) involves implementing innovations that improve current operations. Horizon two (H2) innovations are those that extend current competencies into new but related markets. Horizon three (H3) innovations are the ones that will change the nature of the industry. In general, H3 innovations tend to be radical rather than incremental. H1 is low risk, low return, while H3 are high risk, high return. H1 R&D projects, dealing with a firm's core technologies, are typically necessary but not sufficient to achieve competitive advantage. They have well-defined commercial objectives. The likelihood of technical success is relatively

31 Erickson, Tamara J. et al. "Managing Technology as a Business Strategy." *MIT Sloan Management Review.* April 15, 1990. Last accessed May 2, 2017. ► http://sloanreview.mit.edu/article/managing-technology-as-a-business-strategy/.

32 Say, Terry, Alan Fusfeld, and Trueman Parish. "Is your firm's tech portfolio aligned with its business strategy?" *Research-Technology Management* 46, no. 1 (January/February 2003): 32–38.

33 Smith, Roger. "5 Patterns of the Chief Technology Officers." *Research-Technology Management*. Last accessed April 30, 2017. ► http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.158.1721&rep=rep1&type=pdf.

34 Mitchell, Graham R. and William F. Hamilton. "Managing R&D as a Strategic Option." *Research-Technology Management* 50, no. 2 (2007): 41–50.

35 Erickson, Tamara J., et al. "Managing Technology as a Business Strategy," *MIT Sloan Management Review.* April 15, 1990. Last accessed May 3, 2017. ► http://sloanreview.mit.edu/article/managing-technology-as-a-business-strategy/.

36 Hesseldahl, Arik. "Intel Fights Back as Chips Are Down." *Businessweek*. January 17, 2007. Last accessed June 1, 2011. ► http://www.businessweek.com/technology/content/jan2007/ tc20070117_984122.htm.

37 Yager, Tom. "What's a Monopoly to Do?" *InfoWorld* 27, no. 33 (August 2005): 52.

38 Ante, Spencer E. "The Info Tech 100; Constant reinvention of who you are, what you produce, and how you sell it is critical for any tech player." *BusinessWeek*. July 2, 2007. Last accessed May 3, 2017. ► https://www.bloomberg.com/news/articles/2007-07-01/the-info-tech-100.

39 Kastelle, Tim. "Innovation for Now and for the Future," *The Discipline of Innovation.* August 17, 2010. Last accessed May 5, 2017. ► http://timkastelle.org/blog/2010/08/innovation-for-now-and-for-the-future/; The concept goes back to Baghai, Mehrdad, Stephen Coley, and David White. *The Alchemy of* Growth. New York: Perseus books, 1999.

40 Based on Kastelle, Tim. "Innovation for Now and for the Future," *The Discipline of Innovation.* August 17, 2010. Last accessed May 5, 2017. ► http://timkastelle.org/blog/2010/08/innovation-for-now-and-for-the-future/; The concept goes back to Baghai, Mehrdad, Stephen Coley, and David White. *The Alchemy of* Growth. New York: Perseus Books, 1999.

41 Kastelle, Tim. "Innovation for Now and for the Future," *The Discipline of Innovation.* August 17, 2010. Last accessed May 5, 2017. ► http://timkastelle.org/blog/2010/08/innovation-for-now-and-for-the-future/; The concept goes back to Baghai, Mehrdad, Stephen Coley, and David White. *The Alchemy of* Growth. New York: Perseus books, 1999.

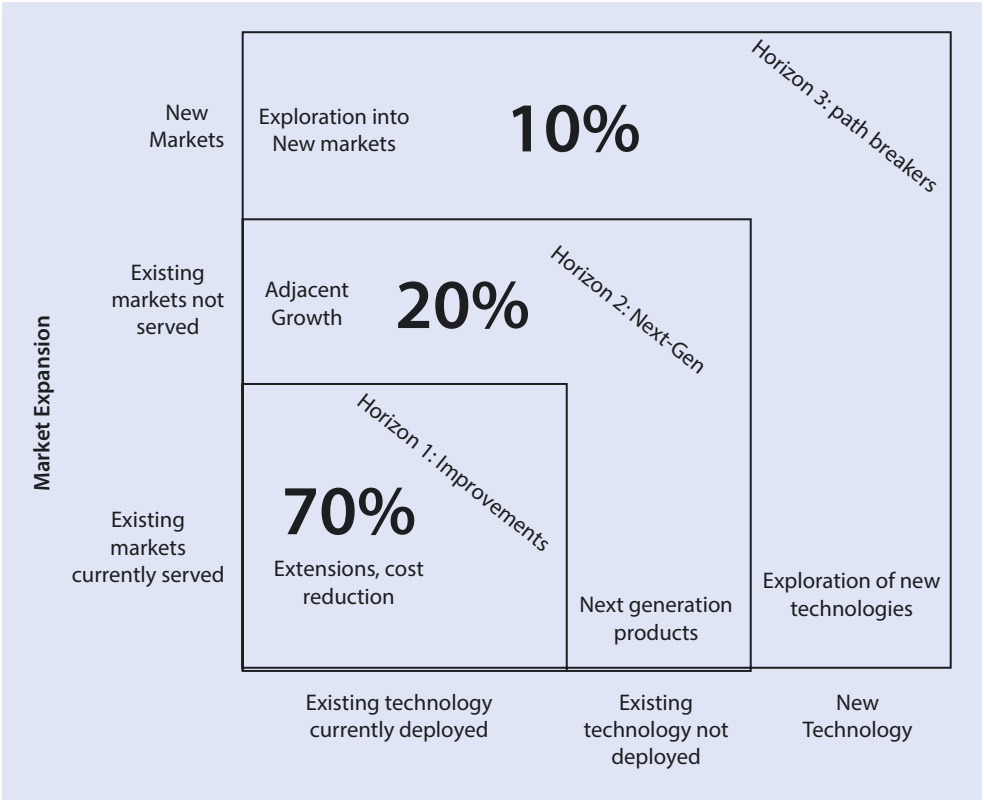

Fig. 4.5 Investment horizons in innovation

high, and the costs and benefits can be defined fairly well. In contrast, R&D in H3 projects is speculative and its budget requirements largely conjecture. The R&D projects of the H2 are somewhere in-between. They deal with key technologies. Thus a firm should have a portfolio of three broad classes of technologies, with the first to maintain its position in the market; the second to provide competitive advantage, and the third category, that of "pacing technologies," aims to advance the market significantly.[42] A firm should think of its innovation efforts as a portfolio, with innovation taking place across all three time horizons. The balance is based on the firm's risk tolerance and on industry volatility.

The three kinds of innovation need a different mix of input and skills. H1 innovations require mostly money and people. H2 innovations go deeper and need a corporate culture of creativity and management that is willing to push forward and onward. H3 innovations require top management to make bets on careers and even the company. The major career risk is that of management, not of the researchers. The company must give its staff much leeway, lower controls, and avoid negative feedback for the failure of crazy ideas.

A company like 3M, which pioneered Scotch tape and Post-it notes, derives up to 30% of its revenue from products launched in the past five years. It emphasizes H2 and H3 strategies in its R&D. The company, and similarly Google, uses a 15% or 20% rule, where certain employees are expected to devote a fixed portion of their time to projects unrelated to their job, that is, H2 and H3 type work.[43] Even so, both companies' main R&D efforts deal with improving existing products (H1), not on yet unborn technology generators. For Google, much of the R&D work is on innovations in its core products: the search engine, maps, online ads, and so on. The company's public relations narrative – such as self-driving cars, and so on—tends to project a more ambitious agenda than warranted by reality. Google, too, uses a 70/20/10 split, with most innovation efforts going to improving existing activities.

The last type of innovation tends to differentiate leaders from followers. But they are gambles, and investments in potential breakthroughs are hard to justify in conventional business terms of ROI. One must think of them as buying options on future opportunities. Ideally, a relatively modest investment—and downside risk—creates the potential for a large upside. The problem with a breakthrough R&D strategy is that it might either fail to deliver, or actually succeed in technological terms and yet be too far ahead of market readiness in terms of complementary products and consumer demand.[44] Figure 4.5 is technological in nature–will it work?—and does not consider markets—will it sell and be profitable?

How can a company analyze the market for its innovations? In the first instance, it helps to look at demand, and

42 Erickson, Tamara J., et al. "Managing Technology as a Business Strategy," *MIT Sloan Management Review*. April 15, 1990. Last accessed May 3, 2017. ► http://sloanreview.mit.edu/article/managing-technology-as-a-business-strategy/.

43 Satell, Greg. "How to Manage Innovation." *Forbes*. March 7, 2013. Last accessed May 5, 2017. ► http://www.forbes.com/sites/gregsatell/2013/03/07/how-to-manage-innovation-2/.

44 Clayton, Christensen M. *The Innovator's Dilemma*. (Boston: Harvard Business School Press, 1997), xv.

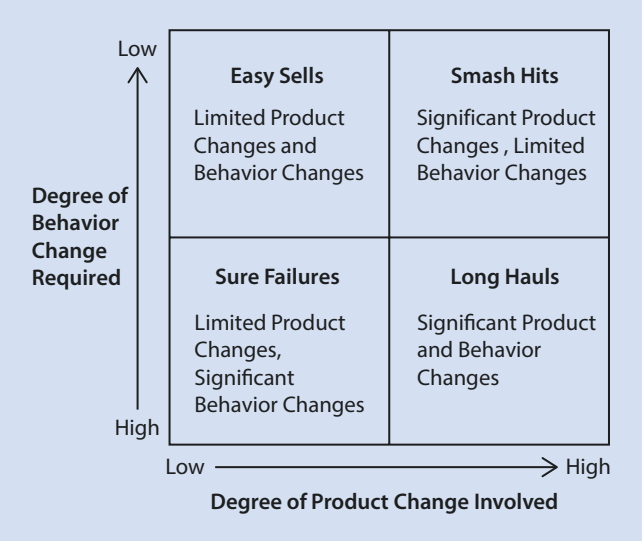

Fig. 4.6 Dimensions of consumer acceptance

to organize innovations by consumer acceptance. Four such categories are "easy sells," "sure failures," "long hauls," and "smash hits" (See Fig. 4.6).[45] They are ordered in a matrix whose two dimensions are product improvement (the horizontal axis) and the change required from the consumer (the vertical axis). Some innovations require a major behavior change and the others less so, but they may offer major improvements that could conceivably overcome this.[46] Companies may create great new products, but this may not mean much if it requires major behavior change. It is easier to change technology than behavior.

Easy sells - The product benefit improves modestly, and requires only limited adjustments in behavior. Examples: a move from iPhone 7 to iPhone 8, or another James Bond movie.

Sure failures - The innovation has only limited benefits in performance but requires a significant behavior change. Example: transitioning from the standard QWERTY keyboard configuration to the Dvorak keyboard that is slightly faster, but requires relearning the "muscle memory" of typing.

Long hauls - These innovations provide a technological improvement, but require a significant behavior change. Initially at least adoption will be slow because consumers resist the switch. An example is satellite radio. Even the cellular telephone took a fairly long time to spread (25 years to reach an 80% adult subscribership). If the product does not sell itself, and a company business plan is overoptimistic about adoption rates of the new product, it will fail.

Smash hits - The innovation generates major benefits with only slight behavior change. Example: the Google search engine.

An illustration of these categories concerns the TiVo DVR and the DVD player, both products of the late 1990s. By 2005, the USA had 20 times more DVD players than TiVo DVRs, even though the value of a TiVo player was much greater (recording TV shows, skipping advertisements, etc.) Consumers were familiar with music CDs and needed no behavior change, in contrast with TiVo which required a new viewing behavior.

Yet many companies do not have enough resources to wait patiently for demand to grow. The second option is to have innovations that offer a quantum leap in improvements (in the order of almost three times of previous performance, as we have discussed) to overcome consumer conservatism. But such innovations are rare. The third alternative is to target consumers who are either early adopter types, or who are not yet users of legacy products and thus have no commitment to them.[47]

Market demand does not provide a full answer either. An innovation must also be profitable. Demand for the product helps, of course, but the cost side of investments and operating expenses is also a factor. This is dealt with graphically in Fig. 4.7,[48] which shows a "bubble diagram," where projects are mapped according to three dimensions: NPV (the horizontal axis), a measure for profitability; the probability of R&D success (the vertical axis) and the required investment (the size of each bubble).[49] The overall size of the bubbles adds up to 100%. The bubble diagram model helps management to make resource allocation decisions given the finite resources of budget and people. The sum of the areas of the circles is a constant, zero-sum game. The model then forces management to consider tradeoffs. If one adds or enhances one bubble = one project, then some other projects must be reduced or dropped.

There are four different types of projects:

- *Pearls* (upper left quadrant). Such projects have a high probability of success (low risk) and a high yield. In Fig. 4.7 the company is engaged in two pearl projects, one of them with a high investment need. But profitability is high, which justifies the project.
- *Oysters* (lower left). These are long-shot projects with a high expected payoff but low probability (high risk) of technical success. A technical breakthrough will generate strong payoffs. The company has three such projects but funds them at a low level, thus protecting its downside.
- *Bread and Butter Projects* (upper right). These are safe choices. The probability of success is high, but the rewards are low. Examples would be improvements of existing products. As discussed above, a firm might put 70% of its R&D budget into such projects. And indeed the company has several such projects, and more than half of its R&D investments are allocated to them.
- *White Elephants* (lower right). These are low-probability and low-reward projects. Nevertheless, the company has several of such projects. This seems to be a flawed allocation of scarce resources.

45 Graph based on Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review,* 84, no. 6 (June 2006): 98–106.

46 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review,* 84, no. 6 (June 2006): 98–106.

47 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review,* 84, no. 6 (June 2006): 98–106.

48 Based on Cooper, Robert. *Winning at New Products.* New York: Basic Books, 2011.

49 Cooper, Robert G., Scott J. Edgett, and Elko J. Kleinschmidt. "Portfolio Management in New Product Development: Lessons from the Leaders – II." *Research-Technology Management* 40, no. 6 (1997): 43–52.

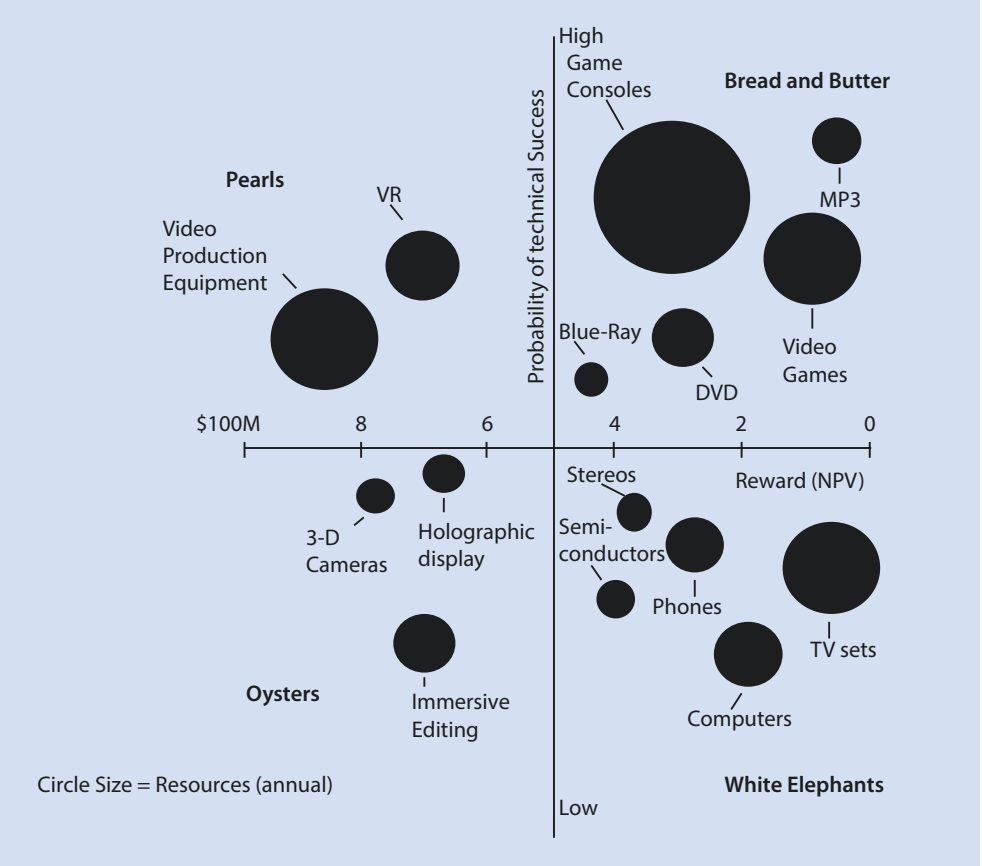

Fig. 4.7 Risk-reward bubble diagram

4.2.5 The Placement of R&D—In-House, Acquired, or Co-Developed?

The question of in-house versus outside innovation is not simply one of yes/no but also one of "what" and "where." Rarely would a firm innovate on its own all of its components and all the elements of its value chain. It would instead focus on one or several aspects and leave the others for development by outside vendors. Why should it develop its own cameras or computers? The important question for companies to consider in R&D is therefore where is the right "decoupling point" of its internal technology development? Which part of its value chain does it create and innovate on its own, and which does it acquire from others, either off-the-shelf or by special commission? Advantages of development inside the company include proximity of R&D to production and marketing; the protection of business secrets; a clear ownership of the IPRs; better cost control of projects; and greater familiarity of the firm with the needs of customers and markets. But an outsourcing of R&D has advantages too. Outsourcing allows firms to take advantage of specialists with experience and economies of scale. For example, for content-oriented media companies, technology R&D is not a core competency. Even for technology companies such as device manufacturers and network operators, the outsourcing of some or all of the R&D is part of a larger trend of separation of production and development. In some cases, production-oriented firms sub-contract their R&D. In other cases, conversely, R&D-focused firms will outsource production. And in some cases, "virtual companies" outsource both.

The manufacturing contractors are known as Electronic Manufacturing Services or Original Equipment Manufacturers (EMS or OEM firms). A major OEM, Flextronics, produces handsets for mobile device companies located in high-cost countries. The world's largest PC maker, largely unknown outside the industry, is Quanta, a Taiwanese company. It manufactures computers for most major brands around the world.[50] Apple outsources part of its manufacturing to Foxconn in China. One of Foxconn's plants employs 230,000 workers, 60,000 of whom live in factory dormitories. Outsource manufacturers such as Selectron, Flextronics, Celestica, SCI Systems, Foxconn, and Jabil Circuit increasingly do the design and R&D of various products, not just the manufacturing. Alternatively, specialty boutique design companies perform the R&D. At its most extreme, only the marketing is still done by the name-brand company, and even that could be contracted out.

50 Funding Universe. "Quanta Computer Inc." Last accessed July 11, 2011. ► http://www.fundinguniverse.com/company-histories/Quanta-Computer-Inc-Company-History.html.

Several research studies find that the outsourcing of innovation activities can lead to faster product development, innovation, and cost savings. But other studies are more skeptical.[51] Some companies start out by looking to the outside in order to find good ideas. A proper reward system need to be in place that encourages the rapid adoption of outside ideas.[52]

4.2.6 The Organizational Structure of R&D Activities

Among the most important issues facing a large company is how to position its R&D within the larger multidivisional corporate structure. The R&D will either be centralized, decentralized, or somewhere in between. Control and funding are the central issues.

In industrial firms, R&D was often a top-down structure. Major firms created sophisticated stand-alone laboratories. Bell Labs won six Nobel prizes, and IBM's Zurich Research Lab earned two such prizes. Xerox's Palo Alto Research Centre (PARC) innovated PC elements such as the computer mouse, the Ethernet protocol for computer networking, and the graphic user interface (GUI).[53] But a centralized research system creates a distance from the production and design activities of the firm. In contrast, a fully decentralized R&D structure permits various company units to pursue goals closer to the product lines. In such a system, the corporate-level R&D is limited in scope and focuses on the identification and evaluation of emerging technologies which have no home yet in the company. Hitachi and Intel are examples, with little corporate-level R&D.

Intermediate arrangements are "centrally led" or "centrally supported" R&D. Typically, the corporate center handles the *research* part of R&D, covering more basic technology which might have applications across the company, while the refinements and applications into products—the development—is handled by divisional labs. But such a separation is rarely neat and can be difficult to implement. Toshiba structures its R&D into three separate layers—research at the central corporate level, product development at the divisional level, and production engineering at the business unit level. Toshiba's corporate research labs focus on basic and advanced research. Such projects typically last for about five years. Divisional units carry out product and process technology developments, with projects typically lasting between two and five years. They serve several business units.

Historically, the relation of corporate and divisional R&D has gone through cycles, with central R&D strong as in the 1970s, decentralized, divisional R&D rising in the 1980s, and after 2000, central R&D being emphasized again.

A related organizational question is how an R&D lab should be structured. It could be arranged according to research disciplines such as typically found in universities; for example, chemistry, metallurgy, or electronic engineering. This promotes specialization and makes it easier to hire promising young scientists. The disadvantages are an orientation to "science" rather than commercial innovation, a work pace under less time-pressure, and greater difficulty in conducting cross-disciplinary R&D. In contrast, the R&D activity can also be organized by type of activity, such as basic research, applied research, development, design, engineering, prototyping, and testing. This is a more ad hoc structure whose staffing might fluctuate greatly.

A third approach is to organize an R&D department by product line, such as storage devices, TV sets, and tablets. Advantages are a stronger customer focus, easier co-ordination, and smoother integration with business activities.

A fourth option is to organize the R&D department by project, such as a new type of flat screen. Such a system frequently operates on a matrix basis, drawing experts from different parts of the company, labs, and scientific specialties. In a matrix structure, staff and managers from a product line unit or functional area may be involved in several projects.

When innovation is rapid and complex, an R&D structure organized by function (that is, specialist groups) is more effective than a product-oriented structure that centers on outputs.[54] This is also the case where expensive equipment is required. On the other hand, advantages for an output-focused R&D structure (that is, based on products or projects) exist where diversification is high while cross-product synergies are low.

Another dimension for the organization of R&D is its geographical location. Global companies conduct R&D globally. Technology has few frontiers, though some countries have tried to erect protectionist barriers around "their" companies and "their" technologies. Pioneers of R&D internationalization have been high-tech companies with global markets, headquartered in a relatively small home country with finite technology resources. Examples are Philips in the Netherlands, Ericsson in Sweden, and Nokia in Finland. European companies perform about one-third of their R&D outside their home countries. Another reason for an international distribution of facilities is

51 Stanko, Michael A. and Roger J. Calantone. "Controversy in innovation outsourcing research: review, synthesis and future directions." *R&D Management* 41, no.1 (2010): 8–20.

52 Huston, Larry and Nabil Sakkab. "Connect and Develop: Inside Procter & Gamble's New Model for Innovation." *Harvard Business Review*, March 2006. Last accessed May 3, 2017. ► https://hbr.org/2006/03/connect-and-develop-inside-procter-gambles-new-model-for-innovation.

53 The Economist. "Out of the Dusty Labs – The Rise and Fall of Corporate R&D; Technology R&D." March 1, 2007. Last accessed August 10, 2012. ► http://www.economist.com/node/8769863.

54 Chiesa, Vittorio. *R&D Strategy and Organization* (London: Imperial College Press, 2001), 149–192.

the politics of trade, since the location of an R&D facility may be part of a company's efforts to gain market access. The third reason is the relative cost, which favors low-cost R&D in India or China. Other locational factors are governmental subsidies, strong universities with a large pool of graduates, harmonious labor relations, and a favorable regulatory and tax system.[55] Some tech companies from around the world have created small innovation labs in Silicon Valley as footholds in order to remain up to date with emerging technologies and develop deeper relationships with start-ups.

There are, however, also reasons against international R&D. These include an immobility of top research personnel, a lack of critical mass when R&D is dispersed, language and cultural problems, political instability, the diffusion and potential loss of company know-how, and significant co-ordination and transaction costs.

4

4.2.6.1 Case Discussion

How Sony's R&D Is Organized

Sony's R&D outlays were considerable. In 2008, they were $5 billion and in 2013 $5.7 billion.[56] Its R&D priorities were in its digital image sensor business (supplying camera components to smartphone makers),[57] the 4 K PlayStation and artificial intelligence.[58] Samsung's R&D expenses were about $14 billion, higher than any other information and communications technology company. Microsoft expenses were $10 billion, Google $8 billion, and IBM and Cisco $6 billion each. R&D as a percentage of revenue was 7% for Sony, slightly higher than for Samsung and IBM, much higher than Apple (2.5%) but lower than for Microsoft, Google, and Cisco, all with about 12–13%.

Thus, Sony spent a lot on R&D and also achieved much innovation, if patents are a measure. In 2013 Sony filed 2241 US patent applications, Samsung 4945, and Panasonic 2232. In 2015, Sony had 2448 US patent applications, Samsung 5059, and Panasonic 1474.[59]

But Sony's R&D system was not well-coordinated. It was and spread out across divisions and countries. Its R&D strategy was to give its various labs quite a free hand. At times, different divisions developed incompatible products.

Sony's R&D is based on a corporate (central) research lab with six separate sub-labs. The corporate lab is used for the development of next-generation products with wide applications, such as OLED video display screens. Additionally, there are network-level, as well as division-level, and regional zone-level R&D labs.[60] The zones are Asia, the USA, and Europe. The aim was to better co-ordinate R&D activities within each region, and among regions. CTOs were appointed for each zone and given much authority. A relatively informal and non-bureaucratic cooperation between them was encouraged. The idea was to establish personal relationships and teamwork in order to achieve global synergy. Another goal of the structure was to access state-of-the-art research in the USA and Europe, and to lower costs by operating labs in China and India. An example is Sony America's Zone R&D, which spearheaded the development of the Cell processor (jointly with IBM and Toshiba). (This example also illustrates that rather than outsourcing its R&D, Sony's R&D has increasingly become a collaboration with major partners.)

Sony has international R&D facilities in Asia, the USA, and Europe, each specializing in one or more fields of technology. For example, the Sony China Research Lab in Beijing (2005) focuses on security technology, intelligent media, solar cells, and wireless networks. Sony opened seven R&D labs in the USA since 1987. The research focus there includes the Advanced Video Technology Center (AVTC) in San José, California (1994), which focuses on HDTV, and the Open 3D Research Center in Las Vegas (2010), specializing in 3D TV and film in collaboration with CBS. Research in Europe is done in Brussels, Alsace, Paris, Stuttgart, Barcelona, Lund (Sweden), Basingstoke (UK), and Pencoed (UK). The Sony Computer Science Lab in Paris focuses on personal music experience, computational neuroscience, developmental cognitive robots, and self-organizing communication. The European Technology Center in Stuttgart focuses on sensing systems, material science, and automotive entertainment.

4.2.7 Open Innovation—Community-Based R&D

Another way to organize R&D is to link it with developers and with users. The two are overlapping. A structured and company-led approach is where the company builds basic platforms (hardware, software, or both), and aims to create uses and users. To do so it provides specifications of the product to developers to induce them to create applications. This creates a symbiotic relationship, where both the platform company and the applications firms benefit from the creation of synergies and network effects. An example is Apple with its iPhone apps.

55 For example, IBM had 12 corporate research centers worldwide in 2017, with over 3000 employees in R&D centers in the USA (Hawthorne, Yorktown Heights, Almaden, Austin), Australia (Melbourne), Brazil (São Paulo and Rio de Janeiro), China (Beijing), Kenya (Nairobi), South Africa (Johannesburg), Israel (Haifa), India (Delhi and Bengaluru), Ireland (Dublin), Japan (Tokyo), and Switzerland (Zurich). (Accessed at ► http://www.research.ibm.com/labs/)

56 PricewaterhouseCoopers. "2013: Top 20 R&D spenders." Last accessed on June 21, 2016 at ► http://www.strategyand.pwc.com/global/home/what-we-think/innovation1000/top-innovators-spenders#/tab-2013.

57 Kennedy, Joshua. "3 Changes to Watch at Sony (SNE)." *Investopedia*. January 26, 2016. Last accessed June 21, 2016. ► http://www.investopedia.com/articles/markets/012616/3-changes-watch-sony-sne.asp.

58 Davies, Jamie. "Sony leans on AI to give technological advantage." *Business Cloud News*. May 18, 2016. Last accessed June 21, 2016. ► http://www.businesscloudnews.com/2016/05/18/sony-leans-on-ai-to-give-technological-advantage/.

59 USPTO. "Ranked List of Organizations with 40 or More Patents, as Distributed by the Year of Patent Grant and/or the Year of Patent Application Filing, Granted: 01/01/2015–12/31/2015." Last accessed June 21, 2016. ► http://www.uspto.gov/web/offices/ac/ido/oeip/taf/data/topo_15.htm#PartB.

60 All R&D labs were assigned fairly generic "three missions" and "six goals." The "three missions" were globalize domestic R&D efforts; establish a "global human information network." The six goals were clear vision and policy; clear target and differentiation of R&D strategy from rivals; strategic selection and precise focus of R&D themes; fair evaluations; highly skilled ("best of the best") staff for R&D; mobility of technology and R&D staff within a global Sony; export of Sony's R&D function and strengthening of overseas labs.

For some companies, therefore, a major management strategy is to encourage developer-based innovation. They may provide independent developers access to their software or platforms. They do so by granting interoperability arrangements via application program interfaces (APIs) that enable the outside programs to link up and thereby make the device more versatile and powerful.[61] Developers then compete with each other's applications software. The credit card company Visa, for example, gives developers access to hundreds of its financial payment APIs.[62] The social media company Facebook offers a Games Developer Center that features a variety of interoperability arrangements, monetization tools, and services for game developers.[63] The goal is to drive traffic to the Facebook site. Amazon and Microsoft provide developers with internet of things (IoT) software development kits so that they can build IoT apps and products. These starter kits include tutorials/quick start guides/demos, software and some hardware devices, such as sensors, actuators, and self-configurable and programmable development boards.

Going one step further is *user-generated innovation*.[64] Advantages are reductions in a company's development time and cost, but even more so a potentially better match of product with customer needs, given that the latter are directly involved. It also raises user loyalty because they are more involved. The company can import low-cost, high-quality ideas from a wide array of experts and test these ideas, as well as its own, by a "peer-review" process by a "smart crowd."[65] An example is the car maker BMW, which set up a Customer Innovation Lab, which is an online toolkit to help customers develop ideas and innovations for automobile telematics and driver assistance systems. BMW then chooses the best ideas which are implemented by its engineers. Another example: the Swedish appliance company Electrolux created in 2016 a global innovation contest for the use of technology to enhance the food industry. People could submit short ideas and a 30-second video; these were put up online, voted on by users, and the finalists were then judged by a jury. The selected winner received $10,000 and help to bring the idea to market with Electrolux. The winning submission was a wrist-worn bracelet which scans the barcode on a food item and then suggests recipes to cook with it as well as other items that need to be purchased to complete the recipe.[66]

Taking still another step is "open innovation," where there is no company in charge, only a community of users, developers, and volunteers who come together in a loose and decentralized collaboration to create an innovative product or service. In computer software, there has been community development in the form of Open Source software such as Apache and Linux, where numerous people contribute.[67] It is an important challenge for company R&D leadership to find ways to integrate such largely uncontrolled and dynamic innovation with proprietary corporate R&D.

4.2.7.1 Case Discussion

Sony and Community-Based Innovation

There is no indication that Sony has been effective in integrating the user community with its products. This would be particularly important as CE evolved from hardware devices into online services.

Sony built a highly interactive user-community to exchange user-generated content and applications. This includes the PlayStation Community, which has reportedly done an exceptional job at providing an online space where gamers can connect. Users can link to their specific interests and support needs. The community is connected to PlayStation's social media channels on YouTube and Twitter. New features on the PS4 console enable users to directly upload in-game clips online, which adds significant attraction. Such content can be virtually unlimited in scope and scale. It adds value to the product and builds user awareness, which benefits sales.[68] The aim was to make Sony's products more popular and attractive through a network effect.

At one point, Sony made an effort to generate user involvement on the content side. It bought a YouTube-like video platform, Grouper, and renamed it Crackle. Users were able to download Crackle content onto such devices as game consoles and media players. But the reverse direction, in which users contribute content, did not take off successfully and was dropped. Sony also

61 In some cases, such access to the APIs has been mandated by governmental regulators in order to enable competition in the applications.

62 Thurai, Andy. "How APIs Fuel Innovation." *Wired*. Last accessed June 21, 2016. ► http://www.wired.com/insights/2013/12/how-apis-fuel-innovation/.

PYMNTS. "Visa's Developer Platform Begins With An 'I'." February 5, 2016. Last accessed June 21, 2016. ► http://www.pymnts.com/news/payments-innovation/2016/visas-developer-platform-begins-with-an-i/.

Tibco Mashery. "Driving Innovation and Revenue with Partners and Developers." September 22, 2015. Last accessed May 9, 2017. ► https://www.mashery.com/sites/default/files/Edmunds-Case-Study.pdf.

63 These tools include Achievements API, Scores API, App Notifications, Requests, Feed Gaming, and Facebook SDK for Unity. The Facebook Games Developer Center offers information such as games overview, API migration guide, tutorials, production and checklists, game monetization, and more.

64 Von Hippel, Eric. "Horizontal innovation networks - by and for users." *Industrial and Corporate Change* 16, no. 2 (2007): 293–315.

65 Rigby, Darrell K. and Barbara Bilodeau. "Management Tools & Trends 2013." *Bain & Company*. 2013. Last accessed May 9, 2017. ► http://www.bain.com/Images/BAIN_BRIEF_Management_Tools_%26_Trends_2013.pdf.

66 IdeaConnection. "A Timely Idea to Inspire Healthy Eating." January 16, 2017. Last accessed May 9, 2017. ► https://www.ideaconnection.com/open-innovation-success/A-Timely-Idea-to-Inspire-Healthy-Eating-00623.html

67 Von Hippel, Eric. "Horizontal innovation networks - by and for users." *Industrial and Corporate Change* 16, no. 2 (2007): 293–315.

68 Hong, Pat. "10 Exceptional Examples of Brand Communities." *Linkdex*. January 15, 2015. Last accessed May 9, 2017. ► https://www.linkdex.com/en-us/inked/10-exceptional-examples-of-brand-communities/.

developed a cloud-based music streaming subscription service MusicUnlimited. In 2015, it was reported that MusicUnlimited had as few as 20,000 subscribers.[69] The service folded in 2015 and was rebranded as PlayStation Music (as a Spotify channel for use just on PlayStation). In comparison, in 2016 the rival service Spotify had 70 million free subscribers and 30 million paid subscribers, while Pandora had 76.3 million free accounts and 3.9 million paid accounts.

The emergence of a user community has worked against Sony in several significant instances. In 2005 Sony installed on its music CD a hidden Digital Rights Management (DRM) program to protect the music from unauthorized copying. This DRM program worked like spyware and self-installed itself onto users' PCs. It also interfered with some Windows functions and opened the PCs to outside malware without the user's knowledge. This led to a worldwide outcry by internet users. As a result, Sony had to recall half a million music discs and on top of this faced class action lawsuits. Similarly, Sony, a major producer of laptop batteries, was forced to recall about 10 million batteries worldwide since there was a chance they would overheat and explode. The cost to Sony was about $500 million.[70] The news spread rapidly through the user community, and was then amplified by the general press.

4

4.2.8 Budgeting for Innovation

The cost of R&D has been climbing. This is not surprising since the "easy innovations" are done first and the cost of subsequent innovation increases. A second reason is that the average economic lifespan of innovation has shortened owing to increasing competition, globalization, and convergence. Costs are also going up, owing to the acceleration of the process. Often company managers, under competitive pressure, demand that technology developers speed up their activity—but they need to understand the cost implications. Compressing R&D project time may greatly raise its cost relative to speed-up gains. The reason is that each R&D step builds upon the results of previous tasks. To accelerate a project requires for some of the steps to overlap and to begin with less information. Several approaches may have to be tried concurrently rather than sequentially. A study shows that a 1% reduction in the duration of a project can increase costs at double that rate.[71] It is therefore crucial to control R&D-related costs while maintaining innovation.

Lowering R&D-related costs can be achieved in a number of ways, such as:

- consortia (cost-sharing R&D with other companies);
- outsourcing;
- inbound and outbound licensing;
- modularization (the use of R&D elements across several products).

The broader question is how much money a firm should put into R&D. The largest technology firms in electronics spend billions of dollars annually on this area. Microsoft, IBM, Intel, Google, Nokia, Panasonic, HP, and Sony all devote well over $5 billion a year to it. In 2013, Samsung spent $14billion in R&D, over 6% of its revenues. Qualcomm spent 20% of its sales revenues on R&D, about $150,000 per employee. But how much should a company spend? Often there is no shortage of good ideas and worthy projects, but their aggregate will be unaffordable.

Of course, the firm's financial condition is relevant. When things are tough, R&D is often one of the first things to be cut from corporate budgets. The famed AT&T Bell Labs shrunk in the 1970s from 25,000 to just 1000 researchers in 2003. Its 1975 budget, which had been, in 2003 dollars, $3.24 billion,[72] had dropped to $115 million that year.[73] While cutting out R&D may make sense in the short term, in the long term it is like eating one's seed corn.

One way to estimate a target R&D budget is to compare the firm's R&D with that of competitors, in absolute terms or by the ratio to sales. A second way is to adjust one's R&D spending to that of rival companies' flow of new products, so as to match or surpass it.

A third, and finance- and economics-oriented method would be to determine the incremental profit from incremental R&D spending. But that is easier said than done. One would need to have an idea of the productivity of R&D spending. Productivity can be measured by an output, for example by the number of patents. (While each patent tends to be distinct in terms of effort required or its value, when the number is large the differences tend to average out.) Information about these patents is publicly available. In 2006 Sony held 14,000 US patents, Samsung 14,000, and Matsushita/Panasonic 25,000. During 2013, Sony added 3194 new ones, Samsung 5181, Panasonic 2742, and Google 1851.[74] One can relate this to R&D budgets. On average, Sony spent $2.0 million on a patent in R&D expenses, Samsung spent $2.7 million, and Google $4.3 million.

69 Resnikoff, Paul. "Sony Music Unlimited Had Just 20,000 Subscribers Before Folding…" *Digital Music News.* May 12, 2015. Last accessed May 9, 2017. ► http://www.digitalmusicnews.com/2015/05/12/sony-music-unlimited-had-just-20000-subscribers-before-folding/.

70 Farivar, Cyrus. "Sony battery recall approaches 10 million, costs mounting." *Engadget.* October 19, 2006. Last accessed May 9, 2017. ► https://www.engadget.com/2006/10/19/sony-battery-recall-approaches-10-million-costs-mounting/.

71 Graves, Samuel B. "Why Costs Increase When Projects Accelerate," in *Measuring And Improving The Performance And Return On R&D.* (Arlington, VA: Industrial Research Institute), 316–318.

72 Noll, A. Michael. "Telecommunication Basic Research: An Uncertain Future for the Bell Legacy." *Prometheus* 21, no. 2 (June 2003): 177–193.

73 The Economist. "Out of the Dusty Labs – The Rise and Fall of Corporate R&D." March 1, 2007. Last accessed May 2, 2017. ► http://www.economist.com/node/8769863.

74 USPTO. "Patenting by Organizations 2008." Last accessed May 9, 2017. ► http://www.uspto.gov/web/offices/ac/ido/oeip/taf/topo_08.htm.

But patents are only an intermediate input to a company's financial success. Optimization occurs when the marginal R&D dollar produces $1 in extra NPV. Similarly, for process innovation, where innovation reduces production costs, optimization occurs when the change in production cost/incremental R&D spending = −1. Some of this kind of information might be available to a firm from its internal sources, but normally it is hard to isolate.

Several R&D performance measurement techniques have been developed. According to one study, US industrial firms use more than 50 metrics to monitor their R&D function.[75] These come in several categories.

Quantitative Metrics

- *Input measures* include the number of scientists employed, or total R&D expenditures.
- *Output measures* include the number of patents filed, cost reductions, and the number of new products released.
- With economic values assigned to such measures, one can calculate the ROI attributable to an investment in R&D.

Examples of Quantitative Metrics[76]:

$$\text{R \& D effectiveness index} = \frac{\text{Revenue Generated from Products Introduced in Last Three Years}}{\text{Total R \& D Costs}}$$

$$\text{R \& D innovation index} = \frac{\text{Revenue Generated from Products Introduced in Last Three Years}}{\text{Total Revenues}}$$

$$\text{New Sales Ratio (NSR)} = \frac{\text{Annual Sales of New Products}}{\text{Total Annual Sales}}.$$

$$\text{R \& D Cost Savings Ratio (CSR)} = \text{Cost Savings Resulting From New Technology}$$

The advantage of quantitative metrics is that they seem relatively easy to use. But simplicity may conceal problems. For example, the revenue associated with a patent varies greatly in magnitude.[77]

Qualitative Metrics

Qualitative metrics rely on expert judgments on the performance of individual scientists, teams, groups, or departments. They are similar to the evaluations of academic departments or researchers by peer reviewers. These evaluations can be transformed into numeric scores and related to R&D spending. Both quantitative and qualitative metrics have advantages as well drawbacks, and they can be combined into a single and integrated metric.

4.2.9 Implementing R&D Alliances

Companies may acquire and create new technology through R&D alliances with other firms. The advantages are numerous: the pooling of talent; economies of scale and scope; risk-sharing; leveraging comparative advantages; attracting talent; stimulating internal innovation; increasing overall technological innovation capabilities; increasing speed; reducing costs through sharing; and rapid access to new or proven technologies.

There are also disadvantages to such collaboration. They include transfer of know-how to rival firms; the transaction cost of co-ordination and contracting, loss of control; lower ability to profit from the innovation; and potential conflicts. In order for R&D alliances to succeed there must be technological and strategic compatibility, a more efficient innovation process, and improved market access. These factors are hard to co-ordinate effectively, and a majority of R&D alliances fail.

An important portion of alliances are with universities. Private capital plays a role in the commercialization of innovations but not directly in the funding of basic research, the results of which are distant and speculative. Basic research is therefore mostly conducted in government labs and universities.[78] Many research ideas are created inside the universities and they flow through them from multiple directions.[79] Companies benefit from collaborations with leading research universities, which give them early access to basic research and researchers. Examples are the symbiotic relations of Silicon Valley companies with Stanford and Berkeley, of Route 128 corridor businesses in Boston with Harvard and MIT, and of the North Carolina Research Triangle firms with Duke, the University of North Carolina, and North Carolina State.

A firm may use universities as suppliers of useful research. Intel, for example, selects academic scientists and teams to develop technology that results in patents. Both company and university research benefit. Research funding from a corporation allows universities to conduct more advanced and expensive research.[80]

75 Werner, Bjorn M. and William E. Souder. "Measuring R&D Performance—State of the Art." *Research Technology Management* 40, no. 2 (March–April 1997): 38–46.
76 Whiteley, Roger et al. "Evaluating R&D Performance Using the New Sales Ratio." *Research-Technology Management* 41, no. 5 (September–October 1998): 20–22.
77 Werner, Bjorn M. and William E. Souder. "Measuring R&D Performance—State of the Art." *Research Technology Management* 40, no. 2 (March–April 1997): 38–46.
78 Waites, Robert. "Reinventing Corporate Research." *Research-Technology Management* 45, no. 4 (2002): 15–22.
79 Tennenhouse, David. "Intel's Open Collaborative Model of Industry-University Research." *Research-Technology Management* 47, no. 4 (2004): 19–26.
80 The Economist. "Out of the Dusty Labs – The Rise and Fall of Corporate R&D." March 1, 2007. Last accessed May 2, 2017. ► http://www.economist.com/node/8769863.

4.2.10 Knowledge Management (KM)

In far-flung organizations, knowledge of the flow of R&D and its absorption between various levels is important.[81] As the past CEO of Hewlett-Packard, Lew Platt, exclaimed with exasperation: "If HP knew what HP knows, we would be three times as profitable." KM is the organization and distribution of information, experience, "tacit knowledge," and wisdom inside the company. It aims at sharing knowledge while also protecting it. It is crucial for any company to effectively manage the flow of internal and external technical information.

There are a variety of KM tools. Documents can be tagged with metadata, which makes them searchable. This avoids having to replicate information that has already been created and to put together pieces into a bigger whole, which is often a foundation of innovation. Software can also be used to limit who has access to what material. Other tools are knowledge mapping of resources, creation of communities of practice, and social software for interaction.

At its most fundamental, KM is like creating an internal search engine that makes company-generated information accessible throughout the organization, and even to customers and vendors. It reduces duplication and assists coordination.

The search engine operation is one of passive KM, or a "pull" model. A further step is to target people and functions inside a firm in a "push" model of knowledge distribution, and to do so in a selective and fine-tuned fashion.

Realizing that their R&D knowledge is valuable, firms have appointed chief knowledge officers. Dow Chemical concluded that it needed to better use its knowledge base, particularly the knowledge embodied in patents. A newly appointed VP of Knowledge found that 30% of Dow's 29,000 patents were not worth maintaining. Many of them were licensed to other firms, and others were given to universities as a tax-deductible donation. This saved the firm roughly $50 million over ten years, and helped the firm grow patent income from $25 million in 1994 to an estimated $125 million in 2000.[82]

4.2.11 Standards Strategy

CTOs are often a company's liaisons on technology matters to the outside research community—universities, government labs, professional associations, and other companies. In particular, companies need to deal with standards bodies and standardization efforts. Standards are quite prevalent in most parts of media technology. Examples are the times a DVD spins per second, or the number of scan lines or the ratio of width to height of a TV picture. A standard tries to create common parameters. In some cases, such as driving on the left side of the road or the right, the substance of the standard is less important than its existence. This example also shows that standards can co-exist, with different regions, car makers, and car owners going their own way (though one hopes not on the same road). In media technology, standards are widespread; almost equally as widespread are the struggles over them. Behind many standards is a saga of rivalry, conflict, intrigue, and diplomacy. Examples are the original analog color TV broadcast protocols (NTSC in the USA vs. PAL in parts of Europe and SECAM in other parts), for video cassette recorders (Sony's Betamax vs. Panasonic's VHS), for mobile wireless (GS vs. CDMA), or for high-definition DVDs (Blu-ray vs. HD-DVD).

Standardization promotes interoperability, which leads to more choice for consumers. Standards enhance compatibility and generate greater value for users through the creation of larger networks. Adhering to an existing standard allows a company access to a larger market, with scale and potentially reduced costs.

The alternative to standards is a proprietary technology. In some cases, it becomes so prevalent as to constitute a de facto standard for most market participants. An example is Microsoft's DOS and then Windows operating system, which was not "standardized" with other companies or countries, but which emerged as the de facto way in which much of the microcomputer industry functioned.

The benefits of standards include expanded network effects.[83] Standards enhance compatibility, but proprietary technology may fail if other competitors have a similar product which is non-proprietary or easy to license. Examples are the failure of Sony's Betamax VCR system versus the open VHS. Deciding between openness or control is never easy, but it typically depends on a company's ability to create alliances with others.

A second benefit of standards is reduced uncertainty for consumers. An example is, from the 1980s, AM stereo, which was killed in buyers' confusion over what would ultimately prevail. The third benefit is reduced consumer lock in. A single standard with several providers helps consumers in not getting locked in with a particular company. Standards create competition *in* the market rather than competition *for* the market. With setting of standards, competition shifts from features to price. The more specific the standard, the less variation a product will have. Therefore, price becomes the major differentiating factor.

There are also disadvantages to formal standardization. To reach an agreement on a standard can be costly and time consuming. Lagging companies may try to slow down the process in order to catch up. There is often politicization, and companies try to enlist their governments as a "national champion" that benefits the country.

Standards can be mandated by governments and other bodies, as was the case for the European GSM standard for mobile phones or China's mobile phone standards. Standards

81 McCormick, John. "5 Big Companies That Got Knowledge Management Right." *CIO Insight*. October 5, 2007. Last accessed June 14, 2012. ► http://www.cioinsight.com/c/a/Case-Studies/5-Big-Companies-That-Got-Knowledge-Management-Right/.

82 Burton-Jones, Alan. *Knowledge Capitalism*. (New York: Oxford University Press, 1999), 159–160.

83 Shapiro, Carl and Hal Varian. "Waging a Standards War." *Information Rules*. (Boston: Harvard Business School Press, 1999), 228–233, 238–242, 273–276.

can be established co-operatively within an industry, such as the Entertainment Software Ratings Board. Alternatively, standards can be left to the market where they may emerge non-cooperatively, several technology approaches battling it out while smaller firms join one coalition or another or wait for a winner to emerge.

In the media field, standards tend to be set by various international or domestic industry organizations or governmental, intergovernmental, and semigovernmental organizations.[84]

It is important for a company to play the standards game well. Standards can determine company success as well as market structure. Yet generally speaking start-up companies and their investors are unfamiliar with the role standards play, and ignore the standards process until they are forced to follow it. Standards can determine company success as well as market structure.

Several factors give a company advantages in standards battles[85]:

- an existing strong base of users;
- patents and licenses;
- first mover position in introducing new technology, marketing it early, and establishing it as the industry standard;
- complementarity with other firms' products;
- brand name and reputation;
- alliances.

Media device buyers often do not just pick the device but the entire business/technology environment. A company, therefore, must be part of an ecosystem, not just a product. To be so, it must recruit partners and build strategic alliances.

There are also "open standards" in which a company, a coalition of companies, or a group of researchers declares a technology standard and invites others to join without license payments and with an ability to contribute to upgrades of the standard. Examples are the Unix or Linux operating systems.

The downside of network externalities is that they make it difficult for a small new technology network to emerge even if it is superior. The collective switching costs are too high. These costs are a strong advantage for incumbents and incumbent technology. Examples are the QWERTY keyboard, which is inferior to the Dvorak layout, or the GSM mobile telephone standard. To deal with such consumer inertia, an innovative company can either choose a strategy of backward compatibility with existing standards or a revolutionary strategy so superior that it will make users switch.

Is it better to go for openness or for control? For a firm, proprietary control is better if the product is a success. But consumers fear a lock-in and are reluctant to commit when there is a credible rival system that is incompatible and is either based on a rival proprietary standard or is non-proprietary and hence reduces consumer risk.

Thus, if a company succeeds in creating self-reinforcing network effects, a proprietary system will be better. But that is not easy to achieve on one's own. Practically speaking, there is a gray zone between openness and control with a lot of intermediate arrangements.[86] A firm might have an openness strategy for the basic technology but retain exclusive control over upgrades, so as to avoid fragmentation. Sun with its Java software was an example.

An openness strategy is important when no firm is strong enough to dictate technology standards. The various providers must then work together to create a critical mass.

If a firm falls behind in a standards war it should avoid lowering its prices, because this would signal that its product is inferior. Instead, it should target the product, based on its strengths, to a committed core of consumers, thereby creating the potential of a word-of-mouth marketing for a future round. An example is Apple's approach to its computers and operating systems.

The winner, too, cannot rest. It must keep upgrading and create complementary products, which help to lock in consumers.

4.2.11.1 Managing the Standards Setting Process

Technical standards and protocols are a mix of industry self-regulation and those encouraged or required by governmental/intergovernmental bodies. There are official and private standards bodies. Additional details are provided in ► Chap. 8 Entertainment Law and Media Regulation.

For a firm to join a standard committee may cost between $10,000 and $50,000 in annual membership fees. While official standard bodies are slow and broad in scope, private consortia can be fast and narrow. It is not clear which approach works better for a company, whether to integrate its technology through standards bodies or to create, with allies, its own approach. Practically speaking, a company's standards director must deal with both the international standard bodies as well as private technology development consortia.[87]

The internal organization of how standards function inside media and tech companies varies considerably depending on size, age, and the tech savviness of a company. Some companies have full-time employees devoted to standards, usually at the vice-president level, such as a Director of Standards and Industry Groups. However, it is more common for employees across the company, typically from the R&D department, to devote part of their time toward standards, depending on the technology in question. In addition, sometimes companies bring in late-career senior engineers

84 Standards bodies include the International Telecommunication Union (ITU), the International Standards Organization (ISO), the European Telecommunications Standards Institute (ETSI), the American National Standards Institute (ANSI), as well as, in the USA, the Institute of Electrical and Electronics Engineers (IEEE). There are the CEA (Consumer Electronics Association) and SMPTE (Society of Motion Picture and Television Engineers). The Digital Broadcasting Standards (DVB) set TV and video standards for Europe and elsewhere. Internet standards are set by bodies such as the Internet Engineering Task Force (IETF) as well as the W3C (www consortium).

85 Shapiro, Carl and Hal R. Varian. "The Art of Standards Wars." *California Management Review* 41, no. 2 (Winter 1999): 8–32.

86 Shapiro, Carl and Hal Varian. "Waging a Standards War." *Information Rules* (Boston: Harvard Business School Press, 1999), 228–233, 238–242, 273–276.

87 Dr. Ken Wacks, interview with the author, July 2, 2007.

to monitor standards and participate in the technology, business, and politics of standards game. Many smaller companies pay no attention to standards until they are forced to; and start-ups lack the resources, time, and personnel, but also the awareness of the importance of the issues.

An estimate of the costs of standards activities includes the following. A company might need two engineering employees to devote two months to attend committee meetings and travel, plus two weeks of part-time attention. Based on two salaries at $130,000 and $230,000, respectively, and based on two-and-a-half months of work for each, the personnel cost would be around $100,000 a year.[88]

Larger companies expend several hundred thousand dollars per year on influencing and monitoring standards. A big standards battle, such as Sony Blu-ray versus Matsushita's HD-DVD, costs many millions just in the standards body process. A mid-size tech company with a more modest budget could easily spend $100,000 a year just on monitoring standards process affecting it.

Since the standard-setting process is composed of politics and economics, companies must be selective when picking sides and always consider:

- low cost licensing;
- multiple sourcing;
- giving back patents for improvements;
- assuring future participation on joint tech development on current and future products;
- future deals.

Companies may also attend standards meetings to prevent adverse positions consensus developing against their interest. Determining the optimal level of investment in the standards process may be difficult. Benefits are hard to define, measure, and value. For some companies, failure to have their technology adapted as a standard can be fatal. In other cases, conformance to standards is more of a marketing tool.[89]

A firm should not slow down its R&D while the standard-setting process is going on, otherwise it will fall behind once a standard is set. A firm should also consider building an installed base preemptively. If it can set up a manufacturing base while standards are being set, it can get to the market fastest. But this is a risky strategy if a different standard is picked.

A firm whose technology has become standard should not rest on its laurels. It should offer attractive terms to important complementors, and attend industry meetings to prevent new approaches being developed against the company. It should be developing the next generation of technology, helping in generating complementary products, and developing proprietary improvements.[90]

88 Dr. Ken Wacks, interview with the author, July 2, 2007.
89 Dr. Ken Wacks, interview with the author, July 2, 2007.
90 Shapiro, Carl, Varian, Hall. "Waging a Standards War." *Information Rules* (Boston: Harvard Business School Press, 1999), 228–233, 238–242, 272–279.

4.2.11.2 The Future: Multiple Standards

Digital technology does not require uniformity. Smart TV sets can process multiple standards. Different video providers will choose different standards and compete among themselves. This permits rapid entry of new technologies and innovation. In consequence, it is unlikely that uniform standards will be as important to the future of media as they have been in the past.

4.2.11.3 Case Discussion

Sony's Standards Efforts

Sony had mixed results from its standards efforts. It scored a great success when it developed the CD player technology jointly with Philips of the Netherlands as its European ally, and this then became the worldwide standard. On the other hand, Sony's go-it-alone approach did not work for Betamax at all. Many years later, Sony's Blu-ray DVD standard prevailed after a major struggle, but it took much coalition-building to achieve it, and the process retarded consumer acceptance of HD-DVDs by several years. Partly in consequence, Blu-Ray penetration rates were much lower than those of the previous generation, that of DVD players.

Beyond those specific tasks, one of the CTO's major responsibilities is to help foster a climate of innovation in the organization. This is further discussed in ► Chap. 5 Human Resource Management for Media and Information Firms.

4.3 The Six Stages of Media Tech Convergence: The Six "Cs"

The next and second major section of this chapter is a discussion and overview of the major trends of technology as they affect media and communications. Owing to the breadth of the subject, it can serve only as an introduction, but such an introduction is important for those engaged in or contemplating a career in this sector.

Traditional media were separated by delivery technology—printed paper, film on celluloid, broadcast amplitudes, telephone wires, vinyl discs, computer discs, and so forth. Similar specializations separated the provision of content from conduit. Within these separate markets, a firm could achieve market power. In the 1980s and accelerating in the 1990s, however, a technical convergence of media began to gradually blur the clear lines between segments, thereby creating potentially more rivalry. The major technological trend behind this convergence is well known: the increased use of digital electronics to generate, store, transmit, and display information. The elements of digital electronics use many common hardware elements and similar formats for the coding of information. The various forms of content—text, still pictures, moving images, sound—can be variations of the same basic IT. This fundamentally affects media, the borders between them, and the market structures in which they operate.

The convergence of technology has been a broad and long process. It can be decomposed into several distinct

convergences, some sequential, some marching in parallel. This will be the subject of the segments that follows.

4.3.1 Convergence #1: Computers

Several major technologies have come together to make computers possible. In particular, they are calculating devices, electronic components, and control codes.

4.3.1.1 Calculating Devices

Calculators started as mechanical devices such as the abacus, created to assist people in arithmetic. In 1642, Blaise Pascal, a French mathematical genius and entrepreneur, invented a mechanical calculator when he was 19. In 1671, Gottfried Leibniz of Germany, another pioneering mathematician, invented a multiplication machine. In the nineteenth century, Charles Babbage, a British scientist, inventor, traveler, economist, politician, and author, designed a complex "difference engine" and a still more elaborate "analytical engine." His work was supported by Ada Byron (the Countess of Lovelace and the daughter of Lord Byron). Babbage's second machine was an extraordinary mesh of gears, levers, wheels, and other mechanical parts. It was never completed but showed the way when more advanced electronic technology emerged.

4.3.1.2 Components

Babbage's machines and similar calculators that followed had to rely on mechanical wheels, gears, and so on. As soon as calculations became more complex, mechanical devices were not up to the task. To overcome this required the use of electric signals. A major breakthrough was the electric vacuum tube going back to 1906 and the AT&T engineer Lee de Forest, which made it possible to mirror and amplify weak signals, as well as to open and close an electric circuit. These were major advantages. On the negative side, vacuum tubes were bulky, fragile, and energy hogs. They were replaced in the 1950s by solid-state transistors based on silicon.

Transistors were invented in 1947 by William Shockley and his AT&T's Bell Labs team, for which they received a Nobel Prize in 1955. Shockley started his own company. Two of Shockley's best engineers, Robert Noyce and Gordon Moore, in turn left him to start their own firm, Fairchild Semiconductors, which subsequently split off to form Intel, the perennial leader in microprocessors. Intel was founded in 1969 by Noyce, Moore, and Andrew Grove. The company's 4-bit processor, the 4004, was released in 1971; an 8-bit version, the 8008, was released the next year. Ten years later, the company introduced its breakthrough 8080 processor, a variant of which first appeared in the IBM PC microcomputer in 1984.

Transistors are the key element of all microelectronics. They are similar in concept to an electronic tube: a weak signal controls a stronger one and is thus amplified. Transistors consist of three terminals: the source, the drain, and between them the gate (Fig. 4.8).[91] When a positive charge is applied to the gate, the electrons are pulled from the source to the drain, meaning that the transistors are "on". But when the positive charge at the gate is removed, electrons do not flow and the transistor is turned off. The on/off functionality of the transistor is what enables it to code and process information as binary 0s ("off") and 1s ("on").

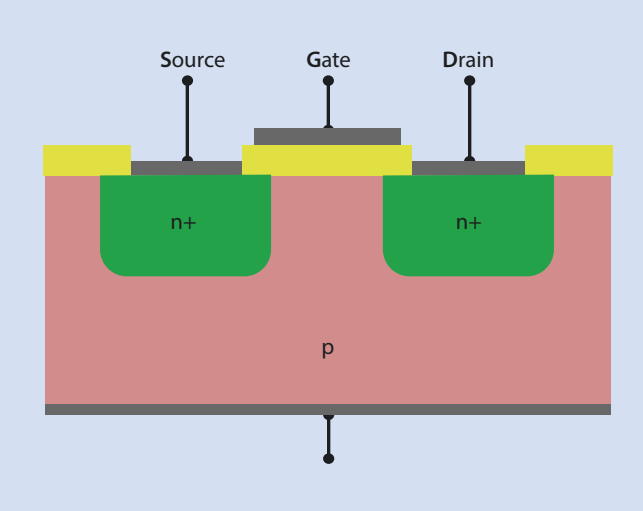

Fig. 4.8 Transistor workings

Transistors proliferated, as did the other solid-state components that are part of electronic circuits, such as resistors and capacitors. In the third generation of components, these elements were put together in a single integrated circuit (IC) on a silicon chip. The first such ICs were produced in 1959 by Texas Instruments and Fairchild Semiconductors. Each IC contained an increasingly large number of transistors on a single semiconductor chip. Such a chip was dedicated to a particular function, such as math calculations or thermostat control. This changed with the fourth generation of components, microprocessors, which were programmable; that is, they could be instructed to do many different things.

The first microprocessor was the Intel 4004 (1971), and it took the IT world by storm. Since then the technological ability to reduce the size of transistors and circuits progressed rapidly, and with it the performance and speed of a chip. Gordon Moore, one of Intel's founders, observed that the computing power of chips doubles every 18–24 months, in other words, at a CAGR of about 40%. Since he came up with this Moore's Law in 1965, the number of transistors on a chip has increased radically, from 2300,[92] to 2.27 billion in 2012.[93] This is an increase by a factor of one million in about 47 years,

91 Nordmann, Arne. "Scheme of metal oxide semiconductor field-effect transistor.svg" *Wikimedia Commons*. ► https://commons.wikimedia.org/wiki/File:Scheme_of_metal_oxide_semiconductor_field-effect_transistor.svg.

92 Scienceray. "Moore's Law Prediction on Computer Chips." July 13, 2011. Last accessed August 9, 2012. ► http://scienceray.com/technology/moores-law-prediction-on-computer-chips/.

93 Angelini, Chris. "Intel Core i7-3960X Review: Sandy Bridge-E And X79 Express." *Tom's Hardware*. November 14, 2011. Last accessed August 9, 2012. ► http://www.tomshardware.com/reviews/core-i7-3960x-x79-sandy-bridge-e,3071.html.

a doubling every two years. In 2017, the Cannondale generation offered a density of 10 nanometers. The next generation, Kaby Lake, had a 3.8 GHz to 4.5 GHz Turbo clock rate, over 7.2 billion transistors, and sold for $350.

More than any technical building block, microprocessors are the heart of the information revolution. A key indicator of their power is the length of the bit strings they process. Microprocessors expanded from 8-bit capability in the 1970s to 16-bits in the 1980s to 32-bits in 1993 to 128-bit processors in 2001.

There are also many types of specialized chips, for example for image processing. General-purpose processor chips are versatile but not super-fast at any one of these capabilities.[94] Microcontrollers (MCUs) are microcomponents that are preprogrammed to perform specific functions in non-computer devices ranging from digital watches to automobiles.

The capability of memory chips has increased exponentially, along the exponential path of Moore's Law of a doubling every one to two years. For dynamic random access memory (DRAM), it grew from 256 bits in 1968 to 1 K in 1970, 16 K chips in 1979, 64 K in 1980, 256 K in 1982, 1 MB in 1986, 1 GB in 2004, 64 GB in 2014, and 128 GB in 2015. In 2017 Samsung's lab created a 256 GB memory stick.

Competition hastened technical advances and decreased the cost per megabyte of memory from $5,242,880 in 1960; $734,003 in 1970; $6,480 in 1980; $100 in 1990; $1 in 2000; $0.20 in 2010; and $0.005 in 2017, a reduction by half every two years. This rate would be higher still if inflation were factored in.

In order to boost performance, semiconductor makers now combine multiple processor cores on a single chip. In 2016, Intel's 6950X Processor had ten cores and operated at a 3.5 GHz clockspeed. The price was $1600. Intel's top high-performance processor Xeon Phi 7290 had 72 cores with two threads per core. It operated at 2.8 GHz clockspeed. The unit price was $6250.

The next generation of chips moves miniaturization and integration to yet another level, that of a "computer-on-a-chip" or a "system-on-a-chip" (SOC). They contain many components of a single chip: a processor (central processing unit, CPU), non-volatile memory (read only memory, ROM, or flash), volatile memory (random access memory, RAM), a clock, an input/output control unit, and more. This is ideal for compact products such as smartphones.

The semiconductor industry tends to follow a boom–bust cycle driven by innovation, high demand, and investment, followed by overcapacity and dropping sales. As the industry grew, it disintegrated vertically. In the 1980s a computer company (often part of a larger electronics firm) would build its own manufacturing equipment, design its own chips, manufacture them, and so forth. By 2000, however, the industry had splintered into sub-industries of increasingly specialized firms.

The deverticalization of the semiconductor industry includes foundries, "fabless" firms, and semiconductor intellectual property (SIP) firms. A foundry is a firm that specializes in producing chips for other firms on a contractual, outsourced basis. Equipment sophistication and manufacturing scale grew, and by 2001, the average cost of a new semiconductor fabrication facility ("fab") was over $2 billion. Some of the big foundries are located in South Asia; for example, TMCS and Winbond (Taiwan). Because of the enormous capital requirements for building a chip fabrication facility, it is uneconomical even for many large firms to build their own facilities.

"Fabless" semiconductor companies are the flipside of the giant foundries. They design, organize, and market. Most new semiconductor companies are fabless, sub-contracting manufacturing to the foundries. Some of these new-style companies became quite large, for example the internet chip firm Broadcom.

The trend toward semiconductor design firms took a further step with the SIP business model, in which a developer company licenses its designs to other designers or manufacturers. The firm MIPS, for instance, helped Nintendo design the processor for its N64 gaming console. The SIP business model is less risky and capital intensive than the fabless model, since a firm does not engage in manufacturing activities—not even through sub-contractors—nor does it have to market any products or maintain inventories.

4.3.1.3 Case Discussion

Should Sony Make its Own Semiconductors?

Developing its own specialized semiconductors has several advantages for Sony. Its semiconductor designs would be closer to its final products, making it easier to design and spot potential problems sooner. It would have a head start for its own consumer products. It would not be dependent upon rival firms for its supplies or have to compete with them for early delivery by suppliers, and it could also sell the chips to other manufacturers as a business. And, indeed, Sony has built many of its own semiconductors ever since the 1950s.

But there are also several drawbacks. Foremost is the cost of such an activity. Companies such as Intel, Texas Instruments, Qualcomm, InterDigital, and Infineon are highly specialized and can devote more resources to designing and/or making chips and can sell them to a wider set of buyers, thus reducing unit cost. Generally speaking, leaving semiconductor development to specialist firms is advantageous to companies whose core competency lies elsewhere. Sony would be required, at the very least, to invest much money to be competitive. Thus, as the complexity of semiconductor technology advanced in the 1970s, it required much larger capital investments for R&D and production lines,[95] and Sony's previous self-reliance

94 Lyon, Daniel. "Holy Chip!" *Forbes*. January 30, 2006. Last accessed August 9, 2012. ► http://www.forbes.com/forbes/2006/0130/076.html.

95 Fransman, Martin (1990) *The Market and Beyond: Cooperation and Competition in Information Technology in the Japanese System*, Cambridge: Cambridge University Press.

became unsustainable. Sony adjusted its business strategy. First, in 1982, it began selling components to rival firms, something which had been a strict taboo before. The purpose was to cover the cost of development and of tooling up over a larger production volume to reach its internal demand.

Second, Sony left the production of commodity semiconductors and focused on specialized chips for media products, such as CAVDs for multimedia products, CCD image sensors, as well as laser diodes.

Third, Sony engaged in collaborations. Its most ambitious semiconductor was created through a co-development deal with other major companies. This was Cell, a super-powerful semiconductor developed together with IBM and Toshiba at total estimated cost of $4.5 billion. Cell ran ten times faster than Intel's most powerful Pentium chip at the time.[96]

The impetus to Cell came when Ken Kutaragi, Sony's chief of video games, went to IBM in 2000 asking for a semiconductor with a processing power of 1 teraflop, which was a significant increase over any chip available at the time, to power what became Sony's PlayStation 3 video game console. Sony, Toshiba, and IBM set up the STI design center at an IBM research lab in Austin, Texas. The center employed 450 engineers, most of them from IBM.

In 2005, the "Cell" chip was unveiled. It was 50 times better at handling graphic-intensive applications, and thus essentially redefined next-generation visual entertainment-immersive games, virtual-reality, real-time video chat, as well as interactive TV shows with multiple endings. Cell's performance was equivalent to a full-fledged supercomputer of the late 1990s. Cell, with the addition of a graphics chip, could run 2 trillion instructions per second for a PS3. The chip was expensive, however, and it raised the PS3 price to the $500–$600 range. By incorporating Cell processors in IBM system Z mainframes, IBM enabled them to be used as servers for massively multiplayer online role-playing games (MMORPGs). Additionally, Toshiba incorporated the chip in its HD television sets. But in 2008, Sony decided to get out of this collaboration and sold its Cell chip part in the venture to Toshiba. For a time, IBM continued to manufacture the Cell processor for Sony's game consoles. Toshiba developed a next-generation processor derived from the multicore technology of Cell.

To conclude: Sony was unable to keep up on its own in semiconductor design and manufacturing. It then moved to consortia with other firms with expertise and deep pockets. But even with shared development, it became increasingly difficult for Sony to remain in the advanced end of semiconductors industry. It therefore seems unlikely that Sony can maintain the design and production of most of its semiconductor components.

4.3.1.4 Control Code and Devices

As machines began to be powerful and fast, it became evident that they required control by human operators and these were often too slow, expensive, and unreliable. Mechanical control devices were therefore developed. In 1805, punch cards were used in France to control a weaving loom. In 1896, Herman Hollerith introduced a tabulating machine for use by the US Census Bureau. This machine became the foundation of a company put together by Thomas J. Watson, Sr., which in 1924 was renamed International Business Machines (IBM).

These devices began to use coding based on a binary system. Central to electronic machines' ability to process and store information is a "binary" coding, in which information is expressed as a string of zeros and ones. These sequences and patterns of zeros and ones can represent decimal numbers, but also letters, numbers, colors, and graphics. They can be manipulated through the mathematics of Boolean algebra, developed by George Boole in the nineteenth century, establishing the mathematical foundation of what became computer science. The mathematics of controlling electronic calculating devices were advanced by Alan Turing of the UK along with John von Neumann, who had left Hungary for the USA. During World War II they conceptualized how a machine could manage computational tasks.

Instructions that controlled the functioning of computer hardware became known as software. Its "programs" or "languages" have progressed from the earlier specialized, expensive science of mathematicians to a craft by skilled programmers and technicians and to a stage where machines write programs for other machines. The software has moved from an arcane and specialized craft product that only specialized engineers could interpret to a thriving, industrialized, and often consumer-oriented industry producing a mass-product, and from products of low volume and high price to those of high volume and low price.[97] Since the ascendancy of microcomputers in the 1980s and the creation of a mass-market for computing, the software industry has become a vibrant sector in the economy. Many creative new companies and products have emerged. In the days of mainframes, much of the software used to be written as custom jobs by manufacturers or by the users themselves. In contrast, packaged applications software is prewritten for numerous users.

Computer software falls into two broad categories: systems software and applications software. Systems software includes operating systems of computers and other devices (such as Microsoft Windows, Apple MacOS, and Google Android), networking software (such as .Net and Novell Netware), and database-management software. In contrast, applications software perform specific functions (e.g. word processing or spreadsheets) and can be either customized for individual users or sold in standardized packages. Another segmentation of the industry is whether it provides client or enterprise software. Client software runs on PCs and usually serves an individual user. Examples are PC operating systems, web browsers, spreadsheets, and personal productivity tools. Enterprise software includes categories for departmental, enterprise, internet, intranet, and extranets.

96 Lyon, Daniel. "Holy Chip!" *Forbes.* January 30, 2006. Last accessed August 9, 2012.
► http://www.forbes.com/forbes/2006/0130/076.html.

97 Noam, Eli. *Media Ownership and Concentration in America.* New York: Oxford University Press, 2009.

In the late 1990s, there were new developments in software. The first and most potentially challenging development was the growth of the internet. As transmission bandwidth grew cheap and plentiful, many observers expected that users would only need a so-called "thin client" with which to access the internet, with the intensive computing done at a distance by more powerful servers. By reducing the need for a standardized operating system and for most applications programs, software providers would compete based only upon their price and performance criteria, such as speed, reliability, and ease of use. The thin-client network computer concept failed to live up to expectations, but the emergence of cloud-based computing may bring a revival.

4.3.1.5 The Computer

We have briefly explained the emergence of calculating machines, electronic components, and software control languages. By the 1940s, these elements were put together into the first computers.

During World War II, British and Polish decryption of the German secret military "Enigma" codes led to advanced mechanical calculation machines, which soon became electronic-based devices that could quickly go over millions of permutations. The Harvard Mark I (1943) was the first program-controlled calculator. It weighed 5 tons, and had 750,000 parts and 3304 relays. The US Navy utilized it for ballistic tables. The chief programmer was Grace Hopper who later became the first woman US admiral. But it was still a specialized machine for specialized purposes rather than a universal multitask computer. In Germany, similarly, Konrad Zuse developed in 1941 the Z3 as a programmable computing machine. The first general purpose computer was the ENIAC (1946). This was designed by John Mauchly and J. Presper Eckert of the University of Pennsylvania to break codes, calculate artillery flight, and assist in nuclear development. It was 100 feet long, weighed 30 tons, and cost $500,000. The ENIAC's inventors commercialized the technology into the Universal Automatic Computer (Univac) and soon sold their company to Remington Rand. This was the beginning of the computer industry.

IBM, a big office machine supplier of typewriters and desktop calculators, entered the market in 1953. It was able to leverage its dominant position in the tabulator punch card market and it soon dominated the business market. IBM did not sell the equipment but allowed users to open a lease to use. Peripheral hardware and software, even punch cards, had to be supplied by IBM. This prevented secondary resale markets and enabled IBM to engage in price discrimination. When such mainframe computers were not powerful enough to meet specialized demand for high performance, "supercomputers." In 2011, the IBM Sequoia could run at the speed of 20 PetaFLOPs. In 2017, the top performer was the Chinese Sunway Taihulight with 93 petaflops. By 2018, the Oak Ridge National Laboratory in Tennessee took the lead with its 200 PetaFLOP summit computer. Exascale computers were being developed the equivalent of about a trillion regular laptops.

These supercomputers—whose performance rises roughly a thousand-fold each decade—consist of massive, parallel processors and are used for large-scale scientific calculations. Examples of what the sheer operational strength of a supercomputer are weather forecasting, physics simulations, code-breaking algorithms, nuclear engineering, computer-generated animation, airline scheduling, DNA sequencing, and weapons-testing.

A different approach to high processing requirements is taken by Google and cloud providers. They run "server farms" of hundreds of servers. These servers are not supercomputers but rather commodity-class PCs running a customized version of Linux operating software. They aim to achieve best performance per dollar instead of being the fastest machines. With upwards of 450,000 servers, each with over 80 GB of hard drive space and 2–4 GB of RAM, Google's processing capacity reached about 40 PetaFLOPs in 2013, with over 1 million servers in operation, mostly of inexpensive commodity type.[98]

Massive computing is used in the film industry for producing special effects and animation. Animated objects such as talking cars or animals are relatively straightforward to generate by computers. It is harder to create the believable animation of regular people, since humans are pretty experienced in the subtle reading of human faces and motions, and computerized re-creations would have to be near flawless in order to be believable rather than seen as cartoons. To do so requires animation computers with a huge combined processing capacity. In 1977, computer processing was still so prohibitively expensive that when George Lucas made the original *Star Wars* film he could afford to use computer graphics for only a single 90-second sequence.[99] The Death Star sequence took several computers three months to complete. The trend in the film industry shifted from a single supercomputer doing animation and special effects, to several mainframes, and eventually to a network of medium-sized workstations known as "render farms." A desktop computer would have about eight cores, making DreamWorks' network one of over 3500 desktop computers. DreamWorks' render farm had about 30,000 "cores." Pixar had 24,000.

DreamWorks Animation produced such blockbusters as *Shark Tale*, *Shrek*, *Shrek 2*, and *Madagascar* using computer-generated animation technology. *Shark Tale* consisted of 300,000 frames, each requiring more than 40 hours of rendering. As processing power and speed grew, so did the ambition of animators and their toolkits. The technology of substituting or enhancing humans by computer-graphic images is referred to as "motion capture," in which humans serve as models for animators. In *The Polar Express* (2004), Tom Hanks was partly replaced by a computer-generated character, leaving the actor with the speaking role, and permitting him to be represented at different ages.

98 Pern, James. "What is Google's Total Computational Capacity" *Google*. ► https://plus.google.com/+JamesPearn/posts/gTFgij36o6u.

99 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

Once it becomes technically and economically feasible to create believable human characters, the next step will be for studios to create entirely artificial actors by computer technology. They would own the characters, as they own Mickey Mouse, pay them no salaries, subject them to amazing stunts, fine-tune their physical features, and let them live happily forever, with no profit participation or residual rights to royalties. At a foreseeable point in the future, this will become an economically viable proposition.

Thus technology transforms media content. In the old days, live performance technology favored simple and linear plots. Print technology led to a more introspective style of media consumption, in which the users had to supply their imagination to augment the sparse words. Film introduced special effects and action. Broadcast television moved media consumption into the family unit as a shared experience with corresponding content. Cable and satellite enabled highly specialized content. And digital technology leads it to interactivity, immersion, and group social experience.

Consumer Computers

Until the 1980s, computer makers tended to be vertically integrated, that is, involved in most aspects of making and operating computers from basic circuitry, to components, peripheral equipment, operating software applications, software distribution, service, systems integration, and maintenance. Because the manufacturers used proprietary standards, they locked in customers to their entire ecosystem of hardware, software, peripherals, and service contracts.

As computers evolved, product sub-markets evolved, differentiated by operating power. The categories within the general-purpose computer industry, in the order of increasing computing power, are handheld computing devices (personal digital assistants, PDAs, tablets, video game players, and smartphones), PCs, mid-level computers (workstations, minicomputers, home servers), mainframes/rack servers, and supercomputers.

As mentioned, supercomputers are typically customized, state-of-the-art mainframes. Prices range from $200,000 to over $100 million. Supercomputers tend to have special-purpose vector processors. These are often composed of multiple specialized processors that can perform certain calculations at great speed. A different type of supercomputer, the massively parallel computer, uses a far larger number of standard (and thus far cheaper) microprocessors that function in parallel. Massively parallel computers are most effective for solving problems that can be broken down into discrete sections.

Mainframe Computers

Mainframes can handle more tasks and larger jobs than other computers. However, they are expensive and require substantial infrastructure. Networked workstations and PCs present mainframes with substantial competition. In consequence, mainframes' share of aggregate computer hardware sales declined from 100% in 1960 to 44% in 1984, 19% in 1992, and 2.4% in 2016 (about $7.4 billion out of a total $304 billion.)

Although the mainframe market has been shrinking over time, it remains viable. Many large organizations have sunk sizeable investments into proprietary systems and software that cannot be replaced easily. In addition, although mainframe hardware costs are high, the typical total cost of PC and workstation network computer power is higher still, per user or operation, especially if application development and technical support is factored in. There will always be a need for the shared use of sophisticated applications on powerful equipment, as the internet demonstrates with its portals, applications service providers, and e-commerce sites. These internet mainframes are often called servers, though that term also encompasses computers of lesser power.

Mainframes operate as large servers for the internet and corporate intranets. This has breathed new life into the mainframe industry. In media, mainframes can be used in rendering of images for animation and for the distribution of on-demand video by companies such as Netflix. Other applications are for engineering, films, and design, for corporate client server networks, and for general business purposes.

In the 1960s, 1970s, and 1980s, a number of governments around the world supported "national champion" electronic firms in order to keep up with IBM in building computers. In Japan, these companies were Fujitsu, Hitachi, and NEC; in France, Bull; in Britain, ICL; in Italy, Olivetti; and in Germany, Siemens. None was successful in challenging IBM. Yet upstarts in the emerging Silicon Valley of California succeeded without government backing where the big firms had failed. They brought microcomputers to the consumer markets. Intel's 8080 microprocessor chip, introduced in 1974, enabled many computer processes: it could be combined with off-the-shelf components to build small computers, but large firms ignored this potential. Amateur computer builders therefore emerged to take advantage of this new market.

The first microcomputer was developed in 1974 by Micro-Instrumentation and Telemetry Systems (MITS), a tiny company in Albuquerque, New Mexico, building radio transmitters for model airplanes and rocket hobbyists. In 1975, the Altair 8800 from England was the first commercial microcomputer using the Intel 8080 microprocessor. In 1977, Tandy TRS 80 microcomputer was mass marketed through Radio Shack retail chain.

In 1976, Steve Wozniak and Steve Jobs introduced the Apple I computer, which used a Motorola microprocessor and an operating system written in the BASIC computer language.[100] In 1984, they created the Apple Macintosh which used a Graphic User Interface developed by Xerox PARC in 1981.[101]

100 Smith, Roger. "5 Patterns of the Chief Technology Officers." *Research-Technology Management*. Last accessed April 30, 2017. ► http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.158.1721&rep=rep1&type=pdf.

101 Hooper, William. "A Short History of the GUI and the Microsoft vs Apple Debate." *TheOligarch.Com*. April 2008. Last accessed July 11, 2011. ► http://www.theoligarch.com/microsoft_vs_apple_history.htm.

The microcomputers required software development machines. Focusing on the operating software for such small computers, Paul Allen and Bill Gates created Microsoft MS-DOS, which was adopted by IBM when it introduced its highly successful PC and laid the groundwork for Microsoft's and Intel's market dominance.[102]

With the development of computer networks, the PC soon moved from being a standalone processor and storage device to an internetworked device. The internet became the major platform for such interconnection.

By 2014, the market for microcomputers in advanced countries had become, to a large extent, an upgrade market.[103] They became the major access node to the burgeoning internet. Internet and multimedia use increased requirements for processor and memory power. The internetworking encouraged some manufacturers to design simplified computers ("dumb" or "thin" clients) to access the internet, leading eventually to tablets.

Video Game Hardware

Video games have become a new mass media—increasingly sophisticated, interactive, feature rich, and popular. Video game hardware was pioneered in the mid-1970s by Nolan Bushnell, who invented Pong (an early arcade video game machine) and founded Atari.[104] Atari was jointly acquired by Warner Communications and American Express, and became the dominant home video game vendor by developing the first successful programmable video game machine (using a 4-bit Central Processor Unit, CPU). Development of the programmable machine created a new market for video game software. By 1983, Atari had close to 86% of the $2.2 billion global video game hardware and software markets. However, by 1984, consumers had become bored with Atari's products. A new entrant from Japan, Nintendo, became dominant in 1985.

But by 1993, Nintendo had lost its leadership to Sega and its machine that was based on a 16-bit microprocessor. Sega, in turn, lost out to Sony, which enjoyed quick success with its own 32-bit PlayStation machine released in 1995. Sony's PlayStation combined superior hardware with access to content, and a $40 million marketing campaign that focused on celebrities and trendsetters. In 2005, Microsoft ushered in a new generation of consoles with the Xbox 360. In 2012, at the close of the seventh console generation, Nintendo had 42% of consoles sold, Microsoft had 36%, and Sony 22%. Sony's market share almost doubled from 2008 to 2016, by a full 25%, while Microsoft's rose by 10%, and Nintendo dropped by a full 35% from its once dominant 60%.

As can be seen from its history, this market is unforgiving. New technology, expressed in processor complexity, drives console adoption. The first to market with the latest processor technology will sell many consoles in its first year, but sales will quickly fall in succeeding years as the novelty declines and rivals catch up.

Another success factor is the lineup of attractive game titles. Nintendo's early achievements were largely attributed to its innovative game titles such as Mario Bros., Zelda, Metroid, and Pokemon. The Sega Dreamcast console scored disappointing sales because of a shortage of major game titles. This forced Sega out of the hardware market in 2000. Microsoft experienced similar problems. Although its Xbox was technologically superior to Sony's, it lacked Sony's extensive library and backward compatibility to older but popular games.

Video consoles became more than just gaming machines. Machines function as DVD players and enable users to access the internet, especially for online games. The intense competition in gaming consoles and the high demand for the latest game releases led industry participants to adopt a razor and blades business model. Manufacturers are willing to make little or no money on video game hardware sales to quickly build a large installed hardware base, thereby boosting profitable game or cartridge (software) sales.

The video game hardware industry is deeply competitive but sustains only three globally operated firms. Microsoft was one of the few firms globally able to enter the market for gaming consoles and compete with Sony, given the tremendous resources required to be successful and attract developers, coupled with the considerable risk of failure. These tentpole companies are surrounded by small game developers, which jointly create the network effects and scale necessary for success with a very finicky volatile user base. Entry barriers are high for the hardware consoles but much lower for the game applications.

Video Game Software

Video game software is big business. It consists of three segments, each for a different hardware platform: game consoles, PCs, and smartphones. Because each video game device is proprietary it will only run software that is either produced in house, commissioned from a second party, or accepted from an independent third-party publisher (who pays license fees to the game device companies and earns royalties on game sales). The game software industry is fragmented.

The revenue of the video gaming industry in the USA—both hardware and software—was often said to exceed that

102 Ohebsion, Rodney. "A Biography of Bill Gates and History of Microsoft." Last accessed May 9, 2017. ► http://www.rodneyohebsion.com/bill-gates.htm.

103 In 2015, 92% of American adults had a cellphone, 68% a smartphone, 73% a laptop or desktop computer, 45% a tablet computer, and 19% an e-book reader. Anderson, Monica "Technology Device Ownership: 2015" *Pew Research Center Internet & Technology.* ► http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015/

104 Earlier projects were those of Steve Russel and Ralph Baer ("Game Room," "Space War," and "Magnavox Odyssey").

of movie theater ticket sales.[105] However, films are also commercialized far beyond theatrical distribution, such as by home video, video on demand, pay-cable, and so on.[106]

Handheld Computing Devices

Smartphones and tablets are small, handheld, computing devices. A British firm, Psion, offered a product in 1984. Apple introduced the Newton MessagePad in 1993 (this was a $500 million failure). The first Palm Pilot was released in 1996 and became a major success. A critical design feature was its open operating system, which led to grassroots and independent commercial software development. By 2005, personal digital assistants (PDAs) were increasingly being merged into smartphone devices, thus declining as standalone devices.

After 2010, handheld tablet computers became a major presence. But tablets go back much earlier, and their history is one full of false starts. Typically, tablets use smaller processors than fully fledged computers. This helps save on space and battery power and cuts down on heat generation. A typical tablet includes features not common in PCs, such as an accelerometer, a gyroscope, a touch-screen controller chip, a camera, and sometimes cellular chips and antennas. The Amazon Kindle (2007) was the first successful e-reader. The market exploded after the Apple iPad, leading to numerous rival products. The iPad had a long-lasting battery, a powerful 1 GHz processor, and access to the world's biggest app library (iStore). On the corporate level, tablets have been used in numerous ways, such as for inventory management, asset tracking, or in restaurants to take orders and process payments.[107]

Case Discussion

Should Sony Be in the Computer Business?

Sony has been a major presence in the consumer electronic market. Given the convergence of technologies, should the company also move to PCs? On the one hand, it is a logical market extension. On the other hand, it moves into the territory of experienced computer makers such as Apple, HP, or Dell, as well as into a space covered by low-cost manufacturers such as Acer and Asus. Does it make sense for Sony to be a computer manufacturer?

Already in 1986, Sony entered the computer market with its Network Engineering Workstation (NEWS). It was inexpensive and used mainly as an automated design tool,[108] and was favored by universities and corporate researchers. Fierce competition by Sun, HP, and IBM forced Sony to exit the market. But in 1996, Sony reentered the computer market with its newly launched VAIO (Video Audio Integrated Operation) microcomputer line. The VAIO logo represents an integration of the analog wave and the digital 1–0 binary code.

Sony President Nobuyuki Idei explained: "VAIO is an entrance fee. If you are not making computers, since change is happening so rapidly, you can't keep up. I don't aim to take market share in PCs, but to use the PC as a step to go on to the next step." Sony's strategy for the PC was to utilize it as a platform to insert its content (music, movies) and accessories (cameras, players) into homes. Sony's advantages were physical design and the brand itself. Sony's computers were light and slick with easy-access buttons for web surfing and multimedia controls. Sony also offered consumers perks from its content operations, such as music and movies that are exclusive to VAIO users, and to other Sony hardware. From the beginning, VAIO established itself primarily as a brand for consumers and creators, but had little penetration in the business and office market. Sony identified as target audiences for the VAIO[109]:

- "jetsetters" who required an ultra-portable notebook;
- image-conscious, affluent consumers desiring high-end electronics, regardless of cost.

Can Sony create a technological advantage in the PC business? Can it protect its advantages from lower-price imitators? The answer for both questions has to be no. The parts that make up a VAIO are mostly commodity components—elements supplied by other companies or off-the-shelf products from other vendors. They included microprocessors by Intel, hard drives by Seagate or Fujitsu, RAM by Infineon, optical drives by Hitachi or Matsushita, and graphic processors by Intel. What is the implication? The VAIO performance can be replicated by others who purchase the same components (or cheaper ones). As for Sony's sleek design, it can be substantially imitated.

In consequence, Sony's global PC sales were moderate. Global shipments peaked in 2012 at 8.7 million units, but fell to about 5.8 million in 2013. Market share dropped to 1.9%. This decline ultimately led Sony to sell its PC business, at a loss, to the financial investment firm Japan Industrial Partners (JIP). JIP reintroduced the VAIO line in the USA in 2015. By that time, Vaio had only 250 employees. JIP aimed at returning the VAIO line to profitability by focusing on niche markets such as graphic artists rather than aim at the mass markets, and then spinning the company off in an initial public offering, or selling it to a larger computer maker.

105 The Economist. "Gaming Goes to Hollywood." March 25, 2004. Last accessed May 9, 2017. ► http://www.economist.com/node/2541401.

106 Moreover, the piracy of films is much higher than for video games, where stronger DRM protections exist.

107 Spire Research and Consulting. "The computer tablet industry: Overflowing with opportunities." *SpirE-Journal2012 Q3*. Last accessed May 9, 2017. ► http://www.spireresearch.com/spire-journal/yr2012/q3/the-computer-tablet-industry-overflowing-with-opportunities/.

108 Sony. "Entering a Highly Competitive New Business Area." Last accessed May 9, 2017. ► https://www.sony.net/SonyInfo/CorporateInfo/History/SonyHistory/2-12.html.

109 Ruder Finn. "SONY Consumer Electronics." June 1, 2011. Last accessed July 12, 2011. ► http://www.ruderfinn.com/global-connectivity/consumer-electronics/case-studies/sony-consumer-electronics.html.

4.3.2 Convergence #2: Computers with Communications Hardware

4.3.2.1 Telecommunications

The second convergence is that of computers with telecom communications. Electronic communications technology has been around since the mid-nineteenth century. Everybody uses telecommunications—two-way individualized electronic communication—more than ever before: at home, in the office, on the road, at the beach, when web surfing, chatting with friends, emailing, streaming music, watching video, holding a meeting, or running a company.

Traditionally, telecommunications hardware was divided into two categories based on the destination of their products: fairly simple consumer and office-oriented customer premises equipment and carrier-oriented network infrastructure equipment.

Telecom networks used to consist, at their user end, of lines known as twisted pairs of copper wires. For a higher capacity of signals, and for transmission under the oceans, copper coax lines were used. Optical fibers became a hugely powerful alternative means of transmission. They consist of very clear glass strands which can transmit the pulses emitted by light-emitting devices such as lasers. Not only do these fiber strands have a huge capacity, but they can also transmit signals for thousands of miles before they need to be regenerated and amplified. The trend of technological progress in wire-based communications, in terms of transmission rate ("speed") has progressed at a compounded annual growth rate of about 44%, and that rate has been accelerating.[110]

The alternative to wired networks are wireless ones. In the 1840s, the English physicist James Clark Maxwell came up with the theory of electromagnetism. In 1888, Heinrich Hertz (Germany) demonstrated electromagnetic waves. In 1895, Guglielmo Marconi (Italy) applied these waves to transmitting telegraph-type signals to ships. Broadcasting soon followed. Reginald Fessenden (Canada) made the first voice broadcast in 1900 when working for the US weather bureau. Radio amateurs returning from World War I were able to advance technology by leaps and bounds. In 1919, GE, Westinghouse, American Marconi, and AT&T, with US government support, created the Radio Corporation of America (RCA) to compete with the British Marconi Company, and it became the technology leader for a generation. In time, technologists mastered increasingly high frequencies of electromagnetic waves. This made it possible to focus radio beams narrowly, which enabled microwave transmission via one hilltop tower to the next, and later via satellites that seem to be hovering in a stationary orbit.

The second major element of networks are various types of switching devices. These route the signals to their specific destinations. The private firms that had traditionally produced such hardware were doing well when they were the high-priced suppliers of their national monopoly telecom network operator. Two major factors combined to destroy this cozy business. The first was the introduction of government policies around the world that privatized state-owned telecom monopolies and opened telecom network services and hardware markets to competition. The second was the digital revolution. Network switches became, in effect, specialized large computers, and companies such as AT&T became computer makers. But it worked both ways. Companies from the computer and data world entered the huge telecom market, and they tended to be faster moving and lower cost. By 2010, all the traditional major telecom network equipment firms were in trouble. The telecom businesses of Siemens, Alcatel, and Lucent, respectively the traditional communications technology powerhouses of Germany, France, and the USA, were acquired by the Finnish mobile phone-maker Nokia. Nokia, too, was declining rapidly and sold its handset business to Microsoft. Nortel, Canada's leading telecom technology firm, went bankrupt and was liquidated. Instead, high-tech "datacom" manufacturers emerged such as, in the USA, Cisco, 3Com, Aruba (HP), Avaya, Brocade, and Oracle, and in China, Huawei and ZTE. In customer premises equipment, a similar avalanche overtook the traditional telecom industry. Such devices included phone handsets and other devices connected to the networks. For many decades, the telecom network operators controlled access to the consumer market by controlling the connectivity of handsets. Only a few favored suppliers were admitted, such as in Japan the "NTT Family." But when the equipment market was forced open around the world, a flood of new competitors from the CE industry entered. Asian CE manufacturers, in particular, benefited from the opportunity. Sony is one example. But this was just the beginning. Because the rise of mobile communications brought a second and more fundamental wave of new players.

4.3.2.2 Cellular Telephony

The development of cellular wireless increased the utilization of the electromagnetic spectrum by dividing a service area into small sections or "cells." Each cell uses a low-power transmitter. The same frequency can be reused in multiple cells in nearby (through non-adjoining) areas, and this greatly increases system capacity. This is only possible with the use of computer technology that can identify a calling party's location as she is moving, and is able to establish connections. It also benefited from increasing computing power in handsets, leading to "smartphones" which are small handheld computers that are network connected. Although AT&T and Motorola first successfully tested cellular radio in 1962, regulatory struggles in the USA prevented any commercial offering of cellular service for two decades. The world's first consumer-oriented mobile telecom networks were NTT's in Japan (1979) and NMT in Scandinavia (1981). A 150-year-old Finnish company with origins in paper goods manufacturing, Nokia, made the first mobile car phones for the network.

110 Koh, H. and C. L. Magee. "A functional approach for studying technological progress: Application to information technology." *Technological Forecasting and Social Change* 73, no. 9 (2006): 1061–1083.

With several waves of competition, prices dropped. In addition, handset prices also fell rapidly, from thousands of dollars to often a few dozen (frequently bundled into a service contract and therefore invisible), while performance and features skyrocketed. Demand for cellular services grew rapidly in the number of subscribers, minutes of use, and data bits and bytes.

In Europe, a single digital standard (GSM) was mandated for second-generation mobile service. In America, initially four distinct and rival digital standards emerged. CDMA, GSM's major alternative, is a technology developed by Qualcomm that splits each signal into packets with unique identification codes, allocates the packets among multiple channels according to availability, and then reassembles the signal at the receiving end based on their codes. In the so-called "third generation" (3G) of mobile wireless, CDMA became the worldwide approach. In the fourth generation (4G), in the approach known as LTE, Qualcomm collects 3.25% of each device's wholesale price as a licensing fee for its technology contributions, Motorola gets 2.25%, Alcatel-Lucent 2%, Huawei 1.8%, Ericsson 1.5%, and Nokia 1.5%.[111, 112]

Manufacturing cellphones was for a long time a booming business with many vendors, but the average prices for cellular handset declined while the products increased in complexity. Only manufacturers with very deep pockets were able to keep up. Major companies that fell by the wayside were Lucent, Alcatel, Siemens, and RIM. In contrast, successful companies were those with roots in the computer business. Apple, in particular, set the pace with its iPhone, introduced in 2007, where it brought to bear its strength in both computers and in consumer-friendly technology products.

Major players in mobile handsets worldwide based on unit sales in million units in 2017 were: Samsung (403.5 units or 23.4%); Apple (269 and 15.6%); Huawei (203.5 and 11.8%); Xiaomi (144.9 and 8.4%); OPPO (122.4 and 7.1%); and others (581.1 and 33.7%).[113] Of these, none is a traditional established telecom equipment manufacturer.

4.3.2.3 Case Discussion

Should Sony Be in Telecom?

Today, billions of people around the world are walking around connected to each other through telecom networks and small computers in their pockets, made by a variety of manufacturers. Is Sony one of them? Sony was an active supplier of consumer telecom equipment. Initially it focused on well-designed devices such as answering machines and cordless telephones. Sony had a recognizable brand and achieved a strong and profitable market role. However, commodification in the low-end products and low-priced imitators made Sony lose its share. At the same time, Sony as a consumer-oriented firm had no success entering the business telecom market.

For more advanced telecom products such as mobile phones, an increasing resource commitment was required. At first, Sony followed a go-at-it-alone strategy; however, this was unsuccessful even in Japan, mostly because Sony was never a member of the "NTT family" of suppliers to the national telecom incumbent.

By 1999, Sony's wireless condition looked dismal. Its global market share of the handsets market was less than 1% and it was losing money. In 2000, Sony entered into a joint venture with Sweden's Ericsson, the third largest vendor of handsets in the world but facing its own difficulties of plummeting market shares and record losses. The joint venture's headquarters were in the UK, with R&D labs in Sweden, Japan, China, USA, Canada, Netherlands, India, and the UK. The company relied heavily on the West European market, which was Ericsson's main turf.

Sony brought its strength in music to help stimulate its phone sales. The joint venture was at first able to increase its market share by two percentage points to 4.9% in 2009, which was in fourth place worldwide, but far behind market leaders Nokia (37.8%), Samsung (21%), and LG (11%). Worse was to come, Sony Ericsson was soon overtaken by Apple and its innovative smartphone. Sales shrank from 103 million units in 2007 to 57 million in 2009, leading to the layoff of 2000 jobs, nearly 25% of the total.

In 2008, Sony Ericsson came out with its smartphone Xperia. It outsourced the manufacturing of half of its Xperia line to the low-cost Taiwanese contract manufacturer Foxconn, many of whose operations are in mainland China. Xperia moved its operating system from Windows to Android (earlier, it had used a third operating system, Symbian). Xperia was nicely designed and had useful features such as water resistance, but it did not make a big dent in the market. In 2011, Ericsson was bought out of its partnership by Sony for $1.47 billion. By 2013, Sony's world market share was about 2.1%.

Sony's initial role in the first and second generations of mobile dure to the company's reputation as a CE giant and owing to its marketing prowess. But Sony did not succeed in entering the next level of mobile handsets on its own. The R&D here required a major commitment and investment. Instead Sony had to rely heavily on Ericsson's abilities. When Sony and Ericsson parted company again, Sony could not stay technologically in the leading group, in contrast to its Korean rivals Samsung and LG.

111 Armstrong, Ann K., Joseph J. Mueller, and Timothy Syrett. "The Smartphone Royalty Stack: Surveying Royalty Demands for the Components Within Modern Smartphones." *WilmerHale*. May 29, 2014. Last accessed May 9, 2017. ► https://www.wilmerhale.com/uploadedFiles/Shared_Content/Editorial/Publications/Documents/The-Smartphone-Royalty-Stack-Armstrong-Mueller-Syrett.pdf.

112 Stasik, Eric. "Royalty Rates and Licensing Strategies for Essential Patents on LTE (4G) Telecommunication Standards." *Les Nouvelles* (September 2010): 114–119.

113 IDC. "Global market share held by leading smartphone vendors from 4th quarter 2009 to 1st quarter 2018." *Statista*. 2018. Last accessed June 19, 2018. ► http://www.statista.com/statistics/271496/global-market-share-held-by-smartphone-vendors-since-4th-quarter-2009/.

4.3.2.4 The Internet

The internet was initiated by the United States Department of Defense as a system of linking smaller networks. In the 1960s, the RAND Corporation presented the concept of its researcher Paul Baran for communications following a hypothetical nuclear attack on the USA. Text messages would be divided into small "packets," with each packet separately winding its way through the network and thus being able to bypass section damages by attack. The Pentagon's Defense Advanced Research Projects Agency (DARPA) funded a project based on this concept, linking several defense technology R&D centers in government, private industry, and academia. It could interconnect local computer networks provided the individual machine could speak a common digital language known as Transmission Control Protocol/Internet Protocol. The resultant ARPANET grew rapidly after 1969. With the proliferation of microcomputers in the 1980s, an increasing number of research users linked themselves to ARPANET and then to its civilian successor, NSFNET.

NSFNET was replaced in 1995 by a collection of commercial internet backbones and internet service providers (ISPs). The number of host networks and domains increased exponentially. In 1995, 50 million people were online, primarily in the USA, Canada, and Europe. By 2006, that number had increased to 694 million, in 2013 to 2.71 billion, including by mobile devices, and to 3.58 billion including mobile devices in 2017.

In the 1990s, everything related to "the net" seemed certain of success. The financial markets were welcoming almost every internet-related firm with open arms. Applications such as internet telephony and webcasting began to attract the attention and funds of telecommunications companies and venture capitalists alike. Plummeting computer and internet access prices coupled with increased transmission, and faster processing speeds drove internet usage. Applications such as email portals, interactive gaming, online banking, e-auctions, e-tailing, online advertising, social networking, and streaming music and video, made the internet increasingly popular.

ISPs link computer users to the internet, and may provide additional services such as email. Small users typically connect to an ISP by using always-on high-throughput connectivity ("broadband") through various forms of transmission, such as a digital subscriber phone line (DSL), a fiber line, cable co-ax connection, mobile wireless network, or satellite. The ISP connects to the rest of the internet by high-capacity links as directed by "routers," and reach the main backbones, which in turn connect directly or over still other backbones to other internet nodes or ISPs.

The original internet grew by leaps and bounds, but was initially confined to relatively sophisticated users. It was complex to use and its content was essentially geeky text. This changed dramatically with the introduction of the world wide web. The web's key ease of use feature is hypertext, developed at Geneva's CERN laboratory in 1989 to allow researchers to reference other documents available on the internet. This means that data needs only be stored on one server to be accessible by any computer connected to the web.

Because of the intuitive nature of hypertext, even those with little computer experience were able to quickly make use of the web. The low computing power required to run a web server and the simplicity of creating web pages made it possible for individuals and small organizations to become web information providers, and to do so on an international scale. Thus the web gave large segments of society the ability to access and distribute information.

For a period, the internet was celebrated as open, free, and competitive. Entrepreneurialism was high, financing easy, and entry barriers were low. But in time it became more dominated by large firms with market power, whether ISPs or large application providers. The common elements were high economies of scale (scalability), based on high fixed costs and low marginal costs, and often complemented by network effects (positive externalities) on the demand side.

Thus, by the 2010s computers and telecommunications were firmly intertwined. Around the world, billions of people carried small computers whose value derived from the interconnection to each other. The drivers of such interconnection were, first, data communications in the form of the internet which vastly enhanced the value of computing devices and telecom networks. The second driver was the explosion in mobile and ubiquitous wireless networks that made handheld computers particularly useful. The networks themselves were operating with a dense inclusion of computer-type devices that enabled mobile cellular communications in the first place, by routing calls and managing frequencies. The result was a rapid technology acceleration in both sectors. The telecom network environment, in particular, moved from the previous slow and carefully planned public utility model to the much more rapid and competitive pace of the computer and IT world.

4.3.3 Convergence #3: Integration with Consumer Electronics

4.3.3.1 Consumer Electronics

The convergence of consumer electronics (CE) with computing and telecom devices has two dimensions:

1. integrated multipurpose devices;
2. communications capabilities.

Devices combine a platform (typically a CE device such as a music player or game console) with processing (calculators, computers, etc.), data storage, and software for operating systems and applications, and communications capabilities through connectivity technologies such as telecom, cable, Ethernet, mobile wireless, wi-fi, or Bluetooth and the like.

Some such integration goes back a long time. Originally, CE devices were not connected to each other or to a central node. Examples are phonographs (1870s) and cameras.[114] However, key CE devices became connected by communications networks, though initially of the one-way variety.

Milestones were:

- radio sets (1920s);
- television sets (1940s);
- cable TV and satellite TV connected TV sets (1960s);
- MP3 players (1990s);
- smartphones (2000s);
- tablets (2010s).

Although the consumer media electronics sector is novelty driven, it is not new. Thomas Edison's contributions (1870s–1890s) included the phonograph, the motion picture system, a microphone for the telephone, and in particular electric power distribution, which enabled many subsequent applications.

After World War I, American CE firms became world leaders. General Electric (GE), Westinghouse, AT&T, and American Marconi, with U.S. government prodding, created the Radio Corporation of America (RCA) to compete with the British Marconi Company. By 1922, there were over 200 smaller US radio set manufacturers. RCA, however, drove many of these firms out of business. In Europe, the major CE firms included Philips, Siemens, AEG, Thomson, and GEC.

In the second half of the twentieth century, the consumer electronics sector became dominated by Japanese firms.[115] Their government, through the MITI trade ministry, supported and subsidized the electronics industry. Japan also de facto closed its markets to imports. Partly as a result of these policies, and partly owing to an emerging extraordinary strength in R&D, manufacturing, and marketing, a vibrant industry emerged in Japan based on several large and diversified firms. In time, similar initiatives were undertaken by the government and industries of South Korea, Taiwan, and China. American-owned firms were either put out of business or bought out by foreign firms, often mostly for the value of their brand names. The main Japanese firms were Sony, Matsushita/Panasonic, Sanyo/JVC, Toshiba, Sharp/Pioneer, Hitachi, Mitsubishi, and Funai. In South Korea, they were Samsung and LG. In China, they were Hisense, TCL, Goertek, Huawei, and Lenovo. In Taiwan, major CE manufacturing was done by Foxconn, Pegatron, and Quanta.

The Dutch firm Philips remains among the largest CE companies. American firms survive in the areas where there is much convergence with computer technology and the internet (exemplified by Apple's products), in high-end segments (such as Bose speakers), in specialized products, or in business-to-business product markets such as set-top boxes (Motorola/General Instruments). Although the rate of major business upheaval in the CE industry is more gradual than it is in the computer sector, there is always a flurry of innovation and countless new products are released annually.

For CE companies, the best business model has been to build up scale and experience behind early protectionist walls, then move into exports on a value-pricing basis, build a strong, global brand with a few impressive products, and then expand into multiple products while commanding a premium price. The emergence of contract outsourcing manufacturers (OEMs) such as Flextronics and Solectron lowers entry barriers on the design stage by giving smaller CE firms access to large, flexible manufacturing facilities with economies of scale. For example, an entrepreneurial upstart in TV sets, Vizio, entered successfully with a low pricing model and offshore manufacturing. In time, even established CE giants such as Sony, Philips, and Motorola outsourced the manufacturing of products to the OEM firms.

4.3.3.2 Television Sets

The first public demonstration of television occurred in 1926 in London, by John Logie Baird, using mechanical scanning of images. The first large-scale television service was offered in Berlin, Germany, for the 1936 Olympics, and by the BBC in the same year. Regular television service in the USA began in 1939, using electronic scanning invented by Philo Farnsworth. World War II halted the advancement of television. Between 1948 and 1958, the number of American households with televisions grew from less than 1 million to 42 million.

In time, most household in rich (and many poor) countries had a TV set, and markets became saturated. It has therefore been the challenge for CE manufacturers to persuade consumers to upgrade from perfectly well-functioning devices that they had been told, just a few years previously, were performing miracles. For example, color television sets were slow to catch on—*Time* magazine declared them the "greatest industrial flop of 1956." It was a classic instance of the slow penetration of a gradual improvement, far behind the expectation of the experts.

Sales of digital flat and large screen liquid crystal display (LCD) and plasma monitors raised sales again as consumers upgraded. These screens require complex and costly manufacture, and even some of the largest Japanese manufacturers ended up using screens made by the Korean firms Samsung and LG, or those of the Japanese Sharp.

The key to the success to radio and TV sets was their connection to communications networks that provided content and information. Thus these devices were no longer self-contained, but derived their value from the linkage to information sources. These were mostly one-way connections.[116]

114 Originally, cameras were based on optical and chemical processes rather than electronics. They gradually incorporated electronics in light sensors and other control functions, and then became fully electronic by way of digital recording. We therefore include camera devices under consumer electronics.

115 Curtis, Philip J. *The Fall of the U.S. Consumer Electronics Industry: An American Trade Tragedy*. (Westport: Quorum, 1994), 194.

116 "Addressable" cable TV had rudimentary return channels.

More recently, TV sets have also become "connected" by two-way access to the internet, and have supported links to content providers such as Netflix as well as to each other. They have incorporated electronic storage, switching, modems, and home networking, and have thus became, in effect, display and control terminals of home-based computer-style networks.

4

4.3.3.3 Home Video Equipment

Because of the limited state of storage technology, recording on the consumer level was for many decades limited to audio records. In the 1950s, tape recorders emerged which made possible self-recording. In the 1970s, optical discs (CDs) emerged. The recording of video on magnetic tape was not feasible technically until 1959, when Ampex increased the relative speed of tape to recording head by mounting the tape heads on a rapidly spinning cylinder. Ampex and Sony marketed the first videotape recorders using this technology in 1961.[117] Because of their high price, such recorders were mostly used as professional devices until 1975, when Sony introduced an affordable VCR, the Betamax. In 1977, Matsushita introduced a non-compatible format, VHS, which had a longer recording time but lower picture quality and ultimately emerged as the industry's consumer standard. The market volume, however, soon fell victim to a new technology. The DVD optical disc player format, an upgrade of CD optical storage technology, rapidly replaced VCR players. But standard DVD players, too, were soon challenged by HD optical discs using blue-light lasers with still higher storage density. Two standards battled for supremacy, greatly delaying introduction: eventually, Sony's Blu-ray won.

Variations of magnetic and optical disc storage were similarly used for consumer computers, such as floppy discs, hard drives, and CD-ROMs. Because they were spinning mechanical devices they consumed much battery power. In time, the progress in semiconductor "solid-state" memory became cheap enough to replace in part or totally magnetic and optical storage. The technology also spilled over into CE. In 2001, a new type of home video equipment emerged—the personal digital video recorder (PVR or DVR). A DVR is essentially a hard-disk drive connected to the television set that enables users to record, store, and time-shift favorite television shows. Soon, DVRs were integrated into cable and satellite set-top boxes. The next step was for the storage element to become network based. This will be discussed further below.

As CE firms moved into networked devices, IT companies moved in the opposite direction, eyed the large consumer market, and entered it. Most successful was Apple, which did well with its iPod, a music device based on computer-based data compression (MP3) and laptop-style memory (at first a magnetic hard drive, later solid-state semiconductor). This was followed by the iPad, a light, handheld, and wi-fi-networked consumer computer in the tablet format, which became a successful device for media consumption. Other computer and IT makers also took that route, such as Cisco and Dell, but with less success. There were also small innovator start-ups from the internet and IT sector. TiVo, Roku, and Sling are examples, with products that extended the range of video options that are open to the user in terms of time and location. Virtual and augmented reality devices and apps emerged, with products by Samsung, Sony, Facebook, HTC, and Google, as well as several Microsoft Windows-based vendors.

Some of the CE companies were also able to move consumer-oriented electronics into other parts of a user's life, such as into home systems (temperature control and security, for example), appliances such as refrigerators, and into automobiles. With the Internet of Things emerging, it is only a matter of time before billions of devices are interconnected and communicating.

Thus, by the early twenty-first century, CE had transitioned from standalone devices lacking logical processing and produced by sprawling multiproduct firms to one of internetworked and "smart" products produced by a wider set of companies hailing also from other industries and from the start-up sector. In the aggregate, this trend accelerated the pace of innovation in the CE industry and changed in some cases the scale economies. CE markets became global, manufacturing split off from product design and marketing, and the market power of large retail intermediaries rose. The industry destabilized. Some CE firms weathered this challenge better than others.

4.3.3.4 Case Discussion

Sony's Convergence of Consumer Electronics with Communications and Computers

For several decades, Sony used to be the leader in CE, based on superior technology, design, and marketing. But by 2009, Samsung's TV manufacturing business had surpassed Sony's, which had been the latter's special source of pride and profits.[118] Sony was humiliated when in 2010 it had to rely on Samsung to supply key components, such as large LCD flat screens.

Sony's strategy for the convergence of CE with computing was to upgrade TV with its other product lines, by turning existing analog products into digital and "smart" ones. This enabled new products that combine audio, video, mobile, and internet capabilities.[119]

117 Mungwun, A.F. *Video Recording Technology: Its Impact on Media and Home Entertainment*. (Hillsdale, N.J.: Erlbaum, 1989), 144–145.

118 Dvorak, Phred and Evan Ramstad. "Behind Sony-Samsung Rivalry, An Unlikely Alliance Develops." *The Wall Street Journal*. January 3, 2006. Last accessed May 9, 2017. ► https://www.wsj.com/articles/SB113625623819236122.

119 The Economist. "Boot up the television set." June 26, 1997. Last accessed May 9, 2017. ► http://www.economist.com/node/92139.

Sony's early attempt in such devices was the Magic Link Personal Communicator, released in 1994. Such devices were known as personal digital assistants (PDAs). The project was a joint venture with AT&T which provided the telecom network. Sony hoped to use this device as an entry point into the telecommunications market, with sights on signing further agreements with telecom companies in Japan and Europe. But the device failed miserably in the marketplace. Its price was high for consumers at $1195; it was heavy (1.2 lbs); and while the target was businesspeople, the design made it look like a game console. Finally, its technological capabilities were premature, ahead of the market. Later, Sony introduced the Clie as its entry product in the PDA market. Even though the product had nice styling, its market acceptance was low. Sony ended up selling Clie in 2004.

Another Sony product was its Location-Free TV in 2004. It was a wireless broadband connected TV set, the first in the industry. In addition to watching TV, it could be used to browse the web, access email, photos, and remote access personal and business files. However, owing to its difficult set-up process and bulky looks, it was in a consistent second place behind start-up company Slingbox and its elegant solution. Sony's product line was discontinued.

Another Sony attempt was Qualia, a line of several audio and video peripherals that could be linked to each other. The line was launched in Japan in 2003. The Qualia line was targeted to the upscale market with a combination of cutting edge technology, design, and functionality with a high-end digital camera (introduction price about $3000), a MiniDisc player described as "an object d'art carved from a block of pure brass," and a headphone set, which established a new standard in audio reproduction. However, the product line did not sell well and was discontinued in 2005.

4.3.4 Convergence #4: Integration with Content

4.3.4.1 Connected Content

The fourth type of convergence is that of media hardware with media content—with text, music, pictures, videos, and games. This goes beyond one hardware device connecting to others. Such connectivity enables links to content, but it is not the content integration itself. An example is an interactive game console. These consoles have built-in modems which can provide access to internet content such as software, web browsing, social media, and email, but in particular they offer content: games. Electronic books are another type of device, as are audio players. Apple's iPod and iPad were successful because Apple was able to integrate hardware and content through the creation of its iStore.[120] By 2017, the Apple iTunes store had sold over 50 billion songs. It offered 45 million songs, 90,000 movies, 2.5 million iBooks, and 2 million apps. Its annual revenue was almost $10 billion, with an average spending of $40 per user per year. This made Apple the leading music retailer in the world.

4.3.4.2 Case Discussion

How Sony Achieved Content–Hardware Convergence

Sony's content–hardware strategy is probably stronger than that of any other company in the world. This strategy goes back to its Betamax defeat by the technologically inferior Matsushita's (Panasonic) VHS. The debacle led Sony's CEO Morita to conclude that hardware superiority was not enough and had to be supported by control over some content software to assure a format's success. Morita's content strategist was Norio Ohga. As mentioned at the beginning of this chapter, Ohga had a career as an opera singer and symphony orchestra conductor, and in 1986 he convinced Sony to buy the music division of CBS for $2 billion. This acquisition helped the success of the CD launch.[121]

In 1983, Sony and Philips jointly introduced the CD as high-fidelity, noise-free digital audio storage. It revitalized the recorded music and audio electronics industries. Sony also pioneered the portable audio tape player with the release of its popular Walkman in 1979. But the market as a whole declined with the advent of portable alternatives with better sound quality. New products emerged, most notably the portable MP3 player, introduced by the tiny computer equipment company Rio. Sony and Thomson followed with their own products. Sony, however, was hampered by the demands of its own music division for strong security against piracy. This held the company back from taking the lead in this market, which should have been its stronghold given the dominance of its Walkman and Discman player generations. Yet Sony's MP3 player was a distant runner up. In 2001, Apple entered the market with the iPod, coupled with the music store iTunes, and quickly became the dominant force in the market with a share of 73.8% in 2005. Through innovations such as the iPod Mini and Nano, Apple was able to keep charging a premium price. In contrast, Sony's market presence in portable music declined.

In 2004, Sony added to its music content strength by joining up with Bertelsmann, another of the five music majors, and merging their music operations to create Sony BMG, the world's second largest music group. In 2008, Sony raised the stakes further and bought out Bertelsmann's half-share of the company.

Sony Music Entertainment includes several subsidiaries, such as Columbia Records, Epic, Legacy, RCA, Jive, Kinetic, Arista, Sony Music Japan, Sony Music UK, and Sony Music Germany.[122] Sony also distributes many independent labels.

Sony tried to integrate this content into its mobile phone venture Sony Ericsson. In

120 MacNN Staff. "Apple calls iPod nano demand 'staggering.'" *MacNN*. October 11, 2005 Last accessed May 9, 2017. ► http://www.macnn.com/articlesloaddetails/05/10/11/aapl.q4.conference.call/.

121 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

122 Wikipedia. "Sony Music Entertainment." May 29, 2011. Last accessed June 1, 2011. ► http://en.wikipedia.org/wiki/Sony_Music.

order to compete with Apple's iTunes and Nokia's Comes With Music services, Sony Ericsson launched its own mobile phone service, PlayNow Plus.[123] But this did not make much of a dent.

Music was only the first step for Sony's entry into the content business. Film followed. In 1989, Morita bought the film studio United Artists Columbia for $3.4 billion from Coca-Cola. Sony Pictures was able to produce big hits at the box office such as *The Da Vinci Code*, *Casino Royale*, and *Spider-Man 3*.

Sony used its content strategy to drive the transition to HDTV and HD-DVD film format. By owning film content, Sony strengthened its hand in the battle over the standards. For example, Sony collaborated with the Discovery Network and with IMAX to launch a 3D network called 3Net, with Sony being the primary sponsor for the ESPN network. Sony used its game console PSP and PS3 to drive consumers to its Blu-ray video disc standard, and prevailed over its rival Panasonic. The success of the PSP console was partly driven by publishing games such as EverQuest, Star Wars Galaxies, The Matrix Online, Gran Turismo, Warhawk, and Formula One. They created a large user base with access to Blu-Ray content, which in the end tipped the scale against rival Panasonic.

Thus there have been several examples of success for Sony's content integration strategy. On the other hand, the Sony Reader shows the downside. The Sony Reader was the first tablet to use an e-paper screen, but it had no wi-fi or wireless connections. It failed to make a splash while Amazon's Kindle took 85% of the market share. Kindle had the advantage of Amazon's bookstore, while Apple's iPad had the advantage of its iStore when it took off in 2010. Sony's online content story which offers a broad selection of fiction and non-fiction, manga comics and graphic novels, did not take off, just as its music store had also failed. It 2014, Sony closed the North America operations of its Sony Reader store owing to a lack of success against Amazon and others.

Other Sony efforts included a wireless broadband TV, enabling the first dual-band wireless audiovisual transmission, with web browsing, email photos, and access to personal contents while traveling. Sony's Cocoon (released 2003) was a Linux-based set-top box with broadband internet connectivity. Cocoon aimed to become an alternative to the PC for accessing internet content. It could also analyze previous choices and items stored to identify a user's preferences and automatically record programs that fitted that profile.

So the question is, has content strategy benefited Sony, or has it slowed it down? Has Sony gained an advantage from its content, or should it simply concentrate on offering a better hardware device platform? Sony's PS3 had the Blu-ray player, and with it and its Hollywood studio position Sony was able to win against HD-DVD. On the other hand, Sony's music division opposed aggressive moves in MP3 players owing to fears of piracy. And Sony's TV set business? Its film *Hancock* was made available via internet download only for its Bravia premium brand TVs for just $9.99 prior to the DVD release.[124] Did that measurably increase Sony's sales? Probably not, but it generated some buzz. Despite these efforts, Sony's TV set sales were in serious trouble.

Symmetrically, one should also ask: has Sony's *content* benefited from Sony's hardware connection? Has Sony created new convergence types of content, or promoted its content better through its hardware? So far there have been no examples.

4.3.5 Convergence #5: The Media Cloud

Today, the next generation of technology integration is emerging, that of connecting consumer hardware devices with computing services. The world wide web with its numerous websites for information and transactions was a major step. Today we are moving to date processing itself, by way of "clouds," which is the current term for server-based services to end users. The basic idea has been around for decades, to move data and operations to big central servers, and to leave the periphery of end user "clients" to be relatively slim terminals. In that way, the device can be small, relatively simple, and parsimonious of battery power.

Some clouds are mostly storage service providers or backup services such as Dropbox, or the music "lockers" of content owned by users, such as Apple iCloud, Google Music, or Amazon Cloud Player. But other clouds go much further and provide software applications, middleware, social apps—software as a service—rather than conduct such operation directly on user devices such as tablets, or smartphones. Some companies have created huge facilities for these services. Apple spent about $1 billion on a new data center in Maiden, North Carolina.

What are the implications? First, the consumer electronic (CE) business is being changed. The home is at the center of our private life, but it is also a technology nightmare because of an obsolete consumer infrastructure and unqualified system operators (i.e. consumers themselves). Because of this discrepancy, there is often a clash between the vision conveyed by advertising and the reality of the actual user experience.

To overcome these consumer problems "home networks" emerged. The aim is to interconnect the increasingly complex set of home electronic devices, such as TV monitors, audio equipment, computers, storage printers, fax, phones, cable and satellite TV set-tops, cars, refrigerators, heat and air conditioning, and alarm systems.

Various industry groups have tried to establish control over home networking, including the CE industry, cable TV, telecom and wireless networks, computer makers, and operating software firms. The computer industry's "wifi" (the IEEE 802.11 standard, building on Australian innovations) prevailed.

123 Sandoval, Greg. "Sony Ericsson announces PlayNow music service." *Cnet*. September 24, 2008. Last accessed May 9, 2017. ► https://www.cnet.com/news/sony-ericsson-announces-playnow-music-service/.

124 Nakashima, Ryan. "Sony free to mix music, electronics." *Los Angeles Times*. October 14, 2008. Last accessed June 1, 2011. ► http://articles.latimes.com/2008/oct/14/business/fi-sony14.

There are consequences. If all devices in the home are interconnected, then there is no reason to have, for example, numerous separate storage subsystems, multiple separate power supplies, multiple antennas, signal processors, tuners, input devices, displays, codes, and software. Instead, there are incentives for more powerful specialized devices for storage, antennas, processors, sensors, and to internetwork them at home.

But why stop at the home? Shared facilities will move further away from the consumer to the facilities of remote applications providers who will have still more powerful functional boxes, software, and expertise. This means that we move from CE as hardware devices to CE as services. A familiar example is the voicemail service that is now being provided by a phone company to replace an answering machine, a hardware device. Services are paid according to usage, or by subscription, or by sponsorship.

The necessary hardware will mostly be bought by service providers rather than consumers. In this market, IT companies have more credibility than CE companies. More powerful but fewer hardware boxes will be sold. This is even worse news for retailers. Standardization will be less important, as long as the cloud providers use the various systems and bridge them. So instead of following the standard developed by one particular company or industry, the cloud providers can use different technology solutions from different companies, bridge them, and make them interoperate as a whole.

Thus the future of the CE industry seems to be that consumer electronic devices will disintegrate, and instead often become services, bringing CE companies under severe pressure.

4.3.6 Convergence #6: Bio-Electronics and Human Cognition

The next convergence (C6), clearly ahead of us, is that of IT technology with bio-technology, into bio-electronics. Already, cochlear implants, which directly stimulate the auditory nerve, have enabled thousands of deaf people to hear sound. Similarly, a retinal implantable chip for prosthetic vision may restore vision to the blind.[125] Another type of technology, aimed to create a touch and feel sensation, is the TactaPad, where a pad is touched directly with the hands, providing dynamic "force feedback." The pad has a unique feel that corresponds to the object being touched.

But the applications will go deeper rather than overcome sensory handicaps. We may be able to integrate a computer's speed and accuracy, as well as its ability to transfer knowledge easily, into our own sensory systems. Similarly, sensory signals picked up by humans may be processed by technical devices rather than the human brain, and human responses or emotions could be detected and interpreted directly in a kind of "brain-modem."

An early device is Emotiv Systems (EPOC), which was introduced in the video gaming market. It is a wireless headset that can detect conscious thoughts, facial expressions, and non-conscious emotions. It also contains a gyroscope to register movement.[126] Emotiv's "brain computer interface" reportedly allows users a new generation of gaming experience. When users play a game using the Emotiv interface, 15 sensors detect their brain activity and emotions such as fear and excitement.[127]

Similarly, NeuroSky's MindSet has an electrode connected to the user's forehead and is capable of reading the player's brainwave information. The headset can register users' current state of relaxation or concentration.[128] A third example is OCZ Neural Impulse Actuator. This, too, captures several types of signals, including facial muscle movements, eye movements, and brain waves and converts them into commands for the computer. Another company, Guger Technologies, has an interface that allows users, by only using their brains, to compose messages on their PCs and play simple games.

Futurist Ray Kurzweil, extrapolating current exponential trends in computation power, predicts that the capability of a human brain will be available electronically in around 2023 for a price of $1000 and for only 1 cent in 2037. Eventually, the capability of the entire human race will be reached in 2049 for $1000 and in 2059 for 1 single cent.[129] While such extrapolations often reflect a technologist's narrow perspective of human capability, the broader point is valid: a good number of our mental processes could be done more powerfully by machines. This includes the control of media-created sensory experiences.

Such technologies emerge first for medical and military use. They have a great potential for good, but also implications for altering or controlling behavior. They are fraught with perilous implications and will lead to much societal debate. And they create enormous challenges for the next generation of technologists and media managers.

125 McGee, Ellen M. and G.Q. Maguire, Jr. "20th WCP: Ethical Assessment of Implantable Brain Chips." Proceedings of the Twentieth World Congress of Philosophy, August 1998. Last accessed August 10, 2012. ► http://www.bu.edu/wcp/Papers/Bioe/BioeMcGe.htm.

126 Hanlon, Mike. "The first commercial Brain Computer Interface." *Gizmag*. February 21, 2008. Last accessed June 1, 2011. ► http://www.gizmag.com/the-first-commercial-brain-computer-interface/8860/.

127 Dasey, Daniel. "Aussies develop brain-driven computer game." *The Sydney Morning Herald*. March 18, 2007. Last accessed May 11, 2017. ► http://www.smh.com.au/news/technology/aussies-develop-braindriven-computer-game/2007/03/17/1174080226488.html.

128 Quick, Darren. "Brainwave controlled video game concept unveiled." *Gizmag*. October 8, 2008 . Last accessed June 1, 2011. ► http://www.gizmag.com/brainwave-controlled-video-game-concept-unveiled/10154/.

129 Kurzweil, Ray. "The Law of Accelerating Returns." *KurzweilAI.net*. March 7, 2001. Last accessed August 10, 2012. ► http://www.kurzweilai.net/the-law-of-accelerating-returns.

4.4 Case Conclusion

The Next Act for Sony

Sony is a brilliant technology and marketing firm but has difficulties in keeping up with specialized firms. Increasingly, it leaves R&D in those areas to partners or vendors. Sony's strengths are its integrator role, its strengths in design, and its prowess in global marketing. The aim is a streamlined Sony. As Sony's past CEO Howard Stringer stated, "in terms of the variety of products, Sony is still unbeatable. The question is how much variety is too much variety."[130] Specialization is not just a matter of technology. Sony is spread thin not only in R&D but also in the marketing of its products.

Aware that it might be too diversified, Sony gradually and reluctantly abandoned its "scatter-gun" approach to customer electronics in favor of focusing on the "champion products."[131] But internal stakeholder constituencies of product fiefdoms make such a prioritization difficult.

Internal communications in the sprawling company were often flawed. In one instance, Sony's marketing people did not alert the R&D managers of the impending demand for large flat screen TV, leaving the company to fall behind Samsung and Sharp and requiring it, embarrassingly, to buy those screens from its competitors.

In the computer field, PCs became a commodity, with Intel and Microsoft taking most of the profit. Sony's Vaio did not create a strong multiplier for the company's overall products.

Being pummeled financially, in 2009 Sony announced layoffs of 8000 permanent and 8000 contract workers, most of them in America. In 2010, there were 450 layoffs at Sony Pictures. In 2010, it reduced its capital investments in electronics by 30% and reduced manufacturing prices by 10%. It continued to shift R&D and manufacturing to outside the firm. Even so, it lost $5.5 billion in 2011. In 2013, sales declined, and the loss was over $1 billion. TV shipment declined from 40 million to 20 million. According to its then CEO Howard Stringer, every TV set built by Sony created a loss for the company.[132] Outside analysts recommended that Sony abandon product categories where it could not compete anymore, such as television sets, and focus on its strengths, such as entertainment and video games.

Appointed as the new CEO was Kazuo Hirai, a lifelong Sony technologist who was credited with making the PlayStation business profitable.[133] Hirai aimed to turn the business around with cost cutting, layoffs, new products, and a breakdown of internal barriers. His priorities were five initiatives:

- focus on the core businesses: digital imaging, games and mobile;
- turn around the TV business;
- expand business in emerging markets;
- create new businesses and accelerate innovation;
- "realign the business portfolio and optimize resources," in other words more closely co-ordinating its content units with its technology devices.

These were broad goals, hardly focused targets, and action strategies. Concrete actions taken were a new top management structure ("One Sony, One Management"), which means a unification of all electronics business units, but at the same time the divisions would have more independence to accelerate decision-making; and cost cutting in the TV set business, with the aim to reduce fixed cost by 60% and operating cost by 30%. In 2014 and again in 2015, CEO Hirai took several steps: Sony spun off the audio and TV set manufacturing operations into a wholly owned subsidiary to speed up decision-making processes, and its computer division Vaio was sold to an investment consortium, Japan Industrial Partners, for about $500 million plus a 5% stake in the new company. Another 5000 jobs (approx. 3% of global staff) were cut.

Within the constraints of legacy, Sony's strategy was to focus on its most profitable and high-margin businesses. It aimed to increase operating profit 25-fold within three years by growing its camera and game divisions and to give up on raising its sales in smartphones or computers. It then proceeded to cut 2000 jobs out of 7000 in its smartphone division.

The major building block for Sony was its strength as one of the largest camera makers in the world. Sony is number one in 4K-quality video, production cameras, and projectors. The entire market, however, has greatly declined owing to a migration to smartphone cameras. The emerging Sony strategy has been "From the Lens to the Living Room," meaning the value chain from professional content production hardware to consumer media devices. Profitability of Sony's camera business rose 73% in 2015/2016.

Another strategy was to differentiate Sony by connecting its entertainment properties, such as the music, movie, and video game sections, more closely with its electronic devices. This concept, of course, had been promoted for over two decades, and it was not clear why it would be more successful now.

Sony also aimed to increase capital investments by generating significantly funds—$3.6 billion—in its first outside capital raising in 25 years. Partly based on these measures, operating profit rose in 2015/2016 by 330% (from $655 million to $2.81 billion). Losses in its mobile communications business dropped 72%, to $590 million from $2.08 billion. Its gaming division's profits rose 84% to $850 million, with PS4 sales rising significantly to 35 million. On the other hand, it lost $270 million in its semiconductor and component division. That segment had recorded a $850 million profit in the preceding year.

But the trends are still running strongly against it. Does this mean that within the next years Sony will continue to break itself up? It will remain a strong brand, but with most of the R&D and manufacturing done outside, and with major product lines being spun off. Rather than a technology R&D developer, in most of its product lines, Sony will be a technology aggregator and a technology/content integrator.

130 Schlender, Brent. "If you don't act, you will kill the company." *Fortune Magazine*. April 4, 2005. Last accessed May 11, 2017. ► http://archive.fortune.com/magazines/fortune/fortune_archive/2005/04/04/8255922/index.htm.

131 Nakamoto, Michiyo and Paul Taylor. "From push to pull – Sony's digital vision." *Financial Times*. January 6, 2006. Last accessed June 1, 2011. ► http://www.ft.com/cms/s/2/381891be-7f09-11da-a6a2-0000779e2340.html#axzz1O3C6NQw3.

132 What Hi-Fi? "Sony Admits Losing Money On Every Kind of TV It Makes; plans "different kind of TV." November 11, 2011. Last accessed June 14, 2012. ► http://www.whathifi.com/news/sony-admits-losing-money-on-every-tv-it-makes-plans-different-kind-of-tv.

133 Yasu, Mariko. "Sony's Hirai Stakes Reputation on Restoring TVs to Profit." March 27, 2012. ► http://www.bloomberg.com/news/2012-03-27/sony-s-incoming-president-hirai-to-run-home-entertainment-unit.html.

4.5 Outlook

We have discussed in this chapter a dozen tools and tasks for media and digital companies to manage their technology functions. They include:

- technology assessment and forecasting;
- selection of R&D projects for funding;
- integration of R&D with firm strategy;
- in-house versus outsourcing?;
- organizational Structure of R&D activities;
- managing the globalization of corporate R&D;
- organizing the R&D lab Itself;
- implementing R&D alliances;
- KM;
- participation in standards strategy;
- internal adoption of technology;
- working with developers and with "open innovation";
- budgeting R&D.

We have also discussed six technology convergences:

- computers;
- communications;
- consumer electronics;
- content;
- connectivity cloud;
- cognition.

And we have discussed one quintessential media technology convergence company, Sony.

Even all of the enormous changes in media technology, we are most likely only at the early stages of the evolution. Coming down the road are many technologies with a media impact, some of them listed below:

- Intelligent interfaces that make human–machine interaction more convenient.
- Bio-electronics that directly link physiological sensations with machines.
- Machine-to-machine intelligent communication.
- Semantic networks which can interpret and understand meaning.
- Intelligent screeners of information.
- Cognitive radio that can roam and use bits and pieces of spectrum.
- Large, thin, and flexible screens that are integrated into walls and various products.
- Ubiquitous non-stop connectivity.
- Gigabit-rate networks in the home.
- Megabit mobile wireless.
- Smartphones with visual projection.
- Miniaturization and systems on a chip.
- Sensor networks that can provide feedback, monitoring, and controls.
- Holographic and glasses-free 3D.
- Real-time rendering that enables true customization and interactivity of content.

This raises the question: for media and communications, is technology destiny? On the stormy seas and currents of technology change, are they tossed about like little boats, or are they able to navigate and make their own way? People tend to overestimate the short term, but to underestimate the long term. In technology devices, it is quite common to encounter a "hype cycle," in which new or anticipated products raise expectations that are far out of line with reality. Eventually inflated expectations reach their peak, and disillusionment sets in, a gloomy counter-reaction to the previous rosy scenario. But, in time, reality returns and a cooler assessment emerges.

But within those oscillations there are general trends. A Moore's Law pace of advance in semiconductors is one of them. What then are the implications? For example, if the trend of technology is increased convergence of devices and software, should one also expect a convergence of companies from the various segments of hardware, software, and connectivity? But, as we have seen, technological *convergence* is one trend, but so is specialization. Specialization seems to be winning. Though here, too, there are cycles. Specialization helps companies to achieve economy of scale and build a barrier to protect their market share from competitors and potential newcomers. It also can deal with the presence of disparate industry cultures, which is often a retardant for innovation. Therefore, technology innovation is mostly a specialty endeavor in terms of the focus of activity and in terms of culture.[134] It is difficult for a Sony-style firm to have tech-development success across multiple media and products.

Does a "technological determinism" exist in which the technological developments set the direction of a media firm or industry?

- Yes, for the broad directions—such as toward interconnected computer-based communication
- No, for an organizational structure of platform arrangements—such as the internet system that has evolved.
- No, for a specific company or industry performance—such as Google versus Amazon
- Yes, for broad content genres and applications types that become possible.
- Yes, for the dispersion of information and for interpersonal and intergroup communication

The preceding discussion has shown the many dimensions and tasks of technology management faced by a media or digital company or organization. Whether they are handled by a CTO or by others in the organization, they are issues

134 In contrast, convergence leads to a firm that must operate across several sectoral cultures. Even where top management embraces such cultural integration, the sectoral culture is much slower to change than organizational structure, top leadership, or strategy. Some units empower individuals, while others control them firmly. Some take a short-term orientation; others look for the long term. Some stress an environment of rapid change, while others offer job security. It is doubtful that homogenizing them will raise their individual or aggregate effectiveness.

that require an understanding of the underlying trends, of competitors' initiatives, production planning, market forces, fostering of innovation, and government actions. They require savvy in tech, strategy, marketing, operations, HR, and public policy. This is not an easy set of skills to combine, but it is an essential one for a media company. The aggregate impact is fundamental. Media technology affects media content and societal interaction. In that sense, R&D technologists are also the engineers of our culture and of our politics.[135]

4.6 Review Materials

Issues Covered

We have covered in this chapter the following issues:

- Which technological trends drive the media industry.
- What the functions and responsibilities of the CTO are.
- How to select R&D projects for funding.
- Whether to specialize or diversify in R&D.
- What tech company's R&D horizons for short-term and long-term projects are.
- How to position and organize R&D within the firm.
- When to outplace R&D.
- How to involve developers and users in the R&D process.
- How to determine R&D budgets.
- How companies (and universities) benefit from R&D alliances.
- How companies manage their internal knowledge.
- How to play the standards setting game well.
- How semiconductors transformed IT and CE.
- How PCs and smartphones evolved.
- How the internet emerged and evolved.
- What the future of the CE industry is.
- How the integration of media hardware and content generated new media types.
- What the implications of the convergence of consumer hardware and computing devices are.
- What the potential of a convergence of bio-electronics and bio-technology might be.

Tools Covered

We used these tools to discuss technology management issues:

- Moore's Law.
- R&D project selectivity and success rate.
- Scoring method for projects.
- Economic–financial analysis of project prioritization.
- A tech company's R&D categories for short-term and long-term projects.
- Dimensions of consumer acceptance.
- Risk–reward diagram.
- Network effects.
- Innovation platforms.
- R&D effectiveness index.
- Standards process participation.
- KM.
- Media cloud.
- NPV approach.
- R&D alliances.

4.6.1 Questions for Discussion

1. What are the key technology innovations from the 1990s that will affect media by 2020? Explain. And what are technology innovations of the 2000s that will affect media 20 years later?
2. A consumer electronics manufacturer has hired your consulting services to forecast trends in CE. What do you foresee and how should this CE manufacturer adapt to the future?
3. When it comes to patents, is R&D management moving in an identifiable direction? If so, what is it, and does it make sense?
4. Is there a relationship between market volatility and technological progress in a field? How do these relationships play out in major media sectors?
5. You are the CTO for a network equipment firm. Researchers from the University of Wallalia have just reported discovering a new principle of particle physics that could lead to hyper-broadband that leaves all current transmission technology in the dust. How should R&D management address this opportunity and threat?
6. Does the current patent system retard technology innovation? Explain why or why not.

135 Example: a study shows that over time, films have shifted toward movie types that are most amenable to special effects, such action films and sci-fi, while romance and drama have declined. "Movie characters can now be transported, transfigured, or killed in an incredible number of ways, but what can digital effects do for a kiss?" Ji, Sung Wook and David Waterman. "Production Technology and Trends in Movie Content: An Empirical Study." Working Paper, Indiana University, December 2010. Last accessed May 11, 2017. ► https://www.researchgate.net/profile/Sung_Wook_Ji/publication/228448250_Production_Technology_and_Trends_in_Movie_Content_An_Empirical_Study/links/55196ea60cf23c470a5c7a23.pdf.

7. Contrast the responsibilities of the CIO and the CTO at a typical media company.

8. How does the CTO evaluate the viability of R&D projects? What advance information from the R&D department would s/he require?

9. How does Moore's Law affect R&D planning?

10. How can a media company take advantage of user communities that would like to converge with the company and provide innovation? What are the possible disadvantages?

4.6.2 Quiz

1. Which of the following products is a part of the convergence of devices and content?
   A. Sony's multimedia platform Vaio computer;
   B. Amazon's e-book reader Kindle;
   C. Sony's mobile media player LocationFree TV;
   D. None of the above.

2. Which is not likely to be an impact of the ultra-broadband networks?
   A. Higher prices for devices as they become more powerful;
   B. More subsystems (software and hardware) are built in the devices;
   C. Transitions from device-based features to online-based services.

3. Which of the following best represents the organizational structure of R&D activities?
   A. In the centrally supported model, most research is done at the division level, while most development is done at the corporate level;
   B. As R&D becomes more complex, the R&D organizational structure becomes more decentralized;
   C. Companies can be successful in R&D even without any corporate level R&D.

4. Which of the following will ensure a standardization war victory over a rival?
   A. Control over a large part of installed base;
   B. Perfect compatibility with the former standards;
   C. Exceptional quality of new standard;
   D. None of the above.

5. Which of the following is the worst reason to join a R&D alliance?
   A. Members can share the cost for developing new technology;
   B. Members have highly complementary technology skills and experiences;
   C. The culture and structure of the alliance will reduce the development time significantly.

6. Which of the following is correct about the impact of home networks?
   A. Shifting actual functions to remote locations is not practical, because it overloads bandwidth requirements;
   B. It will become even more complex for the users to handle the functions of devices, because of the complexity of the network;
   C. Standardization will become more important because of various systems provided by various service providers;
   D. None of the above.

7. Which of the following is not a necessary criterion of good balance between centralization and decentralization of R&D activities?
   A. The corporate level has the ability to conduct research and acquire knowledge to enable future profitable innovations;
   B. The company has the ability to synthesize the knowledge of different divisions;
   C. The responsibilities of R&D are split clearly between the corporate and division levels;
   D. None of the above.

8. The first general purpose electronic computer was/were:
   A. The Electronic Numerical Integrator and Computer (ENIAC), invented in 1946;
   B. The "difference engine," invented in 1839 by Charles Babbage and Ada Countess Lovelace;
   C. The Atanasoff-Berry computer, developed by Iowa State College professor John Atanasoff and Clifford Berry in 1941.

9. The impetus for the development of the ENIAC was the need to:
   A. Compute enormous amounts of statistical data for meteorological research;
   B. Perform ballistics computations for firing tables during World War II;
   C. Calculate studies of thermonuclear chain reactions, that is, the hydrogen bomb;
   D. All the above.

10. In 1975, Intel CEO Gordon Moore predicted that the power of a computer chip would:
   A. Progress arithmetically;
   B. Progress exponentially, doubling every 18–24 months;
   C. Double every four years due to exhaustion of early gains.

11. The future trend in computing is:
    A. Mainframes becoming insignificant;
    B. Computer devices accelerating performance at Moore's Law rate;
    C. Computer devices for every person on the planet;
    D. All of the above.

12. With client-server computing, corporate growth is expensive because:
    A. PCs take up a great deal of footprint;
    B. The complexity of PCs makes maintenance difficult;
    C. If companies decide to upgrade software, they must do so on every PC;
    D. All of the above.

13. During what phase of tech product development should a company more effectively analyze market potential?
    A. Testing;
    B. Product selection;
    C. Prototype construction;
    D. None of the above.

14. What is the trend of the video game market?
    A. Reaching out to younger consumers;
    B. Increased video game console sales;
    C. Increased competition in portable consoles;
    D. Online gaming sales are increasing mainly owing to the popularity of high-tech games.

15. Which sales have decreased?
    A. Gaming hardware sales;
    B. Electronic game sales;
    C. Electronic gaming software sales.

16. Which type of R&D model gives research the least importance?
    A. Technology-driven;
    B. National treasure;
    C. Market-driven;
    D. Global.

17. Which officer of a company is most responsible for the corporate R&D organizational structure?
    A. Chief Information Officer;
    B. Chief Technology Officer;
    C. Chief Executive Officer;
    D. All of the above.

18. What has the convergence of CE with telecom devices led to?
    A. Integrated multipurpose devices with communications capabilities;
    B. Faster mobile internet speed;
    C. Telecom law regulation extended to CE devices;
    D. Data caps.

19. What is not a key task or function of a CTO?
    A. The CTO identifies present and future technology options;
    B. The CTO contributes to published scientific research;
    C. The CTO has to deal with scenarios and opportunities that are composed of building blocks that already exist;
    D. The CTO shapes part of the overall corporate strategy along the dimensions of technology.

20. Which statement about the purchasing behavior of consumers is incorrect with regards to innovative products?
    A. Consumers fear losses much more than gains of the same magnitude;
    B. Behavioral change is not easy for consumers;
    C. People tend to overvalue the benefits of new goods over the goods they own;
    D. There is a mismatch between what innovators think consumers want and what consumers truly desire.

21. What is especially important for the innovation stage "Horizon 1: Improvements"?
    A. Mostly money and people;
    B. Corporate culture of creativity;
    C. Making bets;
    D. Exploration into new markets.

Quiz Answers

1. B
2. A
3. C
4. D
5. A
6. D
7. C
8. A
9. D
10. B
11. C
12. D
13. B
14. C
15. A
16. C
17. B
18. A
19. B
20. C
21. A

Human Resource Management for Media and Information Firms

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_5

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5.1 The Human Resource Management Function and its Organization

5.1.1 Introduction

This chapter deals with a major input for media, information, and digital activities—people—and the human resources (HR) practices to manage them. Other chapters cover two other major inputs: money (► Chap. 6), and technology (► Chap. 4).

Historically, the main sources of value for business companies have been their hard assets, such as machines, assembly lines, buildings, and land. The industrial age was characterized by factories built with vast capital investments in machinery and equipment provided by "capitalists" and operated by unskilled or semiskilled workers who were mostly interchangeable.[1]

In the knowledge economy, however, all this is different. Capital is not as scarce as it used to be and there is often a shortage of essential employees. Companies cannot generate profits without the ideas, skills, and talent of knowledge workers. The main assets of a firm leave the company every evening to go home, and increasingly they actually stay at home.

An information-sector firm's productivity greatly depends on the success of managing its HR. Microsoft earned $173,203 in profit per worker in 2013. In the same year, Google saw $270,626 in profit per employee. In Hollywood, Silicon Valley, Madison Avenue, Wall Street, hard assets matter less than people. The employees—the knowledge workers, content producers, and information technology (IT) geeks represent the difference between success and failure.

In 2000, Cisco employees earned $5–8 billion in option profits (i.e. compensation beyond salary and benefits) in a year when the company's shareholders received $4.6 billion in dividends. Outside investors in Hollywood film studios have historically earned small returns when compared with star actors and directors. When he was the chairman of Walt Disney Studios, Jeffrey Katzenberg wrote a famous memo about what he termed the "spiraling irrationality" of payments in the movie business.[2] "The talent class has declared war on shareholder capitalists,"[3] he argued. Studios put up all the capital and take all the risks, while movie stars, scriptwriters, and directors (the "talent") strip off most of the profits.

Was Katzenberg correct? Actually, few careers are riskier in terms of success than that of "talent" in the film business. In contrast, the studios have become adept at reducing risk through diversification and risk-shifting. The same six studios have been dominant worldwide for many decades, which does not indicate that it is a high-risk activity at the shareholder level, as opposed to the riskiness of a specific project or individual career. Of course there is a tiny percentage of stars who win the lottery and indeed earn high returns. No one, however, forces film producers to hire such stars who will strip the profits.

When the main sources of value depend on the talent of the people involved rather than the productivity of the company's hard assets, effective human resource management (HRM) becomes at least as important to a media and information company as the management of financial assets is to a bank.[4]

Dealing with the people of the enterprise is the realm of HRM. In general, this includes a multitude of issues: hiring, promoting, training, firing, compensating, supervising, evaluating, protecting, providing benefits, and generally matching firm needs with people and their needs. HRM has a leading role in creating and maintaining morale, developing the skills of employees, controlling labor expenses, and applying the company's policies.

Failure to successfully carry out an HR strategy inevitably leads to problems. The wrong person may be hired for the job, or there is a high turnover of employees, or inefficiencies develop. And if the company fails to comply with the many employment laws and regulations, it opens itself to lawsuits and negative publicity.[5]

5.1.1.1 The Changing Focus of HRM

HRM has undergone significant changes since its birth in the late industrial era. When the industrial workforce predominated in the past, the HRM approach was shaped by two corporate functions: industrial relations, which focused on the management of blue-collar workers, and personnel management, which focused on white-collar management.

In the first half of the twentieth century, HRM was primarily concerned with hiring, firing, and managing payrolls. Beginning in the 1930s,[6] the focus of HRM broadened to include working with unions. From the 1960s, HRM's responsibilities were increased considerably by various forms of social legislation (such as anti-discrimination), and in the 1970s, the administration of benefits plans became important.[7] In the 1990s, HRM shifted from solely being an administrator/screener to a change agent that actively shapes and reshapes the corporate culture and employee skill composition and behavior. It increasingly became part of implementing organizational strategy.

The traditional style of HRM had been "soft," in other words people oriented, and run by personnel specialists who emphasized hiring, training, communicating, motivating,

1 Surowiecki, James. "Net Worth." *The New Yorker*. March 14, 2005. Last accessed April 20, 2017. ► http://www.newyorker.com/archive/2005/03/14/050314ta_talk_surowiecki.
2 Martin, Roger L. and Mihnea C. Moldoveanu. "Capital Versus Talent: The Battle That's Reshaping Business." *Harvard Business Review* 81, no. 7 (July 2003): 36–41.
3 Surowiecki, James. "Net Worth." *The New Yorker*. March 14, 2005. Last accessed April 20, 2017. ► http://www.newyorker.com/archive/2005/03/14/050314ta_talk_surowiecki.
4 Redmond, James W. "Issues in Human Relations Management." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.
5 Dessler, Gary. *Human Resource Management*, 12th edition. (New York: Pearson, 2011), 200.
6 In Western Europe and for some US industries before World War I.
7 Dessler, Gary. *Human Resource Management*, 12th edition. (New York: Pearson, 2011), 200.

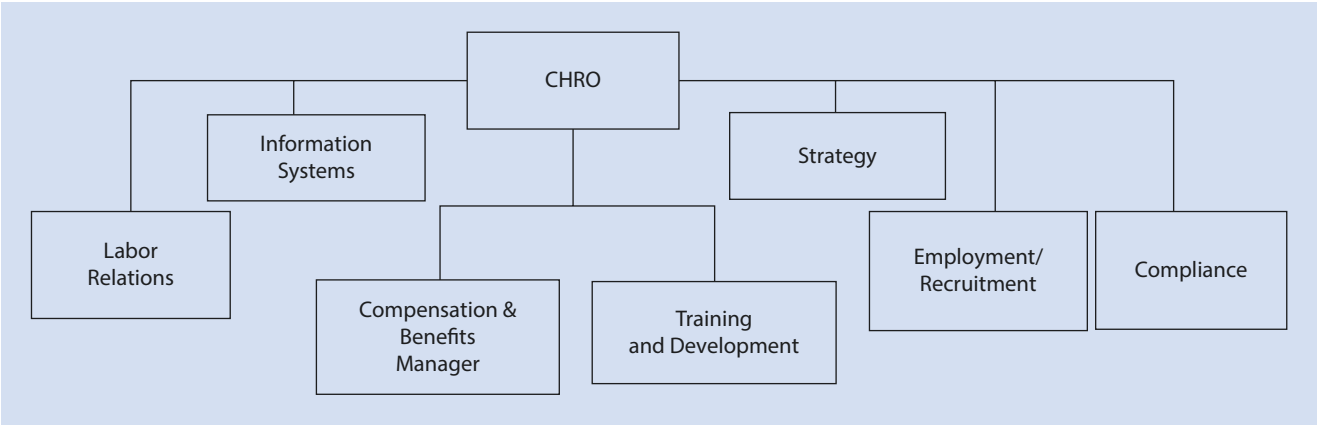


Fig. 5.1 Example for an HRM organizational structure

and promoting. More recently, a "hard" HRM style has gained a following. This incorporates a finance-oriented analysis and the implementation of overall company strategy—such as diversification and globalization—into the HR environment. But this approach can conflict with the need to manage an increasingly creative workforce, as will be discussed.

5.1.1.2 The HRM Organizational Structure

How are HRM departments organized structurally? It varies, of course. The top officer is titled the chief human resource officer (CHRO), or has a similar title. This function was formerly known as the VP for HR and before that personnel director. The upgrade in title reflects the increase in scope and responsibility.

HRM functions can be divided into relatively routine activities, administrative duties, and HR strategies. Standard transactional activities such as payroll, benefits administration, and workers' compensation are increasingly being outsourced to external providers. The more administrative functions, such as hiring and promotions, are run by core HR specialists, often on the divisional level.[8] Finally, the strategic direction of employment issues is often guided by a corporate-level HR group.

In a large firm, the HRM function typically looks like Fig. 5.1, with its main components Compensation & Benefits, Training, Employment & Recruitment, and Labor Relations.

HRM is supported by software of increasing complexity and capability—HR Information Systems (HRIS)—and is often outsourced. Software providers include SAP, PeopleSoft, SABA (learning services), SumTotal (learning services), BrassRing (hiring services), and Intuit (payroll services).[9] HRIS executes various functions:

- payroll;
- benefit administration;
- performance analysis;
- recruiting;
- training of new hires;
- personnel records;
- skills inventory;
- screening of applicants;
- compliance with hiring regulations;
- monitoring time worked by irregular employees;
- qualifying/quantifying employee skills;
- rating individual performance;
- generating income tax reports.

HRIS has mostly been used for administrative applications such as benefits and recruitment, but it is also a tool for strategic analysis. The vast amount of data generated and stored in HRIS over time can be used for many types of internal HR analyses in support of a more efficient employment system. Which incentives work best? What is the full cost of employee benefits? What recruitment factors work best? What factors are associated with quitting? What educational credentials work out best? For the first time, management has near real-time tracking tools for its workforce, its cost, performance, productivity, individual and group progress, and the effects of various policies and circumstances. Usage of this data resource is only in the early stages, and, given the huge share of personnel cost in most organizations should be a management priority.

8 An important source for this chapter is Nalbantian, Haig, et al. *Play To Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage.* New York: McGraw-Hill, 2004.

9 HR.com. "ERM Solutions—Are They Complete?" January 26, 2004. Last accessed April 20, 2017. ▶ https://www.hr.com/en/communities/ihr_core_hr_payroll_for_hr_hris/erm-solutions-are-they-complete_ead0l8dl.html.

5.1.1.3 Case Discussion

Disney's HR Management

Throughout this chapter we will use the Walt Disney Company as an example for employment and labor issues. Disney is one of the largest media companies in the world. It comprises several movie studios, television and cable networks, theme parks, internet sites, retail stores, and branded products.

The company's primary business is to organize and commercialize the output of creative people. In 2014, Disney employed approximately 159,000 people, many of whom are referred to as "cast members."

Business Week named Disney the "Best Place to Launch a Career" in the USA.[10] It wrote: "Disney's place at the pinnacle is also a testament to its popularity with students, but its desirability goes well beyond the company's instant name recognition."
The magazine praised the positive work environment: "Disney rose to No. 1 on its reputation with students. Cynics need not apply: culture stresses creativity, optimism and decency."

At the same time that this praise was given, Disney was under fire from its own employees. Its top management was challenged by dissident directors, including Roy E. Disney, Walt Disney's nephew, in the annual shareholder meeting. A staggering three-quarters of Disney employees, as identified by their classification as pension plan participants, voted against their own management at the shareholder meeting.

This raises several questions:

- Why did Disney management lose the confidence of three-quarters of its own employees?
- How can a management like Disney's keep creative people happy while also maintaining profitability?
- Is Disney's compensation structure well developed?
- How should Disney deal with its unionized employees?
- How should Disney's HR policies proceed into the next generation of media?

5.1.2 HRM Characteristics in Media, Information, and Digital Industries

On the content side, media industries such as film, television, and music are notable for:

- high fixed costs;
- an excess supply of creative talent;
- the difficulty of measuring and raising productivity, partly because their intangible nature defies easy measurement;
- a work environment characterized by high risk and unstable employment relations;
- a prevalence of project-oriented, short term employment:
  - the presence of participants with artistic and non-commercial motivation;
  - the incentive for many employees to lower career risk through collective action (unionization).

The telecom industry provides its own set of unique challenges for HRM. Its economic characteristics are those of a "natural monopoly," which in the past led to a public utility (or governmental operation in most countries) industry. The results were:

- reduced incentives to lower cost, high unionization, relatively high compensation, a low job mobility, and a public service culture;
- strong elements of a government regulatory (and often ownership) role.

More recently, there has been a shakeup of this system by the emergence of competition and transition to a globalized high-tech industry, and a fundamental disruption of established patterns of internal organizational culture and compensation systems.

The information and digital technology field is characterized by

- increasingly offshore and outsourced manufacturing production;
- high job mobility on the engineering and design level;
- a supportive governmental role in white-collar job creation.

The internet industry has the following characteristics:

- a non-hierarchical structure with a great amount of fluidity between management, employees, and owners;
- a high upside opportunity and high downside risk;
- a strong sense of individualism.

Media content industries have a strong emphasis on fostering, harvesting, and monetizing creativity. "Creativity" is combining expertise in a specific field with unconventional thinking, resulting in a novel solution to an existing or new problem. The challenge to HRM in the media and media tech sector is to strengthen this creative part of the enterprise.

James Webb Young, a former creative vice-president at the J. Walter Thompson advertising agency, wrote:

> » The production of ideas is just as definite a process as the production of Fords; the production of ideas, too, runs an assembly line; in this production the mind follows an operative technique which can be learned and controlled; and that its effective use is just as much a matter of practice in the techniques as the effective use of any tool.[11]

10 Among other media-related companies, General Electric was ranked 8th, Verizon was 11th, Google was 13th, and AT&T was 21st.

11 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, Ninth Edition. New York: McGraw-Hill, 2011.

Young had the advertising world in mind. But the same can be said for Hollywood and its "dream factories," for the "skunk works" of high tech firms, about the "think tanks" of policy ideas, for consultancies and financial innovators, and technology start-ups. Creativity is not just an individual's "aha moment" and a cartoon-style flashing light bulb, but just as much an organized process.

5.2 HRM by the Numbers: "HARD HRM"

In the traditional "soft" approach of HR, personnel specialists deal with hiring, training, and so on. Soft HRM is analytically based on the study of individual and organizational behavior. We will discuss it later. More recently, hard HRM research has been introduced, with HRM tools, based on economics and finance, that analyze people as assets.

5.2.1 The Rate of Return on Investment in Human Capital

Human capital theory sees human capital not only as an input to production but also the output of a production process in which the organization invests time and resources.[12] The approach sees HR decisions as investment decisions that can be analyzed in the same way that investments in machines and other capital goods are being modeled. Research in this field was advanced by Nobel prize-winning economists Gary Becker and Theodore Schultz.[13]

Hard HRM helps establish a causational link between personnel investment and bottom-line business performance. This is important because 60–70% of most firms' expenditures are now labor related. And yet, according to a study by the consultancy Accenture,[14] 70% of executives said they rarely measure the impact of HR expenditures such as training initiatives. Nearly 60% of executives polled never or rarely measured the effect of their HR policies on employee turnover or employee satisfaction. Such companies do not know the return on investment (ROI) on one of their largest investments, HR.[15] Only 10% claim to know it to a great or considerable extent. One reason for this lack of knowledge lies in the difficulty of measuring and assessing the effects of investments in the labor force.

HC-ROI, the return on a specific human capital investment such as a training program, is defined as[16]:

$$\text{HC-ROI} = \frac{\text{Revenue} - \left(\text{HCCF} + \text{Other expenses}\right)}{\text{HCCF}} - 1$$

HCCF is the human capital cost factor for the project. It is the sum of pay + benefits + contingent labor costs + absenteeism costs + turnover costs, all for the project.

In practice, measuring HRM's effect on revenues, thus linking an HRM practice to bottom-line results, is difficult. One way to do so might be to determine the impacts of an HR initiative on measurable items such as time savings, quit-rates, productivity, and customer satisfaction, and then assign a specific monetary value to these gains or losses. Time savings can be calculated by multiplying the number of hours saved by the workers' average hourly salary. Production gains are valued at the monetary value of the extra goods produced.

In other cases, one may have to proceed indirectly. For example, a study at a telecom company with 20,000 employees showed that every 1% improvement in employee satisfaction boosted customer satisfaction by 0.5%. Customer satisfaction, in turn, is associated with lower customer churn and greater consumption. Suppose that it can be shown that it would cost the company with 20,000 employees $1000 per year per employee to raise employee satisfaction 1%, that a satisfied employee raises a customer's satisfaction by half as much, and that a 1% customer satisfaction raises average consumption by $5 for its 10 million customers. One can then measure the cost of raising employee satisfaction through an HR activity and link it with the estimated value of customer satisfaction in terms of added revenues, and then estimate an ROI.[17] The ROI would be a fairly substantial 25%,

$$\frac{1 \times 0.5 \times \$5 \times 10\,\text{mil} - \$20\,\text{mil}}{\$20\,\text{mil}} = \frac{5}{20} = 0.25$$

The ROI approach should ideally also take into account future benefits from an investment. For example, the impact of training programs raises the productivity of an employee for several years. Suppose that the direct cost of the training for an employee i is C, that J is the opportunity cost of that employee's work time to the company, that ΔP is the productivity gain over the employee's expected work period, and its net present value (NPV) is calculated for t years, with a discount factor of r. Then the ROI would be

$$\text{ROI} = \sum_{t}^{T} \left[\Delta P_j / \left(1+r\right)^t \right] / \left(C + J\right)$$

In another analysis, *Forbes* magazine calculated movie stars' "payback figure" (in terms of sales of theater tickets and DVDs sold) as a ratio of the actors' salary.

$$\text{ROI} = \frac{\text{Revenue} - \text{Budget}}{\text{Salary}}$$

The study showed that in 2007 the ROI for Matt Damon was $29 of income generated for every $1 he earned. Jennifer Anis-

12 Nalbantian, Haig, et al. *Play To Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage.* New York: McGraw-Hill, 2004.

13 Bartel, Ann P. "Productivity Gains from the Implementation of Employee Training Program." *Industrial Relations* 33, (1994): 411–425.

14 Gary, Loren. "The New ROI: Return on Individuals." *Harvard Business School Working Knowledge.* September 1, 2003. Last accessed April 20, 2017. ► http://hbswk.hbs.edu/archive/3648.html.

15 Ichniowski, Casey, Katherine Shaw, and Giovanna Prennushi. "The Effect of Human Resource Management Practices on Productivity." *American Economic Review,* 87 (June 1997): 291–313.

16 Fitz-enz, Jac. *The ROI of Human Capital.* (New York: AMACOM, 2000), 46–49.

17 Gary, Loren. "The New ROI: Return on Individuals." *Harvard Business School Working Knowledge.* September 1, 2003. Last accessed April 20, 2017. ► http://hbswk.hbs.edu/archive/3648.html.

ton had the highest payback figure among female actors, with $17 of revenue per dollar of salary. Will Ferrell and Jim Carrey's films produced about $10 for every $1 these actors earned. In contrast, Russell Crowe was the worst investment among top stars, with an ROI averaging $5 of revenue per $1 of salary.[18] Five years later, *Forbes* found Natalie Portman at the top, with $42.70 return for $1 paid, followed by Shia LaBeouf ($35.80). And in 2016 Chris Evans' ROI was $135.80 for every $1 paid, and Scarlett Johansson had $88.60.[19]

This methodology, while taking a useful step toward an analytical approach, is problematic in its execution. It excludes, on the one hand, the income to stars beyond direct salary such as profit participation, which can be considerable. Thus the denominator is too low and the ROI ratio should be lower than the one calculated. Similarly, *Forbes* also attributes the film's revenues to the star, while the film's value may have been generated by the script, the director, the marketing, and by other stars who contributed. Therefore the actual numerator, and with it the ROI, should be lower. On the other hand, the film's revenues in aftermarkets such as pay-TV, network TV, and online video are not counted, which would raise the ROI. Another point to consider is that actors who are very profitable in one year are certain to seek a much higher compensation in the next year, so that the *Forbes* index identifies stars on the rise, not in some equilibrium. That said, it is useful to compare profit contributions as long as the methodology is kept constant. Note how these high ROI figures generated by the stars to the company clash with the statement by Jeffrey Katzenberg, quoted earlier, that the "talent class … strips off most of the profits."

Managers usually think of labor expenses as a cost; but it is also an investment in human capital, both the firm and the employee. We discussed the employer's ROI calculus. Employees, too, must decide how much to invest in their own skills. Their calculation, in purely economic terms, is whether costs to them (direct cost plus opportunity costs) are lower than the expected increase in value of the job to them if they use the new skills. This is a particular issue when it comes to specialized skills and capabilities that are worth more inside the company than outside it. Such specialized skills benefit the company but they may well actually reduce the employee's job mobility by making him too specialized for other firms to consider. The company must therefore create decent-sized incentives for such investments made by an employee. When there is great job insecurity inside the firm, this will reduce such firm-specific employee self-investments, and this reduces company productivity.

5.2.1.1 Case Discussion

Disney and the ROI of Retraining of Employees

In this hypothetical example, the Walt Disney animation studio is revamping its operations by moving to computer-generated animation (CGA). On the HR side, it has two options: hire new computer animators and fire the existing hand animators, or retrain the latter hand animators. A new young CGA hire can hit the ground running, and is also cheaper by $15,000 per year than an old animator. So, this seems like a no-brainer. But let's look at the (hypothetical) numbers.

Option 1: Hire a New Computer Animator and Fire an Existing Hand Animator

A. Costs of hiring a new computer animator

Search for new animator:	$9000
Selection:	$7500
Proficiency training:	$8000
Sub-total:	**$24,500**

B. Costs of firing a hand animator (compensation, etc.): $31,000.

C. The value added of a seasoned hand animator	$100,000

D. Initial slowing of productivity owing to inexperience of a new hire $17,000. This means that the net value added of a new computer animator is: $100,000 – $17,000 = $83,000

E. The ROI of Option 1 can then be calculated as:

$$\text{Return On Investment (ROI)} = \frac{\text{Value Added} - (\text{Firing} + \text{Hiring} - \text{Lower Salary})}{(\text{Firing} + \text{Hiring} - \text{Lower Salary})} - 1$$

$$\text{ROI} = \frac{\$83,000 - (\$31,000 + \$24,000 - \$15,000)}{\$40,000} - 1$$

$$\text{ROI} = 7.5\%$$

Option 2: Retrain the Hand Animators

The costs associated with this option are:

A. Costs of retraining an animator

Direct instruction cost	$37,000
Absence cost (Disney still has to pay the animator's salary)	$17,000
Total cost of retraining animators:	$54,000

One benefit of retraining is greater employee retention. After successfully passing the retraining, the hand animators will be more commit-

18 Pomerantz, Dorothy. "Ultimate Star Payback." *Forbes*. August 6, 2007. Last accessed April 20, 2017. ► http://www.forbes.com/2007/08/03/celebrities-hollywood-movies-biz-cz_dp_0806starpayback.html.

19 Robehmed, Natalie. "Chris Evans is Hollywood's Best Actor for the Buck in 2016." *Forbes*. ► https://www.forbes.com/pictures/emjl45efmjk/1-chris-evans/#7b3ba32e70e6.

ted to Disney as well as trained more specifically for Disney operations, while new hires pose a greater flight risk. Assume that retrained animators stay with the company three years longer than new hires. The NPV of this avoided cost is estimated to be $25,000.

The total monetary benefit of retraining is then as follows:

Value of employee retention	$25,000
Value added of computer animator	$100,000
Total benefits	$125,000

The ROI of retraining hand animators is thus:

$$ROI = \frac{Benefits - Costs}{Costs} - 1 = \frac{125,000 - 54,000}{54,000} - 1$$

$$ROI = 31.5\%$$

The conclusion? The return on retraining is 31.5%, as opposed to only 7.5% for the option of new hires. Thus, based on these hypothesized numbers, and before even reaching considerations of fairness and employee morale, Disney should retrain its animators instead of hiring new ones.

5

5.2.1.2 Applied HR Models

The ROI approach has been extended in a variety of specialized HRM models. For example, the Human Capital Index (HCI),[20] by the HR consultancy Watson Wyatt (now Towers Watson), incorporates measures of HR practices by companies. The HCI identifies 49 specific HR practices, divided into six dimensions. The research then quantifies how much an improvement in each practice could be expected to increase a company's market value. Thus a company could look at the cost of creating an HR improvement of one standard deviation relative to industry practices, and relate that cost to the gain in market value. For example, suppose that improving on the dimension of "Collegial Flexible Workplace" will cost $20 million per year in direct expenses, generating a negative NPV for over ten years of $123 million, using a 10% discount rate. But it would result in a market value rise of 9% (see Table 5.1), which for a firm with a $2 billion market capitalization, is $180 million. The ROI is then (180–123)/123 = 46.3%, a very high number. Watson Wyatt found the following impacts on the market value associated with a one-standard deviation improvement in an HR practice.

Table 5.1 The contribution of corporate HR practices to shareholder value

Practice	Impact on market value
Total Rewards and Accountability	16.5%
Collegial, Flexible Workplace	9.0%
Recruiting and Retention Excellence	7.9%
Communications Integrity	7.1%
Focused HR Service Technologies	6.5%
Prudent Use of Resources	33.9%

Watson Wyatt. *Human Capital Index: Human Capital as a Lead Indicator of Shareholder Value*. Washington: Wyatt Worldwide, 2002

5.2.1.3 Case Discussion

Disney's Internal Labor Structure

Assume in this hypothetical example that Disney needs to decide between hiring two different types of employees: a worker with a fairly certain output (Julia) or a worker with a far riskier output (Max) (Fig. 5.2).

Assume that Julia and Max are both 30-year-old computer animators who are likely to work until they are 65 with a salary of $50,000.[21] The difference is their productivity. Julia's productivity level is at a reliable $150,000. In contrast, it will take one year to determine Max's productivity level to see whether he is a dud with zero production value or a star producing $200,000 a year. Julia is the safe choice. Max, in contrast, is a gamble. Who should be hired?

Julia's expected net output, after subtracting her salary, for the first year and every year thereafter is a constant $100,000. Unlike Julia, Max has two potential outcomes. If he proves a disaster he will be fired. Disney's loss will be the cost of his salary ($50,000). But if Max is a star, his first year output would be $200,000, minus his salary of $50,000, for a net of $150,000. Both possible outcomes must be combined to arrive at a total expected output.

Max's expected net output: (0.5)($150,000) + (0.5)(−$50,000) = $75,000 − $25,000 = $50,000. This is half of Julia's net output of $100,000. With Julia's expected net output greater than Max's, should she be the one to be hired? This seems to merit an easy yes.

But it would be incorrect, because the analysis only considers so far the first year of employment. Instead, the projected net output for both must be calculated for the 35 years they plan to work, we assume, at Disney.

In Julia's case, her expected NPV (after salary) for the first year and every year after remains constant at $100,000. Her expected NPV over 35 years of employment, at a 10% discount rate, yields $578,650.

It is different for Max. If Max turns out to be a disaster in his first year, his output would be −$50,000, and he would then be fired. But should Max turn out to be a star animator, his net output would be $150,000 each year over 35 years of employment. The discounted NPV for his activity minus the NPV of his salary if he does not work out would be about $1.4 million.

Thus Max is almost 2.5 times more valuable than Julia in expected value. As long as Disney has the option to terminate poor-performing workers, it will be better to hire riskier workers if they have enough of a decent upside potential.

20 Watson Wyatt. *Human Capital Index: Human Capital as a Lead Indicator of Shareholder Value*. Washington: Wyatt Worldwide, 2002.

21 One could give them regular raises but this would complicate the calculation, though it would strengthen the conclusion.

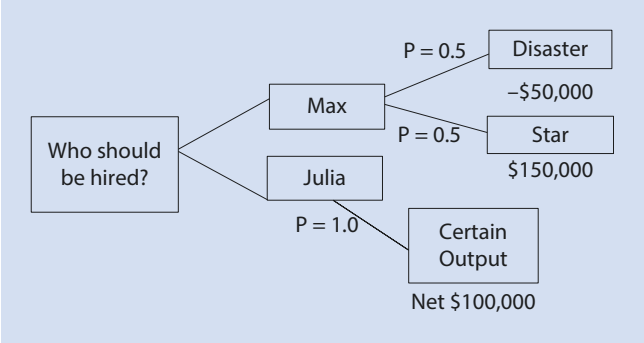


Fig. 5.2 Risk and employee selection

5.2.2 Internal Labor Markets

A second element of hard HR is the analysis of intra-company labor flows. This is based on the observation that most important HR transactions take place inside a company, not in external labor markets.[22]

5.2.2.1 Workforce Mobility

A company needs to analyze its internal people mobility and draw conclusions from it. An example is the effectiveness of the company's compensation structure. A compensation system is likely to be too low, or a promotion system too slow, if many mid-level and low-level employees leave the firm in order to work elsewhere, especially at comparable organizations.

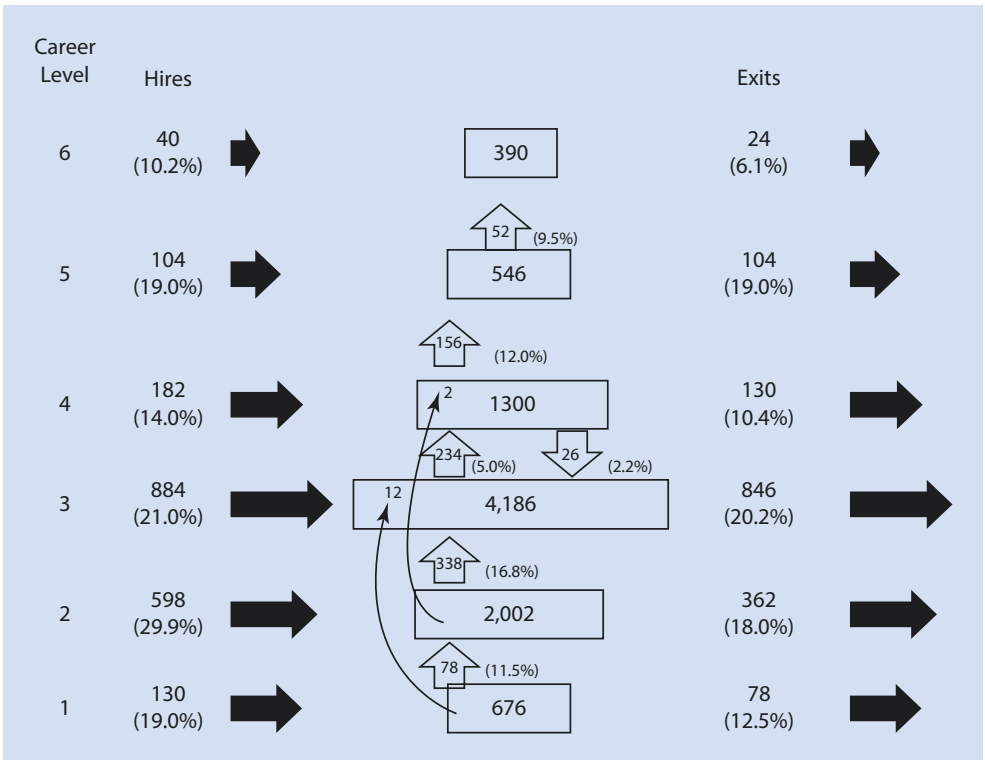
A tool for such analysis, by the HR consultancy Mercer Human Resources, maps the flow of the workforce of a real company, anonymized as TechCo (Fig. 5.3).[23]

What does this ILM (internal labor markets) map show? The horizontal bars show the number of employees at a particular level of the organizational hierarchy. For example, there are 338 employees at the bottom (Level 1). Of these, 39 move up to Level 2. At that level there are 1001 other people. A total of 181 employees leave from Level 2 to other employment, while 299 are recruited from the outside and 169 are promoted. The large bulge in the middle levels shows that the largest group, 2093 people, is at mid-level.

Level 3 is a career "choke point," as the probability of moving higher (117 make that promotion) is low at 5.8% per year and even lower when demotions (2.2%) are taken into account. One can also observe that a high share of employees at Levels 4 and 5 are new hires from the outside, relative to internal promotions. This indicates that the company is not developing managerial talent internally but recruiting from outside.

Other ILM maps could be developed to show the proportions and mobility of employees at each level according to gender, race, and professional specialization. Similarly, maps like this can be used to statistically analyze turnover, promotions, pay levels, and impacts of individual performance. Companies should strive for an ideal "quit-rate" and monitor it closely over time. If it is too low, it might indicate stagnation, inbreeding, complacency, and possibly over-compensation. When a job becomes so good that employees cannot

Fig. 5.3 TechCo Internal labor market map



22 Such analysis was begun by Peter Doeringer, Michael Piore, Sherwin Rosen, and Richard Freeman.

23 Based on image from Nalbantian, Haig R. and Richard A Guzzo, et al. "Play to Your Strengths." New York: McGraw-Hill, 2004.

expect a comparable deal elsewhere, it helps morale, but it also generates a risk-averse attitude. On the other hand, if the quit rate is too high it might indicate dissatisfaction, low commitment, and the imposition of a high replacement cost. The ideal number should be somewhere in between.

The potential for promotions must be similarly carefully evaluated. Employees proceed through a "career pyramid." For software engineers, for example, entry-level positions may be those of programmers, with advancement through a combination of experience and further education.[24] They will be promoted to systems analyst, project manager, researcher, and system designer. And then? Are they promoted to upper management? Good programmers do not always make good managers. But at the same time, software engineering, at its intermediate levels, cannot be a dead-end position with no possibility of advancement. Microsoft's solution to this problem was to create an internal honor title called "Distinguished Engineer," given to 16 outstanding engineers.[25] It is a recognition plus pay raise but without management responsibilities.

5.2.2.2 Organizational Hierarchy

A firm's hierarchy can be a fairly flat triangle with few levels and no strong hierarchy, but also with few promotions, or it can be highly hierarchical. It can have bulges at the bottom and the middle. What would be the best shape of the pyramid? Flat or steep? Many people speak admiringly of "flat" organizations, with only a few levels. This is popular with start-ups as part of a non-hierarchical peer culture. But it also has disadvantages:

- The higher transaction costs of horizontal consensus building and co-ordination, versus the top-down orders of a hierarchy.
- People at the higher levels have numerous people to supervise.
- Low chances for promotion.

Given the advantages and disadvantages, there should be an optimal degree of hierarchy. There are multiple factors to consider, such as the organizational culture, the span of control that a manager can exercise effectively, the desired internal mobility, and the division of permanent employees from project-specific temporary employees.

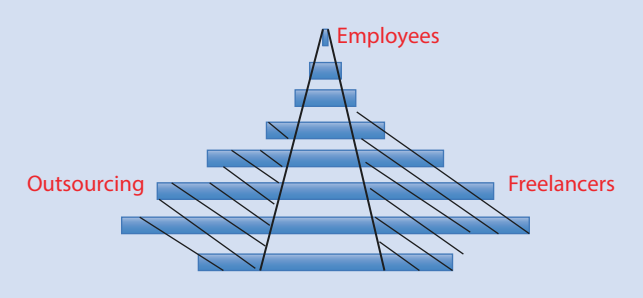


Fig. 5.4 Company Employment Pyramid

A firm can shape its organizational pyramid through a variety of policies. They include the outsourcing of certain functions, and the hiring of freelancers (Fig. 5.4). That way, the firm can make a pyramid shape out of a box shape, thereby setting chances of promotion to the desired ratio and raising incentives. (But this also means giving the freelancers a near-zero chance at promotion into regular employee status.)

To evaluate the effectiveness of the company's compensation structure we can examine its internal labor market patterns. If many of its high-, low-, and mid-level people voluntarily left the organization to work elsewhere, especially for "peer" organizations, we might conclude that the compensation level and/or the acceleration incentive were too low. If such departures are high at the middle and lower-levels, which are the creative and productive contributors to a company's present and future, it should reevaluate its compensation profile and raise internal promotions.

The following example for Disney shows different types of hierarchies for different divisions of a company.

5.2.2.3 Case Discussion

Disney Internal Labor Markets

This hypothetical depiction shows the organizational hierarchy of several of Disney's divisions (Fig. 5.5). Disney's radio stations (Unit 1) used to be composed of a very small number of top managers and many middle-level managers and low-level employees. Most people got promoted from within, but few made it to the top. In contrast, its film and TV production division (Unit 2) employs mostly low-level staff, such as production crew, and relatively few middle and top managers. The employment structure is essentially two-tiered—entry level and management level. Early promotion in that structure is easy, but the jump from Level 3 to Level 4 becomes dramatically more difficult. After that barrier, however, the internal promotion of employees again becomes easy. The third business segment, theme parks, is closest to a classic pyramid structure.

How would one expect employee relations and culture to look in these three divisions of the company?

24 Baker, Stephen and Manjeet Kripalani. "Programming jobs are heading overseas by the thousands. Is there a way for the U.S. to stay on top?" *BloombergBusinessWeek*. March 1, 2004. Last Accessed April 20, 2017. ► https://www.bloomberg.com/news/articles/2004-02-29/software.

25 Microsoft. "Microsoft Recognizes and Rewards "Distinguished Engineers." July 3, 2000. Last accessed April 20, 2017. ► https://news.microsoft.com/2000/07/03/microsoft-recognizes-and-rewards-distinguished-engineers/#RFXDeqeOyOiAY40P.97.

Radio stations: small top management, with staff mostly mid-level. The relatively low ratios of hires over promotions mean that most people get promoted from within but few people make it to top level. At the lower levels there is very little career stress. But at the career "choke point" the opposite is true. The transition from one culture to the next is hard on people and on the organization.

Film and TV: There are few employees in the positions above lower levels. Most mid-level employees are project-based temporary hires. The structure is one of essentially two types—entry level, plus thinly staffed management levels. This is typical in industrial firms. The culture of such a hierarchy is a sharp divide between higher level executives (the "suits") and middle managers/blue collar.

Theme Parks: The pyramid-shaped hierarchy creates a decent incentive system and internal promotions. Partly as a result, Disney theme parks experience a rank-and-file turnover that is only one-third that of rival theme parks.[26] This gives Disney an important competitive advantage even when compensation levels are similar.

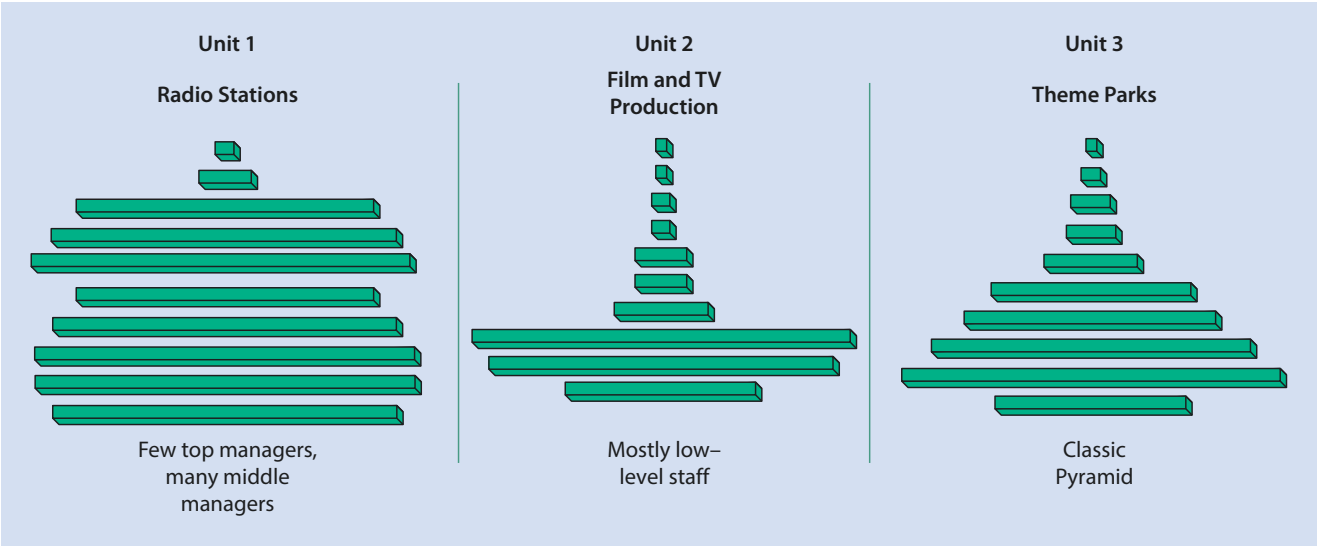


Fig. 5.5 Disney ILM maps by division (schematic)

5.2.3 The Use of Finance Theory in Analyzing Compensation

One important question for fashioning a compensation system is how much of it should be performance-based. Many companies reward their managers if the firm does well. Often the measure is the company's stock price, which is a reflection of its profitability and reputation. In some cases, most of the top managers' compensation is contingent. Is such a compensation system efficient? It all depends. In finance theory as well as in the practice of stock analysis, the risk of financial securities can generally be decomposed into three components: overall market risk, industry specific risk, and firm-specific risk.

Market risks cannot be readily reduced. When the stock market and the overall economy are in general retreat or doing very well, there is little a firm can do about it one way or the other. It rides out the trends. In contrast, the other types of risk—industry- and firm-specific risks—can be reduced through, e.g., diversification and effective management. The three components of volatility can be calculated. General market volatility can be measured from an index of stock market performance (e.g. Standard & Poor's 500). Industry volatility can be measured by an index of stock market by the peer group of companies in the same sector. And company-specific volatility is then the remaining "residual" volatility.

We can use this approach for media companies. Figure 5.6[27] shows the decomposition of risk for media companies in the UK.

This shows that Granada and Reuters exhibit high levels of market and industry risk but relatively low levels of firm-specific volatility. What is the implication for the companies' compensation system? There is no point in rewarding or punishing employees for company performance that is significantly linked to the overall economy or of the industry, rather than to the performance of the firm itself. Where there are high levels of market risk, the effectiveness of variable rewards will be low. The award of stock or stock options would be costly to shareholders, whose holdings would be diluted—yet

26 Capodagli, Bill and Lynn Jackson. *The Disney Way: Harnessing the Management Secrets of Disney in Your Company*. New York: McGraw-Hill, 1999.

27 Based on Nalbantian, Haig, et al. *Play to Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage*. New York: McGraw-Hill, 2004.

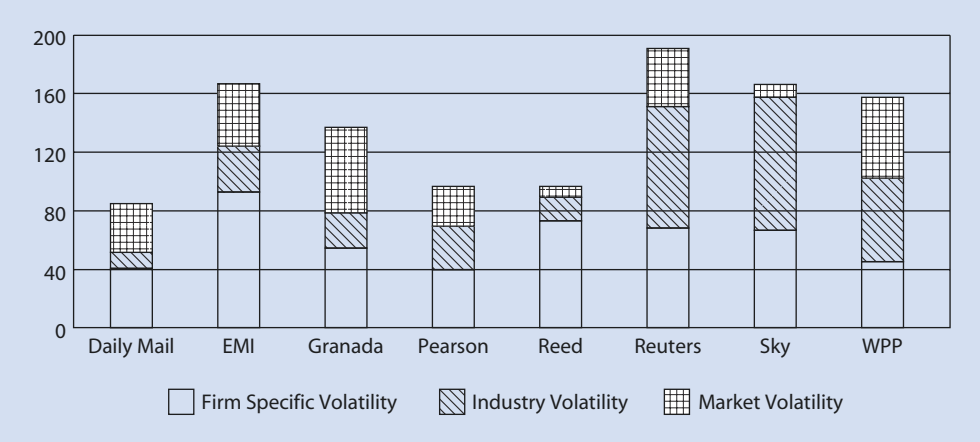


Fig. 5.6 Composition of risk of media companies in the UK

would not deliver strong incentives to managers. In contrast, Reed and EMI have high levels of firm-specific risk, and stock or stock options would provide more effective incentives to employees. The performance of employees at these companies would then have a closer link to the rewards they receive. Companies must therefore develop risk-adjusted measures of performance, and performance rewards should be linked to the firm's results relative to peer group performance.[28]

5.2.3.1 Case Discussion

Was Disney CEO Michael Eisner's Compensation Package Well Designed?

Standard financial software can decompose the price volatility of Disney shares and those of its peers/competitors (Fig. 5.7).[29]

Disney has a relatively low degree of firm-specific volatility, at 22%. Thus, Disney stock's performance is heavily related to developments in the overall market and industry. Therefore, a strong bonus system for managers, based on stock performance, would reward (or punish) uncontrollable developments and hence be relatively ineffective as an inventive on managers to perform effectively. In contrast, Viacom at 35% and Time Warner at 31% have higher firm-specific volatility. Their bonus-based pay system would create stronger incentives.

Yet Disney gave Michael Eisner, the chief executive officer (CEO), a compensation package that was extraordinarily heavy on the incentives side. After becoming CEO of the Walt Disney Company, Eisner received a base salary of $750,000 a year as well as stock options. His contract was later adjusted to a $1 million base salary plus up to $19 million in bonuses based on the company's share price and on growth in earnings beyond 7.5%. He also received stock options that had to be held for several years.

Eisner earned a combined $234 million from 1991 to 1995, which averages out at $46.8 million per year. In 1998, his package hit an extraordinary $570 million, which was mostly due to gains in stock options resulting from an increase in share price since 1989. Yet during this period, Disney stock barely outperformed the S&P index. Since the stock had to be held for several more years, much of the compensation was a paper gain, and when Disney's stock performed poorly in 1999 and 2001, along with the general stock market, Eisner received no bonus, just his base salary of $1 million. In 2000, he made $9.3 million in addition to stock options, but he experienced a paper loss of $266 million when Disney's stock plummeted in 2001. He bounced back in 2004 with a $7.3 million bonus, and in 2005, his last year at Disney, he received a $9.1 million bonus, over 90% his $1 million base salary.

Most of Eisner's compensation was thus incentive pay (bonus and stock options). He benefited from rises in overall market and industry stocks. But Eisner's compensation was over 90% in variable awards. This seems grossly sub-optimal for shareholders. It is an error in the design of the compensation package, and must be distinguished from judgment errors in the compensation level, such as in the case of Michael Ovitz. Ovitz, a long-time Hollywood super-agent and shrewd negotiator, was hired by Eisner in 2006 as Disney's president. But things did not work out and Ovitz was fired just 16 months later. He received, based on his employment contract, a $140 million severance package, equating to more than $300,000 per day for each of his 454 days as president.[30] This is an example of a poorly designed employment contract.

28 Nalbantian, Haig, et al. *Play to Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage*. New York: McGraw-Hill, 2004.

29 Graph created on the basis of data provided by Yahoo Finance and Factiva. Last accessed February 7, 2008. ► http://de.finance.yahoo.com and ► www.factiva.com.

30 Stewart, James B. *Disney War*. New York: Simon & Schuster, 2005.

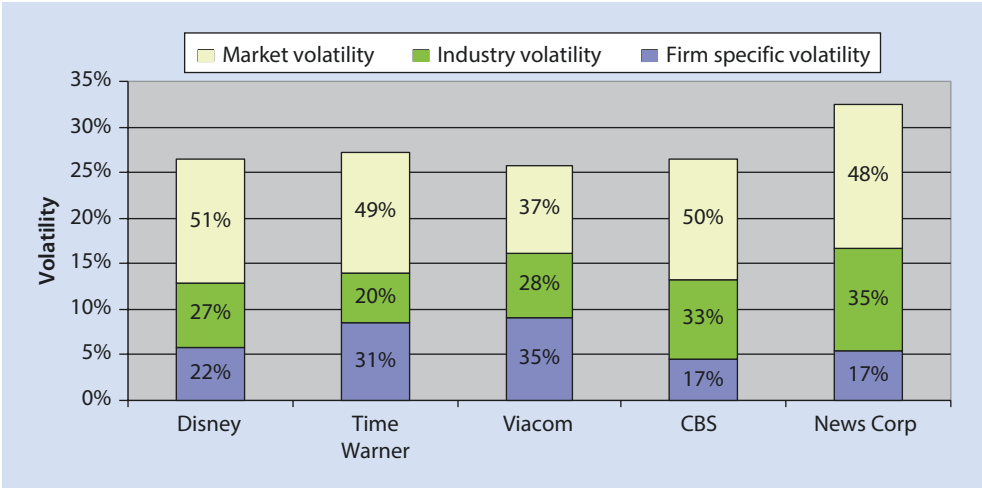


Fig. 5.7 The composition of risk of Disney and its peers

5.2.4 Salary Differentials

5.2.4.1 Compensation and Tournament Theory

Studies of optimal employment compensation look at the effectiveness of fixed wages versus commissions and at the relationship between group incentives and individual rewards.[31] They also look at the optimal differences in pay across the levels of a company's hierarchy. How much more should people be paid as they move up in the hierarchy?

Tournament theory is a way to analyze a firm's vertical gradient of compensation. Determining a firm's compensation structure to get maximum incentive is much like setting the prize money for the players in a tennis tournament. If, say, the pot is being split up among the top 16, and the extra reward for winners is relatively low, the star players will not join, but more second-tier players will sign on, since they have a chance of taking home some of the prize money. But if the reward for winning is very high ("winner takes all"), the participation incentives will be reduced and fewer second-rate players will join. A similar dynamic takes place in companies and industries. Tournament theory analyzes this gradient and the spread of rewards within an organization.

That wage spread typically pays young employees less than what they contribute in terms of their productivity and pays senior employees more than their direct value added to the firm.[32] Figure 5.8[33] shows this wage/age relationship. Workers are paid less than what they are worth when young, but expect to be paid more later, after year *T*.

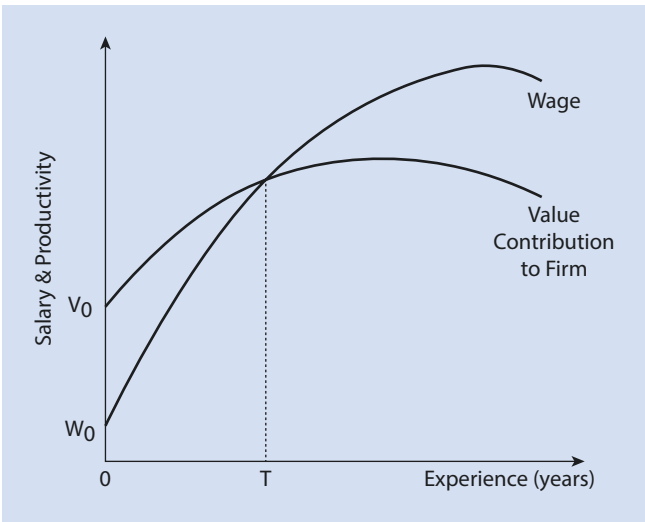


Fig. 5.8 Compensation of employees relative to contribution (schematic)

The difference between value added and wages in the early stage of a work career is an implicit "loan" that the younger worker provides to the firm. The firm will pay it back later, as seniority rises, through compensation that is then above the worker's contribution.[34] One reason to overpay senior employees is not for superior performance while they are old but rather because this later high compensation was a motivation factor during their early years of their career. But this implicit deal has increasingly been broken by the firing of older employees once the value of their product is lower than their compensation, that is, after time *T*. This results in angry older employees who feel

31 Lazear, Edward P. *Personnel Economics*. Cambridge, MA: MIT Press, 1995;
Spence, A. Michael. "Job Market Signaling." *The Quarterly Journal Economics* 87, no. 3 (August 1973): 355–374;
Stiglitz, Joseph E. "Risk, Incentives and Insurance: The Pure Theory of Moral Hazard." *The Geneva Papers on Risk and Insurance* 8 (1983): 4–33;
Bartel, Ann P. "Productivity Gains from the Implementation of Employee Training Program." *Industrial Relations* 33 (1994): 411–425;
Ichniowski, Casey, Katherine Shaw, and Giovanna Prennushi. "The Effect of Human Resource Management Practices on Productivity." *American Economic Review* 87 (June 1997): 291–313.

32 Lazear, Edward P. *Personnel Economics*. Cambridge, MA: MIT Press, 1995.
33 Dessler, Gary. *Human Resource Management*, 12th edition. (New York: Pearson, 2011), 200.
34 Dessler, Gary. *Human Resource Management*, 12th edition. (New York: Pearson, 2011), 200.

that a promise has been violated. But it also means a greater need to reward younger employees early in order to keep them as motivated as before, if they cannot expect to "cash in" later. This is an extra cost of firing older employees which rarely gets factored in when the firm decides to cut the higher-priced veterans. Yet it must be included in the calculation.

Firms in risky industries must offer a large spread of rewards in order to motivate employees. If the career risk is low in an industry, for example when employees are being promoted by seniority and are rarely fired, then the wage spread can be small. There is low risk and therefore no need for the incentive to compensate for the risk. But if the career risk is high, such as in a start-up, one must create incentives for people to accept the risk either by a high general salary level, which is more expensive for the firm in the short term, or by the promise of future high rewards upon promotion. Such a high career risk environment exists in media and digital start-up firms, where one therefore finds a wide wage spread. On the other hand, large Japanese firms, which often used to operate with a less risky—for employees—environment of "lifetime employment," could operate with a narrower wage spread than American firms. It is therefore not surprising that Japan has one of the lowest disparities of income.[35]

A company's reward structure affects not just employees' job motivation; it also affects who works for the firm. Rewards shape an organization over time. They reflect the values of the organization and shape the employees' choices. Rewards signal what the firm values. It attracts people with these values. "Over time, an organization becomes what it rewards."[36]

5.2.4.2 Case Discussion

Is Disney's Compensation Structure Efficient?

We can apply the tournament theory analysis to Disney's compensation structure to see if the company is setting the optimal wage spread. Disney's compensation profile is shown below, showing the compensation for each level, starting with Level 1 (unskilled, minimum wage) and progressing to Level 10 (CEO).

An example for a Level-9 senior executive was Tom Staggs, Disney's chief financial officer, who earned $1 million in salary, a $4 million bonus, $790,000 in stock options, and $4 million in long-term incentive pay. Another senior Level-9 executive was Alan Braverman, Disney's general counsel, who earned $850,000 in salary, a $3 million bonus, $420,000 stock options, and $4 million in long-term incentive pay.[37] On average, Eisner received an overall compensation of $45 million, almost literally off the chart as depicted in ◘ Fig. 5.9.[38]

The salary acceleration at Disney is relatively modest in the lower levels (1–7) where compensation is low that is cannot be seen in the graph. But it then increases dramatically in Level 8 and above. The multiple between the CEO's compensation and other employees' compensation was 714 times for entry-level blue-collar jobs. (Level 2).

How does Disney's compensation compare with other firms?

Disney's non-executive pay scale is said to be 10–15% below the market for comparable work elsewhere. In Hollywood, annual compensation is generally not high for most job levels except for those at the top.

Questions for Disney to consider:

- Is this compensation profile excessively accelerating at the top?
- Is the career risk at Disney so high that it is necessary to incentivize through very high compensation at the top?
- Could the Disney board have purchased the same performance from its chief executive and president for less incentive?

The salary acceleration from one of the top four levels of executives to the next is about 600% on average. A simple doubling in salary (100%) at each promotion, which seems generous, rather than the six-tupling, would lower the salary cost by $188 million.

So, the question is how much does these $188 million at the top buy for the firm in terms of extra productivity incentive for everyone (over the incentive of a mere doubling of compensation at each level)?

Disney's annual profits were approximately $1.2 billion in 2003. Its ROI was about 9%. If we consider the extra salary cost of $188 million an investment, it would have to return (1+.09)$188 = $204 million to meet the company's normal level of ROI. This amounts to 17% of Disney's overall profits.

The question then is whether the acceleration of compensation beyond a doubling of salary at each promotion is believed to generate an extra 17% in company profits. If it does not, the money is not well spent. If it has added only 10% to profits, that would be $120 million that year, and the ROI on that incentive (which cost Disney $188 million) would be $\frac{120-188}{188}$ = negative 36.2%

But if the impact of the extra incentive was 20% ($240 million), then the ROI = $\frac{240-188}{188}$ = 27.6%. In other words, if Disney believes that the impact of the added compensation at the top beyond a doubling at each promotion generates 20% of higher profits, then the money is well spent. But it would then also raise the question why stop here? Why not accelerate salaries even more?

A good question is why Disney's top executives, to perform well, need not just a doubling of salaries at each promotion but much more than that in order to perform at their peak. Incentives of such magnitude might not be necessary since the reasons to perform highly are not just those of money but also of prestige, power, and personal character. The people at the top tend to be Type A personalities who tend to be driven to perform at their personal best.

This then leaves us with another possible explanation for the high salaries:

35 OECD. "Growing Unequal? Income Distribution and Poverty in OECD Countries." *Directorate for Employment, Labour, and Social Affairs.* October 21, 2008. Last accessed April 20, 2017. ► http://www.oecd.org/dataoecd/45/57/41527303.pdf.

36 Nalbantian, Haig et al. *Play to Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage*. New York: McGraw-Hill, 2004.

37 Marr, Merissa. "Disney CEO Iger's Bonus, Salary Total $17 Million." *Wall Street Journal*. January 13, 2007. Last accessed April 20, 2017. ► https://www.wsj.com/articles/SB116864237874675613.

38 Rubis, Leon. "Disney Show & Tell: Disney Institute's Four-Day Seminar on Human Resource Management." *HR Magazine*. April 1998.

that they are at market-based levels. Since other firms are willing to pay top executives at those levels, Disney must match these firms or lose top managers. The other firms must have concluded that the huge salary accelerations are economically efficient for them. Because these numbers are much higher than in other countries, there would have to be a particularly high incentive effect on American top managers. Because this is unlikely, one may have to resort to another potential explanation, that of institutional inefficiencies. Specifically, that in many major companies, top management in effect sets its own salaries.

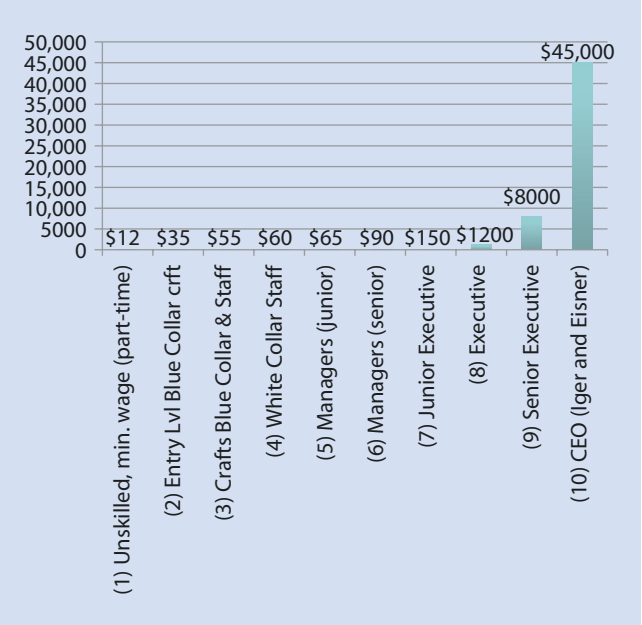


Fig. 5.9 Disney's compensation profile (wages in thousand $)

5.2.4.3 Star Compensation

In accordance with our discussion, creatives' incomes are much more unequally distributed than incomes more generally owing to the risk characteristics of their companies and industries. The tournament profile of compensation for aspiring creatives/struggling performers on one end and "A-list" stars on the other is extraordinarily steep.[39] While countless actors vie for even minuscule roles at minimal pay, top stars such as Tom Cruise could pull in, in the 2011/2012 season, $75 million, followed by Adam Sandler and Leonardo DiCaprio at $37 million.[40] Hollywood's top female overall earners for the same year were Kristen Stewart ($34.5 million), Cameron Diaz ($34 million), and Sandra Bullock ($25 million). In 2017, the top paid actors were Mark Wahlberg $68 million, Dwayne Johnson $65 million, and Vin Diesel $54.5 million. For actresses, the top paid were Emma Stone $26 million and Jennifer Aniston $25.5 million.[41] In this incentive structure, the few "winners" receive the majority of the reward.

The oversupply of performing talent can be seen in the music field. Each year, about 14,000 students from American music schools graduate with performance degrees, and this number is augmented by immigrant talent and by musicians who do not enroll in formal programs. But there are only 250–350 job openings each year in symphony orchestras.[42] The number of "stars" in each cohort, in terms of earnings profile, is much smaller still. The situation is similar in other countries. Creatives everywhere tend to overestimate the odds for personal success, or they are willing to accept them in return for the large payoff for such success in terms of money and fame. In addition to the hope for financial reward, a high level of personal satisfaction is inherent in artistic careers.

A star system already existed in ancient Rome, and later in European theater and opera. In film, the world's first star was Mary Pickford a century ago. Even so, stars' bargaining strength was limited. For a long time, even famous actors were employees of the studios with a regular base salary, and rarely made more than $100,000 extra per film.[43] The demise of the "golden age" studio system in the 1950s made stars free agents. They earned much more but at a greater career risk. The average earnings per film by the top ten stars of 2003 (corrected for inflation) was about 30 times that of the top stars in 1948 under the old studio system. Hollywood stars' compensation is based on bargaining strength. John Travolta, for instance, was a major star after *Grease*, with over $2 million per film plus profit participations.[44] As he outgrew his heartthrob youth, his popularity declined, and he earned only $140,000 for the film *Pulp Fiction* since he was considered to be "washed up." That movie catapulted him back into the limelight, and his subsequent average gross per movie rose to a reported $60.3 million.[45]

An important element of artistic compensation is "profit participation," first used for Jimmy Stewart in a contract with Universal in 1950. In profit participation, the actor shares the producer's and investors' risk as well as profit. This system then spread. "Name" actors in a film may get shares, perhaps 10% in the aggregate. The director may get a fixed fee plus a participation of 5% or less. Arnold Schwarzenegger, in a very

39 To alleviate this differential on the low end, almost all unionized film professional theater, and music performers are paid the minimum wage negotiated by their unions, called the "scale." Otherwise, the tournament would be even steeper.

40 Pomerantz, Dorothy. "Tom Cruise Tops Our List Of Hollywood's Highest Paid Actors." *Forbes*. July 3, 2012. Last accessed April 20, 2017. ► https://www.forbes.com/sites/dorothypomerantz/2012/07/03/tom-cruise-tops-our-list-of-hollywoods-highest-paid-actors/#40bec2542ae8.

41 Robehmed, Natalie. "Full List: The World's Highest-Paid Actors And Actresses 2017." *Forbes*. August 22, 2017. Last accessed June 19, 2018. ► https://www.forbes.com/sites/natalierobehmed/2017/08/22/full-list-the-worlds-highest-paid-actors-and-actresses-2017/#4c7a33763751.

42 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2002.

43 Porter, Eduardo and Geraldine Fabrikant. "A Big Star May Not a Profitable Movie Make." *New York Times*. August 28, 2006. Last accessed April 20, 2017. ► http://www.nytimes.com/2006/08/28/business/media/28cast.html.

44 Soloman, Aubrey. *Twentieth Century Fox: A Corporate and Financial History*. Boston: Scarecrow Press Inc., 2002.

45 By comparison, the top stars in India's Bollywood earn about a tenth of top Hollywood stars, about $2.5 million for a film.

sweet deal, received a fixed fee of $29.25 million for *Terminator 3*, $1.5 million in perks, and 20% of all the worldwide gross revenues produced by the film after it reached its cash break-even point.[46] Since box office revenue was $433 million and the production budget of $187 million, that would leave Schwarzenegger with an additional $75 million, plus 20% of gross revenues from home video, VOD, etc., minus 20% of the marketing budget.

In commercial theater from the 1920s to the 1980s, a standard contract would allow the author a maximum of 10% royalty. For musicals, a 6% royalty was shared among the author, composer, and lyricist. Starting in the 1980s, standard Broadway contracts limited revenue sharing until the investors had recouped. Stars also earn money through the film production companies they own. Other benefits to stars are their contractual power to approve other people who will be picked to work in the production.

Participation contracts encourage an extra effort by the star in the marketing of a film by participating in interviews, TV talk show appearances, and so on. Even so, this effort would be less than optimal. In a profit-sharing deal each party underinvests in its efforts because a dollar invested to yield a dollar to the revenue stream brings only a share to the party that spends it.[47]

The "winner-takes-all" economics of creative activities such as film, music, or sports result in small differences in talent or luck typically leading to extreme differences in rewards.[48] The small differences are rewarded exponentially rather than linearly, and thus the distribution of rewards is highly skewed.[49] Talent is only part of the story. Rarely is a star's contribution unique. In most cases becoming a star is primarily the result of luck and a subsequent bandwagon effect. A small fan base creates a momentum, and its choices are adopted by other fans.[50] The "skewedness" of a distribution is called its "kurtosis." Industries can be analyzed based on their distribution of high and low economic success.[51]

Stars help in marketing a media product. But are they worth the money they cost? Statistical studies (and there are several) show that stars (and big production budgets) are associated with higher revenues but not with higher profits.[52] One explanation is that stars add value to a project but they then capture most of that added value in high compensation to themselves, so it is all a wash. An alternative view is that stars add their credibility to a project and help make it happen, and this is a major contribution.

Many no-star movies did very well: for example, *ET: The Extra-Terrestrial* and the *Star Wars* series are among the highest-grossing movies in history.[53] One study, by Arthur De Vany and W. David Walls, studied a sample of over 2000 movies released between 1985 and 1996 and found only seven actors who positively affected box office performance (Tom Hanks, Michele Pfeiffer, Sandra Bullock, Jodie Foster, Jim Carrey, Barbra Streisand, and Robin Williams). Most other stars lacked any statistically significant effect. Two directors were found to have a positive financial impact: Steven Spielberg and Oliver Stone.

A star's presence increases the expected revenue of a film but it will not reduce the riskiness to investors (unless the star takes substantial contingent compensation). A study of 600 movie stars and 500 movies concluded that the effect of a star on theatrical revenue was, on average, $3 million and did not increase the market value of the firm.[54] Casting announcements of a star did not affect the share price of media companies that owned the studio. Even the revenue contribution of a star is difficult to predict. The study notes that several other researchers did not find a relationship between stars and revenues.[55] Other studies found that a movie's revenues increase

46 Epstein, Edward J. *The Big Picture: The New Logic and Power of Hollywood.* New York: Random House, 2005.

47 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

48 MacDonald, Glenn M. "The Economics of Rising Stars". *The American Economic Review* 78, no. 1 (March 1988): 155–166.

49 De Vany, Arthur. *Hollywood Economics: How Extreme Uncertainty Shapes the Film Industry*. (New York: Routledge, 2004), 231–254.

50 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2002.

51 An industry with a low kurtosis may be called a "mediocracy," where everyone gets treated the same median-typed treatment. But most creative industries are a "kurtocracy," where only a few individuals reap much wealth. De Vany, Arthur. *Hollywood Economics: How Extreme Uncertainty Shapes the Film Industry*. (New York: Routledge, 2004), 231–254.

52 "Some studies have not detected a relationship between revenues and talent involvement (Austin, Bruce A. *Immediate Seating: A Look at Movie Audiences*. Belmoni, CA: Wadsworth, 1989; De Vany, Arthur and W. David Walls. "Uncertainty in the Movie Industry: Does Star Power Reduce the Terror of the Box Office?" *Journal of Cultural Economics* 23, no. 4 (November 1999): 285–318; Litman, Barry R. "Predicting Success of Theatrical Movies: An Empirical Study." *Journal of Popular Culture* 16, no. 4 (Spring 1983): 159–175; Litman, Barry R. and Hoekyun Ahn. "Predicting Financial Success of Motion Pictures." In *The Motion Picture Mega-Industry.* Barry R. Litman, ed. (Needham Heights. MA: Allyn & Bacon 1998), 172–97; Ravid, S. Abraham. "Information, Blockbusters, and Stars: A Study of the Film Industry." *Journal of Cultural Economics* 72, no. 4 (1999): 217–35; and others have found evidence that a movie's likely cumulative, weekly, or opening-week revenues increase with the rank of the star talent associated with it (Ainslie, Andrew, Xavier Drèze, and Fred Zufryden. "Modeling Movie Life Cycles and Market Share." Marketing Science 24, no. 3 (August 2005): 508–517; Albert, Steven. "Movie Stars and the Distribution of Financially Successful Films in the Motion Picture Industry." *Journal of Cultural Economics* 22, no. 4 (December 1998): 249–270; Basuroy, Suman, Subimal Chatterjee, and S. Abraham Ravid. "How Critical Are Critical Reviews? The Box Office Effects of Film Critics, Star Power, and Budgets." *Journal of Marketing* 64, no. 4 (October 2003): 103–117; Elberse, Anita and Jehoshua Eliashberg. "Demand and Supply Dynamics for Sequentially Released Products in International Markets: The Case of Motion Pictures." *Marketing Science* 22, no. 3 (August 2003): 329–254; Faulkner, Robert R. and Andy B. Anderson. "Short-Term Projects and Emergent Careers: Evidence from Hollywood." *American Journal of Sociology* 92, no. 4 (January 1987): 879–909; Litman, Barry R. and Linda S. Kohl. "Predicting Financial Success of Motion Pictures: The '80s Experience." *Journal of Media Economies* 2, no. 2 (Fall 1989): 35–50; Neelamegham, Ramya and Pradeep Chintagunta. "A Bayesian Model to Forecast New Product Performance in Domestic and International Markets." *Marketing Science* 18, no. 2 (February 1999): 115–136; Prag, Jay and James Casavant. "An Empirical Study of the Determinants of Revenues and Marketing Expenditures in the Motion Picture Industry." *Journal of Cultural Economics* 18, no. 3 (September 1994): 217–235; Sawhney, Mohanbir S. and Jehoshua Eliashberg. "A Parsimonious Model for Forecasting Gross Box-Office Revenues of Motion Pictures." *Marketing Science* 15, no. 2 (May 1996): 113–131; Sochay, Scott. "Predicting the Performance of Motion Pictures." *Journal of Media Economics* 7, no. 4 (October 1994): 1–20; Wallace, W. Timothy, Alan Seigerman, and Morris B. Holbrook. "The Role of Actors and Actresses in the Success of Films: How Much is a Movie Star Worth?" *Journal of Cultural Economics* 17, no. 1 (June 1993): 1–27.)."

53 Porter, Eduardo and Geraldine Fabrikant. "A Big Star May Not a Profitable Movie Make." *New York Times*. August 28, 2006. Last accessed April 20, 2017. ► http://www.nytimes.com/2006/08/28/business/media/28cast.html.

54 Elberse, Anita. "The Power of Stars: Do Star Actors Drive the Success of Movies?" *Journal of Marketing* 71 (October 2007): 102–120.

55 De Vany, Arthur and W. David Walls. "Uncertainty in the Movie Industry: Does Star Power Reduce the Terror of the Box Office?" *Journal of Cultural Economics* 23, no. 4 (November 1999), 285–318; Litman, Barry R. "Predicting Success of Theatrical Movies: An Empirical Study." *Journal of Popular Culture* 16, no. 4 (Spring 1983), 159–175; Litman, Barry R. and Hoekyun Ahn. "Predicting Financial Success of Motion Pictures." In *The Motion Picture Mega-Industry.* Barry R. Litman, ed. (Needham Heights. MA: Allyn & Bacon 1998), 172–97; Ravid, S. Abraham. "Information, Blockbusters, and Stars: A Study of the Film Industry." *Journal of Cultural Economics* 72, no. 4 (1999), 217–35; Austin, Bruce A. *Immediate Seating: A Look at Movie Audiences.* Belmoni, CA: Wadsworth, 1989.

with star power but usually not as much as added costs.[56] Leonardo DiCaprio appeared in three films in a single year: *Titanic*, *The Man in the Iron Mask*, and *Celebrity*. DiCaprio was paid $2.5 million for *Titanic*. Riding on its favorable early publicity, he could command $20 million for *The Man in the Iron Mask*. But that film grossed only $80 million, *Titanic* grossed $900 million worldwide. *Celebrity*, a small film by Woody Allen, sold only a puny $3 million in tickets.

In the music business, performing artists typically receive most of their compensation as royalties, that is, on a contingent basis. These are typically 7–12% of revenues of records or tracks sold. New artists' royalties are much lower than those of an established artist. Acquisition of new artists by music companies therefore helps the pivotal to profitability of those companies, because they can keep more of their music's earnings.

Managing stars is a profession in itself, with subspecialties of experts surrounding the stars: a lawyer, a business manager, a personal manager, an accountant, a talent agent, and a publicist. Many of these have support staff too. Some of these professionals are paid a straight salary, others get a share of revenues, or they are paid by the hour or by a monthly fee for a routine service, which is called a retainer, with extra services billed separately. When artists go on tour, they need promotional staff, a road crew, and often supporting artists for a performance.

A personal manager screens deals, requests for appearances, and important contacts. Business and personal managers are paid a percentage of the client's income, typically 5–10% of a music artist's gross income. Where the artist's income is very high the percentage is lower or is transformed into a flat retainer.[57] The talent agency's job is to provide the artist with work or to connect the writer with a publisher. They, too, get about 10–20% of the artist's income. In the USA, state licensing laws may require that a personal manager cannot also be a booking (talent) agent, in order to reduce conflicts of interest.

5.2.4.4 Productivity and Production Functions

Another element of hard HRM is the use of statistical methods to identify elements of productivity. Rising productivity lowers the cost of a product or improves its quality. According to one study, a 10% gain of productivity leads to a gain in market value, over time, of over 5%.[58] But what is "productivity"? As mentioned in ▶ Chap. 3, Productivity is defined as the ratio of output to input.

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

In practice, it is not easy to solve this simple equation. What measures of output should be taken into account? Physical or content units, e.g. DVDs produced, miles of cable laid, lines of code programmed, words written, music tracks recorded, minutes of film? Or, units sold? Or the value of the units sold?

One newspaper, the *Winston-Salem Journal*, quantified "newsroom productivity."[59] Reporters were expected to produce 40 stories per week based on press releases, or 15 stories per week based on meetings or police activities. Journalists' productivity was then tabulated and reviewed in a weekly "grid report." But this by-the-numbers approach created resentment, especially when it came to quality dimensions. Another way to measure productivity is by defining it by intermediary outputs that are inputs to the final product—keystrokes, or customer contacts, or phone calls made by a reporter.[60]

Another way to measure media productivity is by the ratio of employees to the final product count, such as magazine circulation. In newspaper newsrooms, a long-time rule of thumb has been one full-time employee (FTE) per 1000 circulation. But according to a 2001 survey (by the Poynter Institute) the ratio had become 1.2–1.3 FTEs per 1000. This suggests a decline in productivity thus measured. (Or, an increase in the quality of the product.) Ratios were still higher for papers with low circulation, which shows a productivity advantage for the largest papers. More recently, with shrinking newsrooms, these ratios have been dropping again.

Measuring output by physical units does not account for the quality of the product. A computer could be a basic model or a high performance one, yet they would be counted equally if the definition of outputs is "units shipped." Similarly, a computer today is much more powerful than ten years ago. This suggests the use of price (value) as the output measure.[61] But price is affected by market conditions and may reflect other factors such as the nature of competition of demand or the marketing effort by the company.

Inputs are still more complex. Is labor counted in terms of hours or by the wage bill? Does the latter include bonuses, profit participation, stock purchase discounts? And for the capital inputs that are engaged, does one include intangibles? And, if so, how to value them? Moreover, how many inputs does one include? A single-factor productivity measure, such as the contribution of labor, would omit the contribution of

56 Basuroy, Suman, Subimal Chatterjee, and S. Abraham Ravid. "How Critical Are Critical Reviews? The Box Office Effect of Film Critics, Star Power, and Budgets." *Journal of Marketing* 67, no. 4 (October 2003): 103–117; Eliashberg, Jehoshas, Anita Elberse, and Mark Landers. "The Motion Picture Industry: Critical Issues in Practice. Current Research and New Research Directions." *Marketing Science* 25, no. 6 (November–December 2006): 638–661; Faulkner, Robert R. and Any B. Anderson. "Short-Term Projects and Emergent Careers: Evidence from Hollywood." *American Journal of Sociology* 92, no. 4 (January 1987): 879–909; Litman, Barry R. and Linda S. Kohl. "Predicting Financial Success of Motion Pictures: The '80s Experience." *Journal of Media Economies* 2, no. 2 (Fall 1989): 35–50.

57 Fink, Michael. *Inside the Music Industry.* (New York: Schirmer Books, 1996), 81–101.

58 Nalbantian, Haig, et al. *Play To Your Strengths: Managing Your Company's Internal Labor Markets for Lasting Competitive Advantage*. New York: McGraw-Hill, 2004.

59 Underwood, Doug. "Assembly-line Journalism." *Columbia Journalism Review* 37, no. 2 (July/August 1998): 43.

60 Picard, Robert G. "Measuring and Interpreting Productivity of Journalists." *Newspaper Research Journal* 19, no. 4 (Fall 1998): 71–84.

61 Owyong, David T. "Productivity Growth: Theory and Measurement." *APO Productivity Journal* (2000): 19–29.

capital, energy, intermediate materials, and purchased services.

Another measure to define productivity is value-added per employee (total revenues minus cost of materials divided by the number of employees).

A production function measures a firm's output relative to input factors such as capital, labor, and materials. The analyst chooses from among several forms ("specifications") of the production equation to be measured and uses the techniques of regression analysis in order to estimate the parameters. This is discussed in greater detail in ► Chap. 3.

Several models are used for the statistical estimation of productivity. Perhaps most frequently used is the Cobb-Douglas production function. The output level Q is the result of capital K and labor L inputs.

$$Q = AK^{\alpha} L^{\beta}$$

The exponential parameters α and β are also known as the elasticities of the output with respect to capital or labor.

Also used often is "total factor productivity," a measure of the production growth that is not explained by the growth in inputs of capital and labor.[62]

Productivity measures work best for blue-collar industrial activities. It is much harder to measure the productivity of managers or mid-level white-collar jobs. The productivity of creative "black-collar" jobs is still harder to measure. Outputs are hard to define and to measure—quality differences can also be drastic; products are non-homogeneous and are hard to compare.

Several studies of media productivity have been conducted. For example, in the network services sector, Nadiri, Schankerman, Denny, and Fuss studied the productivity of the telecom industry.[63] Noam conducted a study on cable industry productivity.[64] Picard studied the productivity of the newspaper industry.[65]

US labor statistics show that labor productivity growth has been high in activities that are capital intensive. In effect, labor has been substituted by capital and the remaining workers' productivity has risen in consequence.[66] Conversely, productivity growth has been slow in labor intensive activities. For some labor intensive media activities, such as the theater, there has even been a productivity decline. Yet one has to pay more for this work than before. The cause of this is the overall rise in the productivity in the general economy. The effect is known as the "cost disease."[67] One must often pay low productivity occupations, such as some creatives in media, more than before, because they now have better-paying alternative opportunities. These increases in the cost of production may offset the modest cost savings from any technical progress in those creative activities. The labor intensive performing arts thus become relatively costlier to produce, showing negative productivity yet being better paid than before.[68]

Companies have employed many methods in the quest to raise productivity. Approaches include the introduction of more efficient technology, improvements in the process of productivity or training, and motivation of workers. Various methodologies have also been introduced to manage productivity. For example, the Six Sigma productivity growth process aims to identify company weaknesses through statistical methods and apply statistics to improvements.[69] Such statistical studies can decompose the various factors that contribute to productivity improvements.[70]

For example, factors in raising productivity of software creations were found to be:

- working faster: 8%;
- working smarter: 17%;
- work education (avoiding repetitions): 47%.[71]

The Six Sigma strategy trains employees to be "black belts," or experts, in the art of the productivity process. These black belts then train other employees. General Electric implemented Six Sigma, and claims that, within the first few years, it reduced production cost by more than $300 million.[72]

Enabling some of these techniques of hard HRM are HRIS that collect the data, which is then analyzed. One can track overall labor cost. One can look at teams or individuals, their performance, and their progress. On can identify skills and candidates for advancement. But even more importantly, one can identify trends that go beyond an individual; and one can create HR auditing systems for needs and resources, for moving and training people, and for creating a pipeline for talent and management succession. It can help in recruiting by identifying past success factors. It can prescreen large applicant pools.[73] (On the other hand, this can be a problem, too, by creating a relatively uniform workforce.)

62 Picard, Robert G. "Measuring and Interpreting Productivity of Journalists." *Newspaper Research Journal* 19, no. 4 (Fall 1998): 71–84.

63 Nadiri, M. Ishaq and M.A. Schankerman. "Technical Change, Returns to Scale, and Productivity Slowdown." *The American Economic Review* 71, no. 2 (May 1981): 314–319.

64 Noam, Eli. "Cable Productivity Likely to Slow," in *Cable TV and New Media* (March 1986), 8.

65 Picard, Robert. "Journal Articles by Robert G. Picard." Last accessed April 20, 2017. ► http://www.robertpicard.net/journalarticles.html.

66 US Department of Labor, Bureau of Labor Statistics. "Industry Productivity and Costs." Last accessed June 6, 2006. ► http://data.bls.gov/PDQ/servlet/SurveyOutputServlet.

67 The term was coined and explained by William J. Baumol and William G. Bowen, and is discussed below.

68 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge, MA: Harvard University Press, 2002.

69 Hahn, Gerald J. et al. "The Impact of Six Sigma Improvement – A Glimpse into the Future of Statistics." *The American Statistician* 53, no. 3 (August 1999): 208–215.

70 The Six Sigma method is based on sigma—σ—the symbol for a standard deviation that shows how much variation there is from the expected result. iSixSigma. "The History of Six Sigma." Last accessed April 20, 2017. ► http://www.isixsigma.com/index.php?option=com_k2&view=item&id=1505:the-history-of-six-sigma&Itemid=156.

71 Boehm, Barry. "Managing Software Productivity and Reuse." *Computer* 32, no. 9 (September 1999): 111–113.

72 Breyfogle III, Forrest W., James M. Cupello and Becki Meadows. *Managing Six Sigma: A Practical Guide to Understanding, Assessing, and Implementing the Strategy That Yields Bottom-Line Success*. (New York: John Wiley & Sons, 2001), 32–33.

73 Williams, David. "Hiring Management Systems." *PeopleClick*. Last accessed August 15, 2007. ► http://www.peopleclick.com/knowledge/ind_williams2.asp.

5.3 HRM by Negotiation: "Tough Labor"

Thus far, we have discussed elements of the analytical, number driven approach of hard HRM. We now move to a second dimension of managing media HR, that of dealing with employees collectively.

The media and media-tech workforce includes five basic types of employees, apart from top management:

- industrial workforce;
- crafts workforce;
- creatives;
- freelancers;
- middle managers.

Employees are often represented and organized by labor (trade) unions. There are three broad types of such associations:

- Crafts-based unions represent workers with particular skills, regardless of their employer.
- Industry-based labor unions representing the employees of many companies within an industry, such as the telecom sector. They often negotiate standard contracts with employer associations representing many companies.
- Company-based unions represent employees at a particular employer.

In all cases, local unions are usually affiliated with nationwide umbrella unions that deal with government relations and with organizing non-union workers into new locals.[74] Inside a company, union shop stewards, function as members' representatives to management.[75]

5.3.1 The Industrial Workforce

The industrial information sector workforce often involves manual labor working in a mass production or infrastructure setting. One example of this type of workforce is assembly line work in the IT sector. Labor unions are often active in these industries. In the USA, there are three major industrial unions for the telecom, IT, TV, and film industries:

- The Communications Workers of America (CWA), which includes the National Association of Broadcast Employees and Technicians (NABET) as well as the Newspaper Guild and many airline and health care employees. NABET is the exclusive bargaining agent for personnel at TV networks and many local TV stations.[76] CWA represented over 700,000 members in 1200 local unions in North America, many in the telecom sector.[77]
- The International Brotherhood of Electrical Workers (IBEW) represents 100,000 telecom workers. IBEW is also the bargaining agent for 300,000 employees at CBS, Disney, HBO, and several independent TV stations.
- The International Alliance of Theatrical and Stage Employees (IATSE). IATSE has 500 local chapters, mainly on the West Coast.
- In the UK, the Communication Workers Union (CWU) bargains for contracts in more than 40 companies, including British Telecom, Openreach, telecity, and NewGrid. BECTU, the Broadcasting Entertainment Cinematograph and Theatre Union, with 24,000 members, is the UK's major media and entertainment trade union.
- In Japan, the NTT Workers Union of Japan (NWJ) represents over 175,000 members of the world's largest telecom group NTT. The Japanese Mass Communications Information Culture Labor Union (MIC) represents media.
- In Australia, the Communication Workers Union (CWU) represents employees in the communications, IT, and postal industries, including 22,000 telecommunications employees.
- In Germany, the Ver.di trade union covers, among several industries, the media sector. It is the bargaining agent for about 12,600 TV employees. Ver.di represents 2.1 million retail, finance, postal, telecommunications, media sector, and other employees.
- In France, the Federation Board of Communication Culture (F3C-CFDT) is the union affiliated with the French Democratic Confederation of Labor. CFDT is a politically social democratic union federation with 60,000 members in the telecommunication industry and 18 professional branches. Le Syndicat national des médias is a media union affiliated with CFDT with a focus on TV, film, and other media-related fields.[78] Another union, the National Federation of Employees in the sector of postal activities and telecommunications (CGT-FAPT), has 32,000 members. It is a sub-division of the powerful General Confederation of Labor (CGT), politically a more leftist labor organization.

The strength of unions, however, has declined as the industrial economy has transitioned to a services-based one. In America, unionization dropped from its peak in the 1940s of roughly 35% of the labor force to about 11% in 2017.[79] For private sector non-agricultural employees, it was not half

74 Sayles, Leonard R. and George Strauss. *Managing Human Resources.* (Englewood Cliffs: Prentice Hall, 1977), 81.

75 Biz/ed. "What do Trade Unions Do?" TUC Company Facts. Last updated April 5, 2006. ► http://www.bized.ac.uk/compfact/tuc/tuc16.htm.

76 Batt, Rose, Harry C. Katz, and Jeffrey H. Keefe. "The Strategic Initiatives of the CWA: Organizing, Politics, and Collective Bargaining." Paper presented at symposium on Changing Employment Relations and New Institutions of Representation, Ithaca, New York, May 25–26, 1999.

77 CWA. "About Communication Workers of America." Last accessed April 24, 2017. ► https://www.cwa-union.org/about.

78 CFDT Médias. "Le Syndicat national des médias cfdt:Agir et proposer au cœur des medias." Last accessed April 24, 2017. ► http://www.cfdt-medias.org/index.html.

79 Bureau of Labor Statistics. "Union Members Summary." January 19, 2018. Last accessed May 7, 2018. ► https://www.bls.gov/news.release/union2.nr0.htm.

that, at 6.5% in 2017. In wired telecommunications it is 17.1% (for other telecoms such as mobile it is 10.2%). For motion pictures it is 10.1% and for newspapers 9.3%.[80] The steady decline reflects the industry's deregulation and the shrinking workforce at the heavily unionized traditional companies.

Union membership in other industrial nations has decreased too. In Japan it fell from 55.9% in 1949 to 18.5% in 2010; in France from 30% in the 1950s to 8% in 2014, even lower than in the USA. In the French private sector it is 5% (and 14% in the public sector). In the UK it is 26% and in Germany 18%. However, often the unions are the sole representatives of all employees, including non-members. In some countries they sit on corporate boards and co-administer benefit plans.[81]

Studies show that unionization has a positive effect on salaries.[82] In the USA, for example, unionized telephone operators earn almost double the wages of non-unionized workers. However, some of the difference reflects a better-quality workforce. Jobs with higher wages and more protections are usually more desirable and generate more applications, and thus enable employers to be more selective in terms of quality. Furthermore, unions upgrade the skills of their members and are often a provider of training. The IBEW in the USA, for example, offers training programs for certification for various qualifications. But higher wages also lead to lower labor mobility: 80% of telecom company technicians have worked more than ten years with the same firm. In contrast, the largely non-unionized IT industry experiences a much greater labor mobility. An *Information Week* survey indicates that the majority of IT workers had been with their then-employer for less than four years and expected to change jobs within three years. More than 40% of employees considered themselves "on the market" for new employment.[83] Unions have also been weakened as many jobs were eliminated owing to advances in technology, or through outsourcing and off-shoring. Competition—domestic and global—increased the pressure on labor costs. The number of employees in the US telecoms network sector peaked in 2001 at 1.3 million. It dropped by 115,000 in 2001 and 105,000 in 2002. Since then, the annual drop has averaged over 50,000.

The boom–bust cycle and the shrinking of wages and employment that goes with it often results in union unrest and strikes. For instance, Verizon employees struck in 1989, 1998, 2000, and 2016, and came close to it in 2003 and 2008. Employees of France Telecom went on strike in 2009, charging that stressful work conditions had led dozens of employees to take their own lives. The company then made concessions.

5.3.2 The Crafts (Skilled) Media Workforce

The second category of employee is the crafts workforce, which consists of skilled technical and artisan workers. Here, the history of labor unions has been stormy. One union activity has been to negotiate work rules, which can be onerous, and also fragment work tasks. This has affected labor costs in the film industry and contributed to "runaway productions," where films move from Hollywood to Canada and other countries, or less-expensive US locations. In response, rules were relaxed so that independent producers could make low budget non-union movies and TV shows as long as the studio had no creative control.

Newspapers, too, have had a turbulent history of industrial union conflicts. Typesetters were once powerful and regarded as the aristocracy of labor. Eventually, the increase in automated typesetting without hot-metal composing threatened employment. As a result, strikes became frequent. An epic newspaper strike in New York in 1962 shut down eight daily newspapers. After 114 days the strike ended, but several newspapers never recovered and closed for good: Hearst's *New York Mirror*, the *New York Herald Tribune*, the *New York World Telegram & Sun*, and the *New York Journal-American*.[84] To protect its members, the same union in 1973 negotiated a new contract, in which the printers agreed to let their jobs be phased out by automation in exchange for a lifetime job guarantee for each present employee.

In the UK, newspaper strikes have been frequent. The key battle was the "Wapping dispute" in 1986, when 6000 workers went on strike against Rupert Murdoch's News International and its newspapers. The 6000 union workers who stopped working were immediately fired. Murdoch could do so because the entire production operations of his major papers had been transferred overnight from Fleet Street in London to a new plant at Wapping (East of London), which had been secretly built with the pretense of being the site of a new newspaper, using members of another union (GG&PU).[85] The original unions continued to strike for a year but lost. The confrontation broke the power of UK print unions.

Another long and bitter strike was that of the Broadway stagehands in 2007, the longest on Broadway in a generation. Most shows closed down during the peak Christmas

80 Hirsch, Barry T. and David A. Macpherson "Union Membership and Coverage Database." ► *Unionstats.com*. Last accessed June 25, 2014. ► http://www.unionstats.com.

81 The Economist. "Why French Trade Unions are So Strong." March 17, 2014. Last accessed April 24, 2017. ► http://www.economist.com/blogs/economist-explains/2014/03/economist-explains-15.

82 Batt, Rose, Harry C. Katz, and Jeffrey H. Keefe. "The Strategic Initiatives of the CWA: Organizing, Politics, and Collective Bargaining." Paper presented at symposium on Changing Employment Relations and New Institutions of Representation, Ithaca, New York, May 25–26, 1999.

83 Florida, Richard. *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life.* (New York: Basic Books, 2002), 104.

84 Shafer, Jack. "Life After Newspapers." *Slate.* May 11, 2009. Last accessed June 1, 2011. ► http://www.slate.com/id/2218104/.

85 Pilger, John. *Hidden Agendas.* (London: Vintage, 1998), 459.

season. On the other side of the negotiating table was the League of American Theatres and Producers, which bargains for employers with 17 craft unions, guilds, and other associations. The strike ended with the union agreeing to greater flexibility in the ability to dismiss stagehands, but wages were raised to an undisclosed amount that was significantly higher than the 3.5% increase the theater had initially offered.

5.3.3 The Creative Workforce

The third category of employees in the media sector is that of the "creatives," often known in the film industry as "above the line" (in the budget), as contrasted with the "below the line" crafts employees. The distinction, however, is a fluid and overlapping one. Actor unions, often known as "guilds," originated in nineteenth-century theater, often to assure the payment of salaries owed, even if a show closed down. Previously, actors in a traveling show were regularly stranded in distant towns when a show closed down.[86]

In the USA, the Actors' Equity Association is a union founded in 1913 that established requirements to deal with its actor members: arbitration of contract disputes, two weeks' notice or salary for dismissals after a probation period, a time limit on unpaid rehearsals, bonds for salaries, and paid travel costs for road shows.

There are also several other theater unions in the USA, and they often do not support one other's strikes.[87, 88] In the UK, Equity represents professional performers across multiple media. In 2008, the union was able to raise the minimum wage of actors to $730. In Australia, over 22,000 employees are members of the Media, Entertainment and Arts Alliance. Live Performance Australia represents a variety of the live entertainment sector.

Just as in theater, in the early days of film working conditions were harsh. Many actors worked up to 16 h a day without overtime payments, retirement pensions, health insurance, or safety regulations. Creatives unions also exist for film actors, dancers, musicians, journalists, and others. They were subject to firing without recourse, and artists were traded among different studios. Labor unions emerged. They negotiate contracts with the studios' bargaining organization, the Alliance of Motion Picture and Television Producers (AMPTP).

One of the best-known artist's unions is the Screen Actors Guild (SAG), established in 1933. SAG negotiates with studios over long-term engagement contracts, compensation for new digital distribution, and work rules.[89] In 2008, motion picture and television actors with speaking parts were guaranteed by SAG rules to earn at least $678 per day on big-budget films and $504 per day on low budget (i.e. less than $2 million) films.[90] Extras earned $110 per day. For instance, if an actor worked on two films in a year for five days each at "scale," she would earn $6780 before deductions, per year. This is not enough to live on.

Hollywood film directors are also unionized, and guaranteed at least eight weeks of work per low-budget film and ten weeks on each big-budget film. A small-budget film director will earn at least $69,000, but top directors can earn several million dollars, in addition to a percentage of the revenue.[91]

According to US Labor Department figures, the median annual earnings of salaried producers and directors were $46,240 in 2002 ($56,090 in motion picture and video industries and $38,480 in radio and television broadcasting).[92] (The median is a more useful measure than the average, which is skewed by a few highly paid superstar directors.)

In Japan, film actors' earnings are calculated by labor contract, according to three elements: the actors' basic rank, which is based on popularity, years of experience, skills, and so on; the length of the employment arrangement; and the purpose of the work, (film, video, etc.) Average actors in Japanese films receive about $40,000. However, a star such as Ken Watanabe, who performed in *The Last Samurai* (2003), received $130,000.

There is even a Producers Guild of America, a union representing upper and middle managers.

The Writer's Guild of America (WGA) is another prominent and powerful "above the line" guild, with separate East and West Coast organizations. WGA represents between 9000 and 12,000 movie and TV writers. Of these, only several hundred make serious money. A top screenwriter may earn as much as $2 million per movie in addition to a percentage of the profits. About 2500 writers earn enough to support themselves solely from writing. But most writers are part-timers with small incomes.[93]

In the USA, some journalists are represented by the Newspaper Guild, founded in 1933 when journalists observed

86 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2002.

87 For example, many national tours of Broadway shows do not operate under contracts with Actors' Equity or the American Federation of Musicians, and instead are associated with rival unions, the Stage Directors and Choreographers Society and the International Alliance of Theatrical Stage Employees.

88 Brown et al. *Wonderful Town: The Future of Theater in New York*. New York: National Arts Journalism Program, 2001.

89 Baskerville, David and Tim Baskerville. *Music Business Handbook & Career Guide*. 8th ed. (Thousand Oaks: SAGE Publications Inc., 2006), 181–190.

90 Screen Actors Guild. "SAG Low Budget Contract Signatory Process." *SAGINDIE*. Last accessed May 21, 2014. ► http://www.sagfoundation.org/files/SAG_LB.pdf.

91 Susman, Gary. "We Call it Martian Accounting." *The Guardian*. August 30, 2001. ► https://www.theguardian.com/film/2001/aug/31/artsfeatures.

92 Bureau of Labor Statistics, US Department of Labor. "Actors, Producers, and Directors." Last modified March 2004. ► http://www.bls.gov/oco/ocos093.htm.

93 Lazarus, Paul N. *The Movie Producer: An Industry Veteran Reveals What It Takes To Be a Producer in Today's Hollywood.* New York: Barnes and Noble Books, 1985.

that unionized truck drivers made much more money than they did. In 1987, the union had 34,828 members. The union's presence was not welcome among publishers. The American Newspaper Publishers Association went on record in the 1980s as being committed to "wherever applicable, a union-free environment."[94] Union membership declined, and in 1995 it merged into the CWA.

Even with unionization, journalist salaries are low. Average starting salaries in 2012 for journalism school graduates were $40,900. For editors, in other words seasoned journalists, the average salary was $60,490 (in New York City $80,200)[95]; and for reporters/correspondents it was $43,640. At the unionized *Washington Post*, a highly desirable place for a journalist to be, the negotiated minimum salary after five years on the job was $52,000. Smaller papers paid less. Jobs were under pressure as circulation and ad revenues declined and publishers cut costs. Journalism outsourcing became a trend. Thomson Reuters offshored some of its Wall Street news reporting to India. The company planned to move about 10% of its workforce (1800 workers) to Bangalore and several production departments to Singapore, which included the editing, writing, and data extraction departments.

The American Federation of Musicians represents professional instrumentalists. It was established in 1896 to prevent the hiring of out-of-town musicians who would then compete with the local talent. Recording technology began displacing live musicians in the 1920s, and over the years musicians have been facing increasing substitution by electronic instruments that enable a "virtual pit orchestra."[96] For Broadway productions, union rules required a minimum of 25 "pit musicians" for musicals, lowered in 2003 to about 19. Each of them cost a minimum of $1700 per week, accounting together for about 6% of a ticket price.

Large orchestras, with the cream of classical musicians performing, are often unionized. A near-strike of the New York Philharmonic Orchestra resulted in a 13% raise in the minimum salary of orchestra members. The annual basic salary of a New York Metropolitan Opera orchestra member was $110,869 in 2011, before payments for extras such as overtime.

The question is, why is there often such strong unionization in media crafts and among media creatives? There are at least five factors:

Oversupply The supply of aspiring artists is large and not particularly price sensitive to entry-level pay. W.B. Yeats once opened his address to his fellow poets' Rhymers' Club in London by saying: "The only thing certain about us is that we are too many."[97] The high level of competition for jobs in the creative sector depresses the average compensation. Many creatives are willing to work for nothing just for the experience, the opportunity to be noticed, to build a résumé, or to express themselves. But when everyone is an artist yet no one needs to spend money on art, markets fail, and there is no economic foundation for artists.[98]

As mentioned, American music schools each year graduate about 14,000 students with performance degrees. There is also a significant immigration of talent. But there are only 250–350 job openings a year in symphony orchestras. Pay is low. In 2008, a professional full-time dancer was often paid $15,000 per year. In many creative industries, jobs are shrinking. Musicians are being replaced by recordings. In publishing and journalism, 260,000 jobs were cut between 2007 and 2009 alone. Since 2000, around 80% of cultural critics writing for newspapers have lost their jobs. There are only two full-time dance critics in the USA.

One of the functions of unions is therefore protectionist: to limit competition and to reduce access by newcomers. Those on the inside with a union-protected job can expect decent returns. As an example, in addition to their $110,869-plus salaries, New York Metropolitan Opera orchestra members receive compensation for rehearsals at an hourly rate of $80, averaging ten hours per week, and they can provide lessons to private students and give their own performances. This level would be rare for non-union creative jobs.

Money Do unions raise income? They do for those who have a job, but have a negative impact on those who seek employment. They have a smaller impact on the compensation of creatives than for craft and industrial employees. The talent unions have less bargaining power and less cohesion. Top stars negotiate their own deals rather than letting unions represent them.

Political Leverage Beyond work conditions, labor unions wield broader political power where they are affected financially and ideologically. In 2008, six unions representing 11,000 French TV network staffers and 4000 public radio station employees walked out in protest over President Sarkozy's plan to ban advertising from public TV channels, which would cost those public channels over $1 billion a year in revenue. In 2006, over 1000 Korean film stars, production staffers, and local artists rallied to protest the government's change to the screen import quota system, which protects Korean movies from foreign competition.

Stress The high level of stress in creative fields is due to several factors, including risk, long periods of unemployment and job search, intense competition, frequent rejection, an often short productive life as an artist (especially in film and dance),

94 Herrick, Dennis F. *Media Management in the Age of Giants: Business Dynamics of Journalism*. (Ames: Wiley-Blackwell, 2003), 74.

95 Beaujor, Andrew. "Why an 'average' journalism grad's salary might not be and average salary where you work." *Poynter.* January 29, 2013. Last accessed April 28, 2017. ► https://www.poynter.org/2013/why-an-average-journalism-grads-salary-might-not-be-an-average-salary-where-you-work/202172/.

96 Glasel, John. "Automation Drains Musical Gene Pool." *Billboard*. New York: October 15, 1988.

97 Giraldi, William. "Creative Destruction." *New Republic.* February 4, 2015. Last accessed April 28, 2017. ► http://www.newrepublic.com/article/120932/scott-timberg-culture-clash-review-americas-creative-destruction.

98 Giraldi, William. "Creative Destruction." *New Republic.* February 4, 2015. Last accessed April 28, 2017. ► http://www.newrepublic.com/article/120932/scott-timberg-culture-clash-review-americas-creative-destruction.

and long, irregular work hours. Musicians and actors experience higher stress levels owing to their grueling schedules. They typically rehearse during the day, perform at night and at weekends, engage in a search for their next engagement, and spend time away from home.[99]

A study of work stress in a group of freelancers ($N = 290$) working in the German media industry shows significant effects of high effort in combination with low reward (money, esteem, promotion prospects, job security) on subjective health in men and women, with the effects being higher in men. Journalists are in the same situation. They face the constant pressure of deadlines and a competitive work environment, at times under dangerous conditions. Around the world more than 1000 journalists and media personnel have been killed in a decade.[100]

Respect Unions help to reduce the perceived lack of respect from management (the "suits") and to protect against favoritism, discrimination, and harassment. Writers have often penned biting exposés of the inner workings of Hollywood film studios. Examples include Budd Schulberg's *What Makes Sammy Run*, F. Scott Fitzgerald's *The Last Tycoon*, Nathanael West's *The Day of the Locust*, and William Faulkner's *Golden Land*.[101] Unions are, in part, a response by those who feel more talented but less powerful than their management bosses.

5.3.3.1 Case Discussion

Disney and the Cartoonist Union

In 1941, Disney animators went on strike for six weeks until a federal mediator ruled in the union's favor. This event, despite occurring many years ago, has shaped labor-management relations at Disney ever since.

Walt Disney founded the company with his brother Roy when he was only 24 years old. He was informal and approachable,[102] and the company's management style reflected his characteristics. A former Disney employee reminisced about the "good old days when we had a big happy family all packed into a small building ... In those days every man in the organization had the good old 'do or die for Disney' spirit." Disney artists considered themselves the creative elite, working under an admired boss.

But by 1941 the animators had become angry over profit sharing they felt had been promised but not provided, as well as unfavorable work conditions. They organized and went on strike.[103] The strike lasted for five weeks and forever changed employee relationships at Disney. Fearing the loss of government contracts and the recall of bank loans, Walt eventually capitulated. The Screen Cartoonists Guild was recognized as the bargaining agent, wages increased, and fired workers were reinstated. Walt called the strike a catastrophe that destroyed the studio's spirit.[104] As a result, the Disney Company changed. Employment dropped from 1200 to 694 as work was outsourced to freelancers. Walt distanced himself from the workforce. The strike left him a changed man. Once politically on the left, he now moved to the far right and blamed Communists for the trouble.

The strike, though long in the past, still motivates animators today. They view their strike as their War of Independence. Today, the Animation Guild Local 839 IATSE represents most Hollywood animation writers and artists who work for Disney and DreamWorks Animation. In 1979, Local 839 went on strike, winning a "runaway clause" that guaranteed local employment before work could be subcontracted out of Los Angeles. In 1982, however, the studios regrouped and defeated the union after a ten-week strike. Virtually all TV animation work was subsequently sent overseas.[105] In 1999, Disney's animation department still had 2200 employees, but by 2004, the numbers had shrunk to only 600. With such pressure, there was another strike that year. As a result, the union minimum wage for a computer-generated image (CGI) animator was set at $1375 per week. Union CGI animators also receive health and pension plan benefits.

More generally, Disney's employees are represented by 30 unions under eight contracts[106]; 14 unions negotiated under two Trade Council agreements. The Service Trades Council representing more than 20,000 Disney employees went through tough negotiations with Disney in 2004. The main disagreement was over management's effort to drop the existing pension plan and replace it with a 401(k) plan that would match employee's contributions up to 2% of salary. Disney's plan did not require low-wage workers to contribute.

Disney also has to deal with unions in other countries. In its Disneyland Paris theme park, it dealt with the protests by many French unions, including CFTC and Force Ouvrière, which strongly protested working conditions they believed led to the death of an employee in 2010.[107]

One may shrug away these conflicts as part of the usual tough bargaining of industrial relations. Disney's management did just that. But when that same management was challenged by dissident shareholders, most employees got even and voted to oust management. Soon thereafter, the board retired CEO Michael Eisner and his team.

Given this history, what should Disney do today, if anything, to improve its relationship with labor unions?

99 Bureau of Labor Statistics, US Department of Labor. "Actors, Producers, and Directors." Last modified March 2004. ► http://www.bls.gov/oco/ocos093.htm.

100 Giga, Sabir I., Helge Hoel, and Cary L. Cooper. "Violence and Stress at Work in the Performing Arts and in Journalism." *Sectoral Activities Programme*. University of Manchester Institute of Science and Technology, June 2003.

101 Epstein, Edward J. *The Big Picture: The New Logic and Power of Hollywood.* New York: Random House, 2005.

102 Gabler, Neal. *Walt Disney: The Triumph of the American Imagination.* New York: Alfred A. Knopf, 2006.

103 Sito, Tom. "The Disney Strike, 1941." *The Animation Guild.org*. Last accessed April 28, 2017. ► https://animationguild.org/about-the-guild/disney-strike-1941.

104 Gabler, Neal. *Walt Disney: The Triumph of the American Imagination.* New York: Alfred A. Knopf, 2006.

105 "The '50s Through the '90s." *The Animation Guild*. 2010. *The Animation Guild*. Last accessed April 28, 2017. ► http://animationguild.org/the50s-the90s/.

106 Rubis, Leon. "Disney Show & Tell." *HR Magazine*, April 1998.

107 Lichfield, John. "The Dark Side of Disneyland Paris." *The Independent*. May 6, 2010. Last accessed June 13, 2011. ► http://www.independent.co.uk/news/world/europe/the-dark-side-of-disneyland-paris-1964505.html.

5.3.4 Freelancers and Unions in the 'New Economy'

The image of Silicon Valley culture is egalitarian and democratic, with employees offered ownership in the company and opportunities for advancement. Nevertheless, labor in dot-com companies began to organize.[108] For employees, factors contributing to dissatisfaction include the perception that middle-aged workers are obsolete, the disparity in rewards relative to top executives, and low job security.[109] The growing threat to the labor force in the 'new economy' has been outsourcing and off-shoring. Software developers earn $60 per hour in the USA and $6 per hour in India, on average.[110] There is also an immigration of talent. From 2001 to 2003 alone, about 180,000 new skilled workers entered the USA to join the computer field.[111] The Programmers Guild attempts to combat foreign competition by resisting a variety of tech visas which would allow foreign workers to work in the USA.

High-tech unions, however, face considerable resistance. This push-back comes primarily from entrepreneurs who feel that the restrictions promoted by unions threatens the entrepreneurial essence of their companies.[112]

The second thrust of unionization is the issue of freelancers. More and more people work from home or have become independent contractors. In 2010, according to US labor statistics,[113] 6.6% of all workers were fully home workers (up from 4.8% in 1997), and 3.8% of workers with college education were mixed workers (working at least one day a week at home).

Microsoft was involved in labor disputes in 1999 over freelancers. A third of Microsoft's workforce were, in the oxymoronic term, "permatemps." This gave Microsoft and other tech firms flexibility, but led to high levels of employee insecurity.[114] The primary concern of permatemps is that despite often decent take-home pay, they lack benefits and job security. As their demands expanded, the Washington Alliance of Technical Workers began to unionize these white-collar tech workers. They also went to court. In the case *Vizcaino v. Microsoft*, an appellate court ruled that the workers Microsoft hired as "independent contractors" were actually common law employees and were thus entitled to the same access to pension plans and other benefits that formal employees enjoyed.[115] In response, some employers created access arrangements for health insurance. The Health and Welfare Fund in the film industry served as a model for providing benefits in project-oriented industries such as software development.[116]

The trends are moving in the direction of independent contractors and freelancers rather than traditional employees. Technology is accelerating these trends. The number of people in the USA who use some form of telework in 2015 has been 35 million (International Association for Telework). Another survey, in a 2015 Gallup Poll, showed that about 58 million people (37% of the US workforce) telecommuted, with the average being two days a month.[117] In total, 20 million people worked at home as part of their primary job in 2001 (National Bureau of Labor Statistics). Over half of those who worked at home were salary workers taking work home unpaid; 30% were self-employed. Only 17% had a formal telework arrangement with their employers.

One reason for telecommuting is that people are spending more time than ever getting to work. During 1990s, a typical West Virginia commute rose from 21 to 26.2 minutes. Every extra minute of commute adds up to eight hours of lost time per year per person and 450,000 years of lost time for the entire USA. Traffic congestion costs the USA an estimated $78 billion in lost productivity and wasted fuel every year.[118]

It is claimed that employers can save 63% of absenteeism costs per teleworker, and telework can cut corporate real estate costs by 40–90%.

At AT&T, 33% of managers telecommute at least once a week, and the company claims that it saves over $150 million per year: $100 million in productivity gain, $35 million in office space reductions, and $15 million in lower employee turnover.[119]

Telecommuting studies report consistently positive productivity changes. Yet people resist a full telecommute. Management concerns are about lower direct control and supervision, less efficient transmission of tacit knowledge/norms, and larger security issues. On the employee side, telecommuting leaves those choosing it feeling isolated, out of the loop, and less likely to get promoted. They are also likely to be replaced more readily, since it may be just as easy (but cheaper) to hire a telecommuter in India.

108 Greenhouse, Steven. "The First Unionization Vote by Dot-Com Workers is Set." *New York Times*. January 9, 2001. Last accessed April 28, 2017. ► http://www.nytimes.com/2001/01/09/business/technology-the-first-unionization-vote-by-dot-com-workers-is-set.html.

109 Batt, Rosemary et al. "Work Patterns and Workforce Policies for the New Media Industry." *EPI Book*. Washington, DC: Economic Policy Institute, 2001; Fraser, Jill Andresky. *White-Collar Sweatshop.* (New York: W.W. Norton and Co, 2001), 140.

110 Farrell, Diana et al. "Offshoring – Is it a Win-Win Game?" *McKinsey Global Institute.* August 2003. Last accessed April 28, 2017. ► http://www.mckinsey.com/global-themes/employment-and-growth/offshoring-is-it-a-win-win-game.

111 Francis, David R. "Endangered species: US Programmers." *The Christian Science Monitor*. October 14, 2004. Last accessed April 28, 2017. ► http://www.csmonitor.com/2004/1014/p17s01-coop.html.

112 Girard, Kim. "Unions? Not in this Valley." *Fast Company.* September 1, 2001. Last accessed June 16, 2010. ► http://www.fastcompany.com/magazine/74/unions.html.

113 Mateyka, Peter J., Melanie A. Rapino, and Liana Christin Landivar. "Home-Based Workers in the United States: 2010." *U.S. Census Bureau.* October 2012. Last accessed April 28, 2017. ► http://www.census.gov/hhes/commuting/files/2012/Home-based%20Workers%20in%20the%20United%20States-Paper.pdf.

114 Pederson, April. "Should High-Tech White Collar Workers Unionize?" *Speak Out.* June 6, 2000. Last accessed March 25, 2004. ► http://speakout.com/activism/issue_briefs/1284b-1.html.

115 Muhl, Charles J. "What is an Employee? The Answer Depends on the Federal Law." *Monthly Labor Review* 125, no.1 (January 2002), 3–11.

116 Batt, Rosemary et al. "Work Patterns and Workforce Policies for the New Media Industry." *EPI Book*. Washington, DC: Economic Policy Institute, 2001.

117 Jones, Jeffrey M. "In U.S., Telecommuting for Work Climbs to 37%." *Gallup.* August 19, 2015. Last accessed April 28, 2017. ► http://www.gallup.com/poll/184649/telecommuting-work-climbs.aspx.

118 Belsie, Laurent. "Commutes Get Longer, More Rural." *Christian Science Monitor.* May 31, 2002. Last accessed April 28, 2017. ► http://www.csmonitor.com/2002/0531/p01s01-ussc.html.

119 YouCanWorkFromAnywhere.com. "Telework America 2001 Study." Last accessed April 13, 2004. ► http://www.youcanworkfromanywhere.com/infocenter/facts.htm.

The freelancers themselves incur substantial transaction costs. One study found that such employees spend only 49% of work time in new media on direct production. The remainder is spent on searching for new work and on client relations, that is on developing future employability.[120]

In 2013, taxi drivers in California and Massachusetts brought a class action lawsuit representing 385,000 drivers against the taxi company Uber, alleged that they should be treated as employees and not as independent contractors. Specifically at issue was the fact that Uber was classifying drivers as independent contractors but was exerting control over them in the form of firing and penalizing for not consistently accepting trip requests. In 2016 Uber settled with the drivers, agreeing to pay $84 million along with working to create better rules and communication with drivers. The settlement preserved the status of Uber drivers as independent contractors in California and Massachusetts.[121]

More generally, as the so-called "gig economy" has risen, so too has the number of independent contractors, causing the Bureau of Labor Statistics in 2017 to begin collecting data on the number of such independent contractor workers.

5.3.5 Building Relationships with Unions

In an environment with significant union presence, it becomes an important management skill to deal constructively with unions. Companies need to build and maintain relationships with labor unions as an investment in good work relationships. These relationships do not form overnight and it takes a long time to establish the necessary credibility.[122] This starts with understanding the other side. Union officials sincerely believe that they provide an invaluable service to their members, including higher wages, greater job security, and due process protection against arbitrary decisions.

Advice by other managers on how to build relations with unions includes: people want their concerns to be heard and then addressed; stay in touch; meet regularly with employee representatives to hear about problems; solicit advice; be available; stress partnership and common goals; be open to ideas and suggestions.[123] It is important to an employer's success in negotiating with the representatives of employees to have established and maintained solid personal relationships with them. Such relationships take a long time to create.

Management must carefully prepare the data on which to base its negotiations: data on pay and benefits, comparisons with local rates, and with rates paid for similar jobs within the industry.[124] There may be a need to construct a financial model to compute the costs of various benefits.

Labor laws vary in different countries, but generally set out categories of issues that are subject to bargaining. Subjects over which bargaining is usually legally mandatory include wages, hours, rest periods, layoffs, transfers, benefits and severance pay. Bargaining tends to go through several stages. First each side presents its demands. Second, demands are reduced and traded off. Third, the parties form joint subcommittees to try to work out difficult issues. An informal settlement is reached, and each group goes back to its constituency. Finally, the agreement is finalized and signed.

To be successful, negotiators on both sides should have clear objectives, have patience, be well prepared with data, be fair, ignore rhetoric, be good listeners, and be careful about details. They must understand the other side's motivation, needs, personalities, priorities, and need for face saving.

In negotiations, parties usually take a "positional" bargaining technique, where each party takes a position and argues vigorously for it. This technique, while common, often creates problems. Instead, it is often more effective if the parties employ "principled bargaining," which focuses of their fundamental interests and identities, not on declared positions. They should generate a variety of options for the other side rather than on a "take-it-or-leave-it" basis.[125]

If negotiations break down, an "industrial action" may take place, such as a strike, a work-by-the-book, or a go-slow. Employers can engage in a lockout, in which employees cannot work and are unpaid. Strikes are highly regulated through law. In most countries, essential services such as emergency communications are excluded from industrial action.

Management should also consider mediation before it comes to a strike or lockout. Such mediation is cheaper than strikes. It must be based on confidential discussions by both sides with the mediator in order to identify issues, explore options for agreement, and to uncover unspoken causes of conflict.

5.3.6 Middle Managers

Top leaders get all the attention. Corporate CEOs have developed an aura in which they somehow combine the talents of a visionary, penny pincher, master of technology, global strategist, problem solver, motivator of people, autocrat, specialist, generalist, bureaucrat, politician, VIP gladhander, coach, public spokesperson, lobbyist, workaholic, social worker, slave driver, legal eagle, information processor, numbers cruncher, Wall Street insider, and marketing

120 Batt, Rosemary et al. "Work Patterns and Workforce Policies for the New Media Industry." *EPI Book*. Washington, DC: Economic Policy Institute, 2001.

121 Isaac, Mike and Noam Scheiber. "Uber Settles Cases With Concessions, but Drivers Stay Freelancers." *New York Times.* April 21, 2016. Last accessed April 28, 2017. ► http://www.nytimes.com/2016/04/22/technology/uber-settles-cases-with-concessions-but-drivers-stay-freelancers.html.

122 Ajalat, Peter B. "Union Organizing, Negotiations and Contract Administration: Perspectives of a Former Union-Lawyer Now Laboring for Management." *The Metropolitan Corporate Counsel.* November 2004.

123 Haring, Bob. "How to Build Relationships With Labor Unions." *Houston Chronicle*. Last accessed April 28, 2017. ► http://smallbusiness.chron.com/build-relationships-labor-unions-43674.html.

124 Citeman. "Management and Union Negotiations." July 3, 2008. Last accessed April 28, 2017. ► http://www.citeman.com/3566-management-and-union-negotiations.html.

125 Morphis, Jillian N. "Negotiations Between the WGA and AMPTP: How to Avoid Strikes and Still Promote Members' Needs." *Pepperdine Dispute Resolution Law Journal* 12, no. 525 (2012): 525–50.

whiz. Yet most of an organization's work is managed not at the top but in the middle. Middle managers are the layer of supervision and co-ordination between the top leadership and the main workforce. Middle managers transact vertically (up and down the hierarchy) as well as horizontally with other departments.[126] They are the glue that holds the companies together and upholds corporate culture.[127]

There was not much middle management in the pre-industrial firm, which usually consisted of only one or two organizational levels, with foremen or masters' filling the intermediate functions. The industrial firm added many more middle managers for relay and supervisory functions. Middle managers sent decisions down the hierarchy and information back up to the top. This was not a particularly efficient way to handle communication flows. Much was lost in the process. Hence, when the technological tools of IT emerged they were seized with eagerness. Top management obtained greater powers to monitor and observe from a distance, and middle management lost its influence.[128]

With information technology systems able to relay information, firms found several layers of management redundant. According to some estimates, many large companies cut the number of management layers by half. For example, in one reorganization GM decreased its number of management layers from 28 to about 19, and Toyota from over 20 to 11. Bill Gates, as CEO, stated that he wants there to be "no more than six levels of management between me and anyone in [Microsoft]."[129]

Owing to consolidation, restructuring, and communication technology that connects top management directly to lower level activity, the number of middle managers has declined while their responsibilities have grown. It has been observed that middle managers are often the unhappiest people in the organization–overworked and undervalued. A 2007 Accenture survey of middle managers around the world found that 20% reported significant dissatisfaction with their current organization and another 20% reported that they were looking for another job. A major reason was lack of prospects for advancement. Yet the direct and indirect cost of turnover of middle managers is very high for companies.

Everett Rogers, who studied the diffusion of innovation inside media companies, concluded that only approximately 10% of all innovative diffusion succeeds, often owing to internal resistance.[130] One study looked at middle level newspaper professionals in Denmark.[131] It found that they often did not buy into innovation. In the absence of such engagement, initiatives for change by top management went nowhere.

In a good number of media organizations middle managers exhibit more solidarity with the "floor" than with top management. Part of the problem of managing change in media is related to professional principles of journalistic independence, and the notion that creativity is better than control. This makes it difficult to manage change in newspapers. The culture of journalism—skepticism, confrontation, and ideals of independence—adds to the barriers for organizational change. The Danish study concluded that the process of change occurred in spite of the organizational culture, not because of it. Middle media managers, it was observed, rarely pursued change to increase economic performance. Therefore change must be advocated as a necessary method for achieving higher content quality and better working conditions rather than being based on economic reasons.

To engage middle managers one must keep them in the loop, inform them, and share the broad direction in which the firm is going. This is followed by two-way discussions that include potential adjustments of top management's plans, description of clear goals, and clear arguments about individual roles in meeting the goals.

To increase middle managers' productivity, it is helpful to create a development and training program that includes communication skills, change management, and project management skills. Supervisors need to be trained to properly communicate with employees and treat them well, to administer policies fairly, to motivate employees, to create positive morale, and to improve performance.[132] It helps to encourage middle managers to link up with middle managers from other companies or divisions. There is a role for middle management in horizontal knowledge transfer. It has been observed that in traditional firms with several product divisions, amazingly little information is often transferred horizontally. One important role for middle management today is therefore to serve as interdivisional knowledge connectors.[133] Similarly, middle managers carry in their heads and transfer across time the "institutional memory" (knowledge of a company, and its culture, methodology, etc.).[134] For continuity, companies therefore need a certain number of such long-time employees.

126 Knowledge@Wharton. "Caught in the Middle: Why Developing and Retaining Middle Managers Can Be So Challenging." May 28, 2008. Last accessed April 28, 2017. ► http://knowledge.wharton.upenn.edu/article/caught-in-the-middle-why-developing-and-retaining-middle-managers-can-be-so-challenging/.

127 Hodes, B. "3 Strategies to Develop Middle Management." September 16, 2012. Last accessed April 28, 2017. ► http://www.traininmag.com/content/3-strategies-develop-middle-management.

128 Noam, Eli. "The Impact of Accelerating Knowledge on the Business Firm." In Antonio Pilati and Antonio Perrucci. Eds. *Economia della conoscenza: profili teorici ed. evidenze empiriche.* Bologna: Il Mulino, 2005.

129 Gates, Bill, Nathan Myhrvold, and Peter Rinearson. *The Road Ahead.* New York: Penguin, 1995.

130 Rogers, Everett M. *Diffusion of Innovation,* 5th edition. New York: The Free Press, 1995.

131 Lund, Anker Birk. "Diffusion of Innovation in News Organizations: Action Research of Middle Managers in Danish Mass Media." In *Management and Innovation in the Media Industry*, editors Cinzia Dal Zotto and Hans Van Kraoenburg. Northampton, MA: Edward Elgar Publishing, 2008.

132 Ajalat, Peter B. "Union Organizing, Negotiations and Contract Administration: Perspectives of a Former Union-Lawyer Now Laboring for Management." *The Metropolitan Corporate Counsel,* November 2004.

133 Bartlett, C.A. & S. Ghoshal. "Beyond the M-form: Toward a managerial theory of the firm" *Strategic Management Journal* 14, Special Issue (Winter 1993): 23–46.

134 Cairncross, Frances. *The Company of the Future*. (Cambridge, MA: Harvard Business School Press, 2002), 70–90.

5.4 HRM by Human Touch: "Soft Control"

5.4.1 Soft Control

The classic HR approach, augmented by the methodologies of "hard HRM," has been that HR management should be based on clear performance measures of employees. Such standards are based on formalized targets and performance measurement, with rewards based on an analysis of the difference between the two. Increasingly, however, it is realized that such formal procedures can have a cost in stifling creativity and energy, and that "soft controls" based on interpersonal relationships are often more effective in enhancing performance. "Soft" does not mean "unimportant" or "indulgent." Examples of soft controls include[135]:

- setting tone at the top and leadership;
- empowerment of initiatives throughout the organization;
- ethical climate, shared values, and mutual trust up and down the hierarchy;
- sense of community, shared values, and joint accomplishment;
- physical comfort, safety, respect;
- vertical and horizontal fairness in compensation and opportunities;
- personal growth opportunities.[136]

5.4.2 Managing and Motivating the Creative Workforce

Creativity may be described as a process in which expertise in a specific field is combined with unconventional thinking that results in either new solutions or new questions. The creative process operates as a five-step process. The first step, immersion, is the *assembly* of information. The second step is *digestion*, in which the information gets embedded in the mind. The third step, *incubation*, is moving the problem out of the conscious mind and into the sub-conscious to do the work. It is then the fourth step, *illumination*, in which a new idea is born. This is followed by a fifth step, *verification*, when the idea gets a reality check and is moved into practice.[137]

The task of an organization is to create the conditions for such creativity to flourish, within the imperatives of an often large organization that is more bureaucratized than a start-up. By suppressing creativity, one often loses some of the most valuable people of an organization who are at the core of innovation and new products. They are also the most mobile of employees.

The "creative class" includes people working in the cultural industries such as art, theater, film, publishing, music, photography, fashion, advertising, design and journalism.[138] Around that core are people in finance, law, business, health care, and counseling.[139] Within this category, the people working in science and engineering, computer and mathematics, education, art, design, and entertainment constitute the "super-creative core" of the creative class, accounting for 12% of the entire workforce, according to Richard Florida. It made up only 2.5% of the workforce in 1900, 5% in 1960, 8% in 1980, 9% in 1990, and 12% in about 2000.[140] Within that still large number, some people are the true creators and innovators, surrounded by many others who turn their ideas into reality. Often the lines are blurry. As Alain Levy, former CEO of EMI Music, put it, "most people in the creative world think that they are artists themselves."[141]

What are the characteristics of members of the creative class? They value individuality, meritocracy, diversity and openness, professional quality, and a non-routine nature of work. Creatives are typically less structured and organized than others. They are more likely to describe what they do than who they work for, and identify less with their organization. Especially they tend to take pride in the quality of their work.[142] It is often harder to coerce creative employees to lower quality standards than to raise them. Creatives like excitement and stimuli, and tend to be more neurotic.[143] Incentives for creative tasks must be more than money.[144, 145]

In a survey of IT technologists, pay is only the fourth most important factor, far below challenge and flexibility. Similarly, benefits is relatively low on the ranking at #7. Other important factors for technologists include the atmosphere at the workplace, the ability to dress casually, opportunities for innovative work, individual recognition, and personal contribution to success.

If top smart and creative people have one defining trait it is that they resist being led. Their characteristics include: they know their value to the organization; they are smart about how the organization works; they leapfrog within the

135 Roth, Jim. "Soft and Strong: A Best-practice Paradox." *Tone at the Top* 50 (March 2011). Last accessed April 28, 2017. ► https://global.theiia.org/knowledge/public%20documents/tat_march_2011.pdf.

136 Hartmann RC, F.G.H. and Sergeja Slapnicar. "Control Systems: "Hard" and "Soft" Management Controls." *MCA*, no. 2 (March 2007): 26–31.

137 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, Fourth Edition. New York: Irwin/McGraw-Hill, 1998.

138 DeFillipi, Robert, Gernot Grabher, and Candace Jones. "Introduction to Paradoxes of Creativity: Managerial and Organizational Challenges in the Cultural Economy." *Journal of Organizational Behavior* 28, no. 5 (July 2007): 511–521.

139 Florida, Richard. *The Rise of the Creative Class.* (New York: Basic Books, 2002), 8.

140 Florida, Richard. *The Rise of the Creative Class.* New York: Basic Books, 2002.

141 Aris, Annet and Jaques Bughin. *Managing Media Companies: Harnessing Creative Value,* 2nd Edition. West Sussex: Wiley, 2009.

142 Noam, Eli. "The Impact of Increased Knowledge on the Business Firm: The Medium is the Company." Project on the *Economics of Knowledge.* December 1, 2003. Last accessed April 28, 2017. ► http://www.citi.columbia.edu/elinoam/articles/ImpactOfIncreased.pdf.

143 Gelade, Garry A. "Creativity in Conflict: The Personality of the Commercial Creative." *The Journal of Genetic Psychology* 158, no. 1 (March 1997).

144 Share, Ken A. "Interview with Richard Florida, Author and Professor at George Mason University." *Washingtonian Magazine*, August 2006. Last accessed April 30, 2017. ► https://www.creativeclass.com/rfcgdb/articles/166_-_interview_with_richard_florida__.pdf.

145 See also: Murphy, Chris. "2014 US IT Salary Survey." *InformationWeek Reports.* May 19, 2014. Last accessed April 30, 2017. ► http://www.informationweek.com/strategic-cio/executive-insights-and-innovation/it-salary-survey-2014-benchmark-your-pay/d/d-id/1252902.

corporate hierarchy; they are well connected with outside professionals; they must be kept challenged and courted to remain committed; and they are mobile.[146]

There are several approaches to motivating creatives. Identifying these perspectives is part of a wider discipline called "organizational behavior," which studies the functioning and interaction of people in companies or other entities.[147] Successful people management depends on understanding personalities and motivations.

5.4.2.1 Models of Personality

To create a fit between employees and their jobs, personality tests have been used to help in recruitment, motivation, and assignment of responsibilities. Perhaps the most widely used is the Myers-Briggs model, a widely used personality test that characterizes people based on four dimensions:

■ Introvert Versus Extrovert

Introverts focus inwards on ideas and experience, communicate by writing, and learn best by reflection or mental practice. In contrast, *extroverts* focus outwards on people and activity, communicate by talking, and learn best by doing or discussing.

■ Sensing Versus Intuition

Sensing individuals prefer to receive information that is real, factual, concrete, and actual. Individuals guided by *intuition* trust inspiration and are imaginative and verbally creative.

■ Thinking Versus Feeling

Thinking individuals are analytical, logical, and use cause-and-effect reasoning. In contrast, *feeling* individuals are empathetic, guided by personal values, and assess the impact of decisions on people.

■ Judging Versus Perceiving

Judging individuals organize their lives, are scheduled, and methodical. In contrast, *perceiving* individuals are spontaneous, flexible, and change plans.

Thus, individuals can be assigned to one of 16 combinations based on these four pairs, with each characteristic denoted by its initial. Managers would probably classify as ESTJ—extroverted, sensing for data, thinking, and judging. ESTJ types are practical problem-solvers. They like actions, the spoken word, facts, and logic in their decision-making.

On the other hand, most creative types would probably classify themselves as the exact opposite: IIFP—introverted, intuitive, feeling-oriented, and perceiving. IIFP types operate by their thoughts, felt emotions, and personal values. They use their imagination to solve problems.[148]

Geeks—technology-savvy people who design or run high-tech products—are different again. Most would probably classify themselves as ISTP on the Myers-Briggs test—introverted, sensing, thinking, and perceiving.

Similarly, technology "geeks" are resistant to leadership, yet may be more in need of it than any other group of employees. Conversely, business managers often find geek values baffling. Conflicts arise in structured organizations where managers seek stability and control. To be an effective leader of geeks, power and authority are a less useful tool for moving a project than creating motivation. In consequence, the management of technical teams by people who understand geek values and patterns has become a specialty unto itself.

Different personality types require different approaches by managers, and their mix requires even more attention and focus. A J personality will like to make lists and start early. In contrast, a P personality likes to make fast and last-minute efforts. Not understanding the different personalities can lead to a misreading of the motives of others.[149] Introverts consider group discussions stressful, while extroverts like them as energizing and productive. Managers must create conditions that support the working styles of different personality types.[150] For example, by circulating written information in advance of meetings, introverts can prepare and be comfortable in discussions with the extroverts who like more spontaneity. Introverts benefit from some communications tools, such as email and social networks.

5.4.2.2 Models of Motivation

There are three basic perspectives on stimulating employees, those of extrinsic, intrinsic, and situational motivation.

Adherents of extrinsic motivation believe that the average human has an inherent dislike of work and will avoid it when possible. Therefore management must implement control and structure in the workplace, and create financial and other incentives. This perspective of extrinsic motivation has subsequently become known as Theory X.

A classic advocate of extrinsic motivation was Frederick Taylor, pioneer of "scientific management" (1911), who viewed workers as interchangeable cogs in a machine.[151] Even though he was somewhat of a charlatan in his methodology and data collection, his work was widely admired in the business community (as well as in the Soviet Union). His approach—known

146 Goffe, Rob and Gareth Jones. "Leading Clever People." *Harvard Business Review*. March 2007. Last accessed ► https://hbr.org/2007/03/leading-clever-people.

147 Black, J. Stewart and Richard M. Steers. *Organizational Behavior* (New York: Harper Collins College Publishers, 1994), 20.

148 Steyaert, Chris, Nicola Soccodato, and Gitte Nielsen. "Team Building and Personal Development Day: Follow Up." *Research Institute for Organizational Psychology*. March 18, 2004.

149 Geisler, Jill. "Managing Employees; Managing Personalities." *Poynter*. July 30, 2002. Last accessed April 30, 2017. ► http://www.poynter.org/uncategorized/1480/managing-employees-managing-personalities/.

150 Warner, Elisa. "Dealing With Different Personalities." *Idea.org*. December 2, 2005. Last accessed April 30, 2017. ► http://www.idea.org/blog/2005/12/02/dealing-with-different-personalities/.

151 Miller, Katherine. *Organizational Communication: Approaches and Processes*. 5th edition. (Boston: Wadsworth Cengage Learning, 2009), 18.

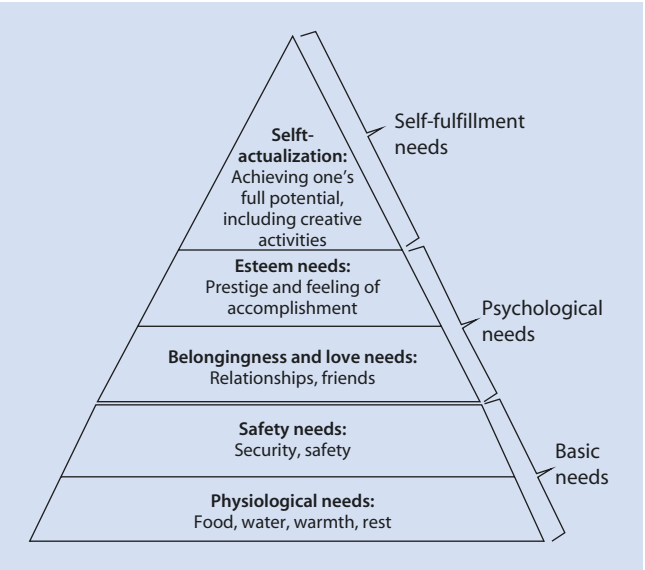
today as Taylorism—is that people need to be socially engineered to fit as components of a larger production machine. This does not work well for creatives, to put it mildly.[152]

Elton Mayo, succeeding Taylor as a thought leader, initiated the human relations approach which stressed positive job satisfaction and group motivation as central elements. Mayo, originally an Australian philosophy graduate, won the attention of leaders of American business and business education with tales of scientific techniques for "healing" labor unrest. After becoming a Harvard Business School professor, Mayo studied workers at the AT&T (Western Electric) Hawthorne Plant in Chicago. Mayo claimed to have discovered the motivating factors that facilitate employee performance as based on social patterns of group work. Mayo's methodology, too, was thin. He chose a tiny sample of subjects—six atypical women—and replaced them whenever their actions did not conform to his hypothesis. Not surprisingly, he found what he was looking for.[153]

One interesting insight of Mayo's was that it was the attention the researchers paid to the workers that was associated with increased productivity, respective of the particular research question. This "Hawthorne effect" became a mainstay in the literature on organizational behavior. Though they differ, Taylor and Mayo follow the extrinsic view of motivation. One must create extrinsic incentives for employees to obtain goals that are apart from the work itself: money, power, security, and status. In contrast, *intrinsic* motivation, popularized by Douglas McGregor as Theory Y, is achieved through attributes of the work world: enjoyment, interest, satisfaction of curiosity, self-expression, personal challenge, and respect, feelings of task accomplishment, and personal growth.[154] The intrinsic approach seems to fit the media industry much better. In the music industry, for example, motivation is typically tied to a love of music and a passion to participate in the recording scene, not necessarily money.[155] Fame, recognition, and status are motivators for many creatives, and both intrinsic and extrinsic factors are at work.

5.4.3 Situational Motivation: The Hierarchy of Needs

A third approach to understanding motivation takes into account that a person's motivation is not immutable, but that it depends on circumstance. Motivational attitudes follow a "hierarchy of needs," a concept popularized by Abraham Maslow.[156] Human needs will never be fully satisfied, but they follow a hierarchy of priority. As each level of needs is fulfilled, a person moves up to the next level where needs (and motivation) will be different from before and become more important than before.[157] In Maslow's hierarchy, each level corresponds to specific needs (◘ Fig. 5.10)[158]:



◘ **Fig. 5.10** Maslow's Hierarchy of Needs

Level 1: Physical comfort (individual survival)—food, clothing, shelter.

Level 2: Safety needs—job, security.

Level 3: Social needs—group companionship, love.

Level 4: Esteem needs—self-confidence, ability.

Level 5: Self-actualization—realizing one's full potential.

Every person has all of these needs but at varying degrees of intensity and desire. As a lower level is filled, higher levels become more important. For creatives, attaining Level 5 (self-actualization) is particularly important, but the needs of Levels 1 to 4 (food and shelter, security, group companionship, and esteem needs) must be fulfilled first. This hierarchy of needs serves as a framework in understanding how a firm can motivate its employees and generate a "soft" form of control.

5.4.3.1 Level 1: Physical Comfort Needs

For their creative employees, many effective companies provide "caring sweatshop" environments that may make work as attractive—or even more so—as their regular life, yet may also be relentlessly demanding, because creatives thrive on challenge. Job perks signify caring far beyond

152 Sagle, Jones and John Thompson. "Taylorism". Spring 1999. Cornell University. February 2, 2007.

153 The real incentive for the women tested was the extra money handed out to do well in the experiment, but that aspect was left unmentioned by Mayo. See Stewart, Matthew. *The Management Myth,* W.W. Norton & Company, New York, 2009.

154 Glen, Paul. *Leading Geeks*. San Francisco: Jossey-Bass, 2003.

155 Lampel, Josh, Theresa Lant, and Jamal Shamsie. "Cultural Industries: Learning from Evolving Organizational Practices." *Organizational Science* 11, no. 3 (June 2000): 263–269.

156 Maslow at one point postulated his perspective to be "Theory Z," but that term has been applied more to William Ouchi's views on loyalty and the human workplace.

157 Cairncross, Frances. *The Company of the Future: How the Communications Revolution is Changing Management*. Boston: Harvard Business School Press, 2002.

158 Graph based on McLeod, Saul. "Maslow's Hierarchy of Needs." *Simply Psychology*. Last updated May 21, 2018. ► https://www.simplypsychology.org/maslow.html.

their organizational cost.[159] Google provides all-you-can-eat snacks, a massage therapist, and doctors and dentists on site.[160] Apple, Yahoo, and Google have organic chefs and on-site masseuses.[161] Employees get access to advanced equipment and resources. The workplace is made visually stimulating. In one survey, 93.8% of participants said that art works makes the workplace feel more welcoming, and 60.8% felt that they stimulate creativity by staff.[162] The workspace can be physically organized to encourage collegiality. For example, the building of Pixar (subsequently a Disney subsidiary) was designed by then CEO Steve Jobs to maximize unplanned encounters.[163]

Case Discussion

5

Disney and Comfort Needs

Walt Disney was an early pioneer of the "caring sweatshop" concept back in the 1930s when he built a new studio in Burbank, California, with an ambience that resembled a college campus. In contrast to virtually all larger companies, there were no set working times or punch-in clocks. There was a relaxed sick day policy in which employees would still receive full pay.[164] Disney's animators in the 1930s made $100–125 per week, which was generous during the Depression, providing security and peace of mind to enhance creativity. Today, Disney's headquarters and studios are equipped with many amenities including buffets, barbershops, and gyms. There are many perks for Disney employees.[165] On the whole, therefore, Disney has done a good job on physical comfort, Level 1 of the Maslow hierarchy of needs.

5.4.3.2 Level 2: Safety Needs

Once basic needs of shelter and sustenance are met, the next level on the hierarchy of needs is safety. Safety needs include several elements: job security, retirement security, and the security of fair treatment.

The media and information sector (aside from traditional telecoms) is not a good environment for job or retirement security. In fact, it is hard to think of an industry with less of it. This is the major reason for the high unionization that was discussed earlier in the chapter.

A fundamental element of security is fairness. Without fairness, an employee is subject to arbitrary treatment in the workplace, and hence great insecurity. Fairness has many dimensions, among them being an objective performance evaluation,[166] and non-discrimination. Creatives can lose their motivation if they feel inequitably treated.[167] Creative employees value an unprejudiced workplace treatment and a compensation structure that is not lopsided. Gender equality is part of fairness at the workplace. In 2007, women represented only 11.5% of directors and 24.2% of corporate officers in the arts, entertainment and recreation industry. They made up 12.1% of directors and 18.5% of corporate officers in the information industry.[168] In the telecom industry, women accounted for only 12% of directors and 16% of executives.[169] In Japan, at the major telecom company NTT DoCoMo, only 4% in the ranks of assistant managers and higher in 2009 were female.[170]

One way to create fairness is to reward people fairly, which means following a performance appraisal system that is understandable, open, and constructive.[171] This can be done through objective measures or through subjective judgments. Performance appraisals are an important but unpopular tool. Labor unions prefer a seniority system rather than a performance-based merit system. Employees often prefer not to be judged against each other. Upper-managers, being human, often dislike playing judge and delivering bad news. Nevertheless, everyone understands that performance reviews, feedback, and incentives are essential if done right. A company must decide who does the evaluating: is it specialized HR "assessment centers," or is it the person's superior, or their colleagues, or even subordinates ("upward evaluation"), or a "360-degree feedback" that combines multiple sources?[172]

The question is, can the performance of creative talent be evaluated without suppressing creativity? Creatives tend to be intensely involved with their work and are therefore even more sensitive to evaluations than others.

159 Florida, Richard. *The Rise of the Creative Class* (New York: Basic Books, 2002), 132.
160 Google. "Life at Google," Last accessed June 16, 2010. ► http://www.google.com/jobs/lifeatgoogle/benefits/.
161 BloombergBusinessWeek. "Zen and the Art of Corporate Productivity." *Bloomberg*. July 28, 2003. Last accessed April 30, 2017. ► https://www.bloomberg.com/news/articles/2003-07-27/zen-and-the-art-of-corporate-productivity.
162 Li, Charmaine. "Can Spending on a Google Style Office Make Employees Happy (And More Productive)?" *Venture Beat*. September 1, 2013. Last accessed April 30, 2017. ► https://venturebeat.com/2013/09/01/can-spending-on-a-google-style-office-make-employees-happy-and-more-productive/.
163 Catmull, Ed. "How Pixar Fosters Collective Creativity." *Harvard Business Review*. September 2008. Last accessed April 30, 2017. ► https://hbr.org/2008/09/how-pixar-fosters-collective-creativity.
164 Gabler, Neal. *Walt Disney: The Triumph of the American Imagination*. New York: Alfred A. Knopf, 2006.
165 Rubis, Leon. "Disney Show & Tell." *HR Magazine* 43, no. 5 (April 1998): 110.
166 Glen. Paul. *Leading Geeks*. San Francisco: Jossey-Bass, 2003.
167 Ainsworth Maguire. "Managing Creative People." Last accessed April 30, 2017. ► http://www.ainsmag.co.uk/pr-advice/managing-creative-people/.
168 Catalyst. "2007 Catalyst Census: Fortune 500." *Catalyst*. December 10, 2007. Last accessed April 30, 2017. ► http://www.catalyst.org/knowledge/2007-catalyst-census-fortune-500.
169 Koss-Feder, Laura. "Few Women at the Top of Media Companies." *We News*. September 23, 2002. Last accessed April 30, 2017. ► http://womensenews.org/2002/09/study-few-women-at-the-top-media-companies/.
170 NTT Docomo. "Employment and Compensation." Last accessed June 23, 2010. ► http://www.nttdocomo.co.jp/english/corporate/csr/report/partner/employee/employment/.
171 Glassman, Edward. "Creative Problem Solving: Your Role as a Leader." *Supervisory Management* 34, no. 4 (April 1989): 4.
172 Corporate Leadership Council. "Pre-Hire and Developmental Assessment Tools at Fortune 500 Companies." January 2003. Last accessed June 29, 2011. ► http://www.mckpeople.com.au/SiteMedia/w3svc161/Uploads/Documents/918417bd-5cad-44a8-a174-619843dab228.pdf.

They often have problems handling rejections or setbacks.[173] Creatives resist "objective" quantifications—tickets or recordings sold, audience ratings, clicks, likeability ("Q-rating"), or profitability—as being "bean counting." They prefer more subjective judgments of quality and value. However, where subjective judgments turn against them, such as a critical review in a newspaper, they will often question the reviewer's judgment, competence, and integrity. Subjective measures are thus also unpopular with creatives, but more acceptable if they are done by respected peers.

The question is how to evaluate the performance of creative talent without suppressing creativity and discouraging risk-taking. Transparency of criteria is essential. Performance appraisal directives should not be secretive. Frequent employee feedback should be offered.[174]

Case Discussion

Job Security

Job insecurity is a major factor in high unionization at media companies such as Disney. Another element of security is fairness. We have already identified the huge imbalance in compensation of Disney's top management as an equity problem.

Disney evaluates its entry-level employees every year. These evaluations are based on the same three abilities Disney looks for during recruitment: learning, leadership, and analytical skills.[175] Supervisors also evaluate employee attitudes: energy, enthusiasm, commitment, and pride.[176] These are described as important criteria for picking employees for promotion.

Officially, Disney describes these performance appraisals as a tool for improvement rather than a judgment for punishment or reward. Yet this downplaying of the importance of evaluations is in tension with Disney's stated promotion policy.

5.4.3.3 Level three: Social Needs

Humans are social animals and strongly seek to belong to a community. An important element of the "soft control" of creatives is to integrate them into teams with community spirit. One way to accomplish this is by creating an us versus them identification in the workplace. This encourages competition against other companies rather than against colleagues.

In the telecom industry, morale is highest during peak periods of emergencies such as natural disasters, when the job is objectively hardest. The feeling of service to others motivates people. Managers can spur motivation across groups by creating shared goals and common peer values. In such an effort, team cohesion helps productivity, but also lowers it when things go badly.

In teams, individual performance cannot be easily observed, and only team output can be measured. This has its advantages: a strong incentive to co-operate, rather than compete with one's colleagues, which creates complementary skills, specialization, and the encouragement of knowledge transfer. This is one of the strengths of start-ups. Team members tend to informally monitor each others' efforts in a way that is often more effective than if done by an outside supervisor, while emphasizing mutual reliance and trustworthiness.[177] The disadvantages of teams are a weaker incentive structure, a free-rider effect, and a "group think" mentality which values getting along. Methods of group motivation are the communication of a shared goal and a shared reward. In such an effort, team cohesion helps productivity. But it also lowers it when things go badly.

Some companies conduct periodic employee engagement surveys that measure the extent to which employees are involved and positive about their work and company.[178] The surveys can be anonymous or involve in-depth discussions with employees at all levels, as well as a review of social media use by employees about their workplace.

Top managers often view creatives as having valuable ideas but lacking a broad perspective or business imperatives. Therefore, they are typically not included in the company's strategic discussions.[179] Others try to include creatives in order to motivate them and create a community of interest. Creatives will be more motivated when they understand the big picture and the relationships between the firm's short- and long-term objectives.[180]

However, including creatives in corporate management can also generate problems. For example, many newspaper companies have created cross-divisional teams, task forces, and committees, with reporters and editors joining circulation and advertising managers to produce marketing and other strategies. This has broken the tradition of separating "church and state"—the supposed wall between the editorial and the publishing business sides of the operation. Since the

173 Penttila, Chris. "An Art in Itself." *Entrepreneur.* December 2003. Last accessed June 10, 2010. ► http://www.entrepreneur.com/magazine/entrepreneur/2003/december/65600.html.

174 Glassman, Edward. "Creative Problem Solving: Your Role as a Leader." *Supervisory Management* 34, no. 4 (April 1989): 4.

175 Gerdes, Lindsey. "Best Places to Launch a Career." *Bloomberg*. September 18, 2006. Last accessed April 30, 2017. ► https://www.bloomberg.com/news/articles/2006-09-17/the-best-places-to-launch-a-career.

176 Rubis, Leon. "Disney Show & Tell." *HR Magazine* 43, no. 5 (April 1998): 110.

177 Hartmann RC, F.G.H. and Sergeja Slapnicar. "Control Systems: "Hard" and "Soft" Management Controls." *MCA,* no. 2 (March 2007): 26–31.

178 Rigby, Darrell and Barbara Bilodeau. "Management Tools 2013." *Bain & Company*. May 8, 2013. Last accessed April 30, 2017. ► http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

179 Mumford, Michael. "Managing Creative People: Strategies and Tactics for Innovation." *Human Resource Management Review* 10, no. 3 (September 2000): 313–351.

180 Glen, Paul. *Leading Geeks*. San Francisco: Jossey-Bass, 2003.

mid-1980s, big newspaper chains such as Gannett in the USA have pushed for an "open newsroom" in which all departments, whether editorial or marketing, are expected to work together in producing and promoting the paper. This development brought criticism from news staff, who felt they were being pressured to report news content of less informational value but helpful to the newspaper's advertising and marketing. In some cases, cultural disparities reared their head. The journalistic work culture is one of skepticism and confrontation toward those in power. It is more geared to shoot down new ideas than to design business plans with colleagues.

Another challenge is the increasing reliance on project-oriented independent contractors. Freelancers have greater independence, which complicates the "us" identification. An important element of soft control is to supervise and include such independent people and make them feel part of the family.

Case Discussion

5

Promoting Community

During the company's earlier years, fostering a close-knit leading-edge group made everyone feel needed and was consciously used by Walt. As the company expanded, creatives felt more replaceable and team spirit declined. Disney lost the "us" identity that was so valuable during its beginning. To restore it, Disney tried various techniques such as calling many of its employees "cast members." But these efforts went only so far. "Us" became the employees, not the company as a whole. "They" became top management, not the competitors. Disney did reasonably well in forging a community, but this community became directed against top management, which was viewed as interlopers into that community.

A marked contrast is another animation studio. Pixar leapfrogged Disney in innovation and creativity. From its early days as a start-up, Pixar worked hard to create a peer culture, that encourages people to help each other produce their best work. For example, the daily animation work in progress is shown to the whole crew. This helps people get over any embarrassment about sharing unfinished work. It generates peer contributions and inspires all to do their best. To generate community, Pixar freed up communication among all, without having to get permission or having to go through the "proper" channels.

According to Ed Catmull, president of Pixar, "A movie contains literally tens of thousands of ideas. They're in the form of every sentence; in the performance of each line; in the design of characters, sets, and backgrounds; in the locations of the camera; in the colors, the lighting, the pacing. The director and the other creative leaders of a production do not come up with all the ideas on their own; rather, every single member of the 200- to 250-person production group makes suggestions."[181] The development of complex products such as films involves hundreds of people from various disciplines working together. The initial idea for the movie is just the first step in a multiyear process.

The community must not be too closed. Innovators must stay close to innovations in the academic community, publish their research, and participate in conferences. This may disclose some ideas, but it keeps the firm connected with others' ideas. It also helps in attracting talent.

These approaches worked for Pixar's animation films, which reaped triumphs. Pixar recreated the spirit of Disney when that company had been a start-up itself in the 1920s, full of team spirit, exploration, and innovations. But by the early 2000s, Disney animation had become a shadow of its former self. Its full-length animation films, which had been its foundation for 50 years, produced mainly flops. Disney was far behind in computer animation. But it still had deep pockets. It bought the successful upstart Pixar in 2006 for $9 billion and with it acquired the creative and technical talent. In buying Pixar, Disney, to its credit, hoped to bring back that spirit of its own youth. It also bought marvel ($4 billion, 2009) Lucasfilm ($4.05 billion, in 2012) and The Muppets (about $200 million in 2004).

5.4.3.4 Level 4: Esteem Needs

Creatives, more than most people, need the reassurance of positive feedback. It is inherent in the subjective nature of such work that its creators seek assurance that they are doing a good job. Recognition ideally comes from people who are familiar with the work and can make objective and informed judgments.[182] Working with and being recognized by talented peers are among the things that creative employees value most.

Studies show that money does not necessarily increase creativity: 10–15% of employees innovate when recognition is monetary, such as through bonuses or increased salary; but 70–80% of employees innovate more actively in order to garner professional esteem, such as an award or special title.[183] Tools of peer recognition are award ceremonies and appropriate credit for notable work. The Oscars, Golden Globes, Grammies, Tonys, Pulitzers, and numerous other awards are annual platforms to recognize creative excellence by peers.

Encouragement is another motivational element of soft control. Creativity involves risk, so managers who stress consequences of failure inhibit creativity. Instead, managers should stress rewards for success.[184] Constraints should be converted into challenges.[185] Negativity is an enemy of creativity.

181 Catmull, Ed. "How Pixar Fosters Collective Creativity." *Harvard Business Review*. September 2008. Last accessed April 30, 2017. ► https://hbr.org/2008/09/how-pixar-fosters-collective-creativity.

182 Florida, Richard. *The Rise of the Creative Class*. (New York: Basic Books, 2002), 8.

183 Robinson, Alan G. and Sam Stern. *Corporate Creativity: How Innovation and Improvement Actually Happen*. San Francisco: Berrett-Koehler, 1997.

184 Reitz, Joseph H. *Behavior in Organizations*. 3rd edition. Homewood: Irwin Publishers, 1987.

185 Javitch, David. "Inspiring Creativity in Your Employees." *Entrepreneur*. April 4, 2005. Last accessed April 30, 2017. ► https://www.entrepreneur.com/article/76890.

Case Discussion

Disney's Recognition System

Disney created an extensive internal reward system. Employees nominate co-workers for a coveted Partners in Excellence award, which rewards a maximum of 3% of staff. Disney also rewards employees who have excelled by listing their names as shop owners on the storefronts in the theme park.[186]

Disney awards over 20 service recognition rewards to its employees. Such awards include "Applause-o-Gram" cards for anyone who has done a good deed. There are "Thumbs Up" gift certificates for landscaping staff, "Golden Hanger" gift certificates, and Department of the Month awards.[187]

Disney is also actively promoting its films, TV shows, and artists for awards such as the Oscars or Emmys. Partly as a result, films produced or distributed by Disney have garnered over 50 Academy Awards in the first decade of the 21st century, and over 150 TV Emmy awards.

Altogether then, Disney has done a good job of meeting its employees' need for recognition and esteem.

5.4.3.5 Level Five: Self-Actualization Needs

Self-actualization is the most defining level of needs for creatives. It has many dimensions. Creatives are motivated and inspired by the prospect of advancing their skill levels, getting better at what they do, achieving mastery, breaking out. Therefore, training, development, and stimulating experiences are ways in which they can be motivated.

In the industrial firm thinking was separated from doing. Four or five managers, it was said, would effectively do the thinking for 400–500 workers. In post-industrial creative companies, workers have to be more educated, and companies have to invest more in education and training.[188] Employees need a broader range of skills and problem-solving tools as their roles and responsibilities become more flexible.[189] The firm no longer seeks workers for rigid roles with narrowly specialized skills but increasingly workers who can work flexibly, are educated and thoughtful, and can work independently.

Companies thus must provide, beyond financial rewards, intrinsic rewards,[190] for personal growth.[191] To increase intrinsic motivation, they must give employees responsibility, autonomy, and tasks that promote personal development.

It is useful for the firm to train individuals in organization-specific skills.[192] The larger the employee's investment in it, the costlier it is for them to leave, both for themselves and for the company which loses them. This fosters mutual loyalty.

The British Broadcasting Corporation (BBC) sends its creators and producers on three-month management courses at American business schools. It also rotates its top creators through different work spheres. The BBC also runs its own BBC Academy as a training program. Motorola's training system—Motorola U—at its peak offered 330 classes, many online, which were taught by 600 external educators and run internally by 300 staff members.

In France, the media company Lagardère spent an average of about $1500 for each employee who participated in its Media Campus training programs, taught by experts from Université Paris-Dauphine.[193] The leading Japanese mobile telecommunications operator NTT DoCoMo Group offers more than 120 elite training programs and 400 other courses.[194]

In the telecommunications sector, Verizon, ranked #11 on *Business Week*'s 2006 list of best places to start a career in the USA, spent an average of over $10,000 to train each of its 18,535 new entry-level employees. Verizon enrolls entry-level workers in a formal mentorship program, as well as various formal leadership, management development, and rotation programs that last a year or more.[195] Pixar, the film animation company, invests in its people with the goal of crafting a learning environment. The Pixar University trains people in multiple work-related skills, but also offers optional courses such as screenplay writing, drawing, and sculpting, so they can appreciate what other employees do. Still other courses are just for fun, so that people from different disciplines can interact.[196]

Dell's skill development program, EducateU.com, offers two types of training. When employees opt to "learn to know," they acquire widely applicable skills through knowledge about the company and its methods. "Learning to do," on the other hand, helps employees apply certain skills and knowledge to a specific aspect of a job.[197]

186 Rubis, Leon. "Disney Show & Tell." *HR Magazine* 43, no. 5 (April 1998): 110.
187 The Disney Institute. *Be Our Guest: Perfecting the Art of Customer Service*. New York: Disney Editions, 2001.
188 Brynjolfsson, E. and H. Mendelson. "Information Systems and the Organization of Modern Enterprise." *Journal of Organizational Computing* 3, no. 4 (1993): 245–255.
189 Bresnahan, T., E. Brynjolfsson, and L.M. Hitt. "Information Technology, Workplace Organization and the Demand for Skilled Labor: Firm-level Evidence." *Quarterly Journal of Economics* 117, no. 1 (2002): 339–376.
190 Black, J. Stewart and Richard M. Steers. *Organizational Behavior.* (New York: Harper Collins College Publishers, 1994), 218.
191 Bowen, Brayton. "Today's Workforce Requires New Currency." *HR Magazine* 49, no. 3 (March 2004): 101–105.
192 Luthans, Fred and Carolyn M. Youssef. "Investing in People for Competitive Advantage." *Organizational Dynamics* 33, no. 2 (May 2004), 143–160.
193 Lagardere. "Human Capital: Development." Last accessed April 30, 2017. ► http://www.lagardere.com/human-capital/our-approach/development-331.html.
194 NTT Docomo. "Professional Skill Development." Last accessed June 23, 2010. ► http://www.nttdocomo.co.jp/english/corporate/csr/report/partner/employee/career/.
195 Gerdes, Lindsey. "Best Places to Launch a Career." *Bloomberg*. September 18, 2006. Last accessed April 30, 2017. ► https://www.bloomberg.com/news/articles/2006-09-17/the-best-places-to-launch-a-career.
196 Catmull, Ed. "How Pixar Fosters Collective Creativity." *Harvard Business Review.* September 2008. Last accessed April 30, 2017. ► https://hbr.org/2008/09/how-pixar-fosters-collective-creativity.
197 Clarke, Thomas and Antoine Hermens. "Corporate Developments and Strategic Alliances in e-Learning." *Education + Training* 43, no. 4 (2001): 265.

General Electric has a 13-week course that covers business policy, economics, social issues, and management principles. GE also incorporates understudy/mentor, job rotation, and coaching programs.[198]

In Japan, the IT company Work Application hires based on potential rather than experience, and then hosts a training program called Professional Development Scholarship System. It was named the best place to work in Japan in 2010 by *Nikkei Business* magazine.[199]

It should be noted that the approach of a company investing in its employees' skills is not the only way to go. An entirely alternative organizational philosophy has been to leave up-skilling to an employee's own initiative. Intel's motto is "own your own employability." Employees are individually responsible for improving their work skills after receiving periodic reports detailing the status of the firm and changes to skill requirements.[200]

Another element of self actualization is job "sculpting," which involves shaping, as much as possible, jobs around employees' skills and interests. Workers are allotted more freedom to pursue personal achievements in the industry.[201] Newspapers often employ job sculpting when they allow their journalists to expand and compile stories into a book, which generates visibility (and income).

Yet one must understand that a loose structure that encourages individuals' roaming without close supervision can also create problems. In 2013, the *New York Times* reporter Jayson Blair engaged in extensive fabrication of quotes and sources. This led to a broader look into editorial operations. The evidence for a lack of internal quality control forced the *Times*'s executive editor Howell Raines and the managing editor to resign. The response need not be to establish tight monitoring of performance but to provide guidelines. The scandal prompted the *New York Times* to issue a 52-page manual titled "Ethical Journalism: Code of Conduct for the News and Editorial Departments." This details 155 situations, covering ethical questions arising in protecting the newspaper's neutrality, the staff's civic and journalistic activities outside work, conflicts of interest in personal and professional activities, and dealing with contributions and gifts.

Case Discussion

Disney Training and Development

Disney University was one of the first structured corporate learning facilities and continues to be one of the largest in the world. Beyond the job-training programs it also aims to preserve Disney's business culture.[202] Disney also runs an HR Certificate Institute (HRCI), a program designed for its HR professionals.[203] A Disney University has been established at each of Disney's theme park locations, providing diverse training in skills, including management protocol, cooking techniques, and computer proficiency.[204] Training is flexible and extensive. Disney provides the option of taking self-paced courses in a variety of subjects so that employees are able to study at their own convenience. Disney also pays for employees' college courses through an educational reimbursement plan.

Disney offers a wide range of professionally designed and taught courses for its employees. Other activities are Disney's mobile training units, which enable employees to receive computer training at their work site, and training via satellite, where management courses are offered from top business schools to supervisors and managers.

5.4.3.6 Corporate Culture

The pre-industrial firm reflected the personality of its leader. The industrial firm, once mature, was impersonal but had distinct characteristics. This character was "hardwired" into the organization and was hard to change or even control. There was much homogenization. IBM expected its employees to wear white shirts. Corporate America in the 1950s was populated by the men in quintessential gray flannel suits. Japanese firms had their cadres of dark-suited "salarymen."

But corporate culture goes far beyond dress code. The corporate culture of a firm affects how new information is interpreted. One study looked at why two very similarly situated American telecom companies reached radically different business decisions regarding cellular telephones. US West decided not to enter the market at all, while Bell South entered it enthusiastically. The key explanations were found not in information but in the culture. US West was focused on generating short-term results, and thus considered the investment intensive cellular telephony a poor prospect. On the other hand, Bell South's culture was on infrastructure and

198 Donnelly, Jr., James H., et al. *Fundamentals of Management*. (Texas: Business Publications, 1987), 253.

199 Nikkei Business. "Best Workplaces in Japan." March 1, 2010.

200 Pasternack, Bruce and Albert Viscio. *The Centerless Corporation*. (New York: Simon & Shuster, 1998), 67.

201 Butler, Timothy and James Waldroop. "Job Sculpting: The Art of Retaining Your Best People." *Harvard Business Review*, September–October 1999. Last accessed April 30, 2017. ► https://hbr.org/1999/09/job-sculpting-the-art-of-retaining-your-best-people.

202 Clarke, Thomas and Antoine Hermens. "Corporate Developments and Strategic Alliances in e-Learning." *Education + Training* 43, no. 4 (2001): 265.

203 Disney Institute. "Accredited Programs." Last accessed June 10, 2010. ► http://www.disneyinstitute.com/About_US/Accredited_Programs.aspx.

204 Paton, Scott M. "Service Quality, Disney Style." *Quality Digest*. January 1, 1997. Last accessed April 30, 2017. ► http://www.qualitydigest.com/jan97/disney.html.

public service, and it took a long-term perspective. It thus viewed mobile service as a complement to its wireline business.[205] US West's decision to skip mobile communications turned out to be disastrous.

For more than a century, telecom organizations operated with a culture shaped by engineering and civil service value systems and operations: clear and specified procedures; clear lines of responsibility; long planning horizon; job security; politicized decision-making; a public service orientation; a national and social perspective; risk avoidance; and a management that rose slowly inside the organization, having adapted to its values. In America, those that shared the dominant telecom culture were known as the "Bellheads." The internet culture, in contrast, draws from other wellsprings: entrepreneurialism; individualism; risk taking; rapid product cycles; uncertainty, and informality. By analogy, its adherents are sometimes known as "Netheads."[206]

This corporate culture is the embodiment of internal knowledge of the firm. It conditions members to respond to certain situations with a certain set of behavior. This has some efficiency benefits. Members of the team share these values and assumptions, and are hence much easier and faster to work with, and can be reliably sent off to represent the organization. "Organizational culture" is the establishment of behavioral norms in an organization through a pattern of common values and beliefs. Organizational culture has several levels. The most basic one is dress code and styles of conduct. For example, the employees of a music company will tend to dress differently from those of IBM.

A deeper level is that of organizational style and values. A telecom company will be hierarchical and deliberate in its decision processes; a Silicon Valley company more risk-taking, flexible, and "flat" in hierarchy. A still deeper level is that of underlying assumptions about the nature of organization. For example, an investment bank values short-term profit-making as its mission; and money matters greatly. In contrast, a public service TV broadcaster such as the BBC has a culture of good-citizenship and looks for the long-term betterment of society.

At its widest reach, business culture may vary by country. William Ouchi, in his book *Theory Z* (1981), demonstrated how American culture places a high value on individual achievement, whereas Japanese culture stresses a sense of community.[207]

Typically, companies start with an inspirational leader who sets the tone and leads by vision, skill, judgment, personality, and innovation. Over time, as the firm matures, a more organized structure emerges.[208] Companies then often overshoot in the other direction. Examples are Bertelsmann, Vivendi, and Time Warner, which in recent years moved from visionary leadership to a basic day-to-day management system that delivered decent results for the present but lowered expectations long-term.

Characteristics of visionary leaders are high visibility, being "larger-than-life," and having a significant influence over careers, projects, and culture. Examples are Steve Jobs of Apple; Theodore Vail, creator of AT&T's Bell System; John Reith, guiding spirit of the BBC and public service broadcasting; Rupert Murdoch, who established the world's first global satellite TV presence; and Walt Disney who created the genre of full-feature animation films aimed at family entertainment.

Inculcating new employees with the values of the organization helps to integrate them. All new hires at the telecom company Verizon must take an orientation program. The program includes computer training, guest speakers, benefits, and corporate culture education. For entry-level managers, there is also formal leadership or management development programs that last a year or more. The Verizon orientation program includes three "tours": an online virtual tour that includes information such as code of conduct and benefits, a team tour that helps new employees become comfortable with peers and bosses, and a classroom lecture that highlights company history, mission, and values.

Corporate culture is much slower to change than organizational structure, top leadership, or strategy. All of those can be changed rapidly by decision, but the collective values of organization and the way its people operate change much more slowly, because it is the aggregate of behaviors and routines acquired over the organization's lifetime. Corporate reeducation campaigns are usually doomed to failure, or produce hypocrisy and obstructionism. It takes major incentives to make employees change the patterns they were told to follow in the past.

Culture conflicts are especially difficult when companies merge. An amalgamated new common culture may emerge or be dictated, but it might not be satisfactory to either partner. For example, a style combining internet and telecom may be stressful to both parts of the organization and unsuccessful in serving their markets.

Similarly, different industries exhibit different cultures. People often believe that a strong and common culture is always desirable. But there are times when a strong organizational culture undermines changes and innovation. For example, Encyclopedia Britannica's culture was dominated by direct-to-home salespeople. When annual sales collapsed from a high of 117,000 to about 20,000, this strong sales force culture prevented a change from a door-to-door sales model to an online tech model.

Within a corporate culture, companies must evolve. Like individuals, they must learn and adapt. The idea of the firm as a learning organization became popular with Peter Senge's 1990 book *The Fifth Discipline*. Senge argues that the

205 Barnett, William P. and Robert A. Burgelman. "Evolutionary Perspectives on Strategy." *Strategic Management Journal* 17, no. S1 (Summer 1996): 5–19.

206 Noam, Eli. "The Impact of Accelerating Knowledge on the Business Firm." In Antonio Pilati and Antonio Perrucci. Eds. *Economia della conoscenza: profili teorici ed. evidenze empiriche.* Bologna: Il Mulino, 2005.

207 Heck, Ronald H. and George A. Marcoulides. "Organizational Culture and Performance: Proposing and Testing a Model." *Organization Science* 4, no. 2 (May 1993): 209–225.

208 Aris, Annet and Jaques Bughin. *Managing Media Companies: Harnessing Creative Value,* 2nd Edition. West Sussex: Wiley, 2009.

firm is an organism and that change is not simply a matter of retooling. Organizational learning theorists take their cue from studies in biology and mathematics of so-called self-organizing systems. They believe that the firm is self-organizing at all levels and that it is a living organism that cannot be controlled by top-down directives.[209]

The president of the animation firm Pixar describes his company's culture thus: "We think and we share some basic beliefs: lasting relationships matter, talent is rare. Management's job is not to prevent risk but to build the capability to recover when failures occur. It must be safe to tell the truth."[210] These are inspiring words. Many companies articulate equally noble principles. For creatives, a congruence of word and deed is essential. When corporate culture says one thing but management behavior goes another way, trouble follows.

Case Discussion

5

Disney Cultural Dissonance

From the preceding elements of this case discussion, we concluded that Disney did a good HRM job on three levels of the Maslow hierarchy of needs: those of physical comfort, esteem, and self-actualization. Where Disney failed was in a perception of fairness—an integral part of the need for security—and a lack of an understanding of the need for community. This generated Disney's main HR problem: an internal dissonance in its corporate culture, which led to an internal us versus them climate.

Disney's corporate culture was shaped by Walt Disney and his early animation team. He followed a "soft" management style centered on making creatives comfortable and appreciated. The tradition of taking care of the creatives was kept alive by Walt's nephew Roy Disney. As the Disney Company grew in the 1980s, management became increasingly rigid. Disney's official culture, emphasizing creativity and family was at odds with the reality of managing a global corporation in a competitive marketplace, and being responsive to investors.

All new Disney employees participate in Traditions, a one-and-a-half day orientation program that introduces them to the company history and philosophy through a variety of training techniques, including lecture presentations, storytelling, videos, interactive exercises, and group discussions.[211] The goal is to familiarize employees with Disney's culture, its quality standards, symbols, heritage, and traditions. Disney culture is described by management as "Dream, Believe, Dare and Do"[212]:

Give every member a chance to dream and tap into creativity.

Stand firm on your beliefs and principles.

Treat your customers like guests.

Support, empower and reward employees.

Dare to take calculated risks in order to bring innovative ideas to fruition.

Train extensively.[213]

Disney uses its own lingo, called "Disney-speak," to demonstrate a cheerful work environment. Employees are often referred to as cast members, uniforms are called costumes, interviews are auditions, jobs are roles, and frontline employees are called hosts or hostesses.[214] Customers are guests.

This is what Disney's employees felt their culture meant. The dissatisfied employees in 2004 who voted overwhelmingly against management believed that they wanted to restore Disney's traditions. This movement was led and encouraged by Roy E. Disney which lent legitimacy to their rebellion.

They opposed a pay hierarchy that had become excessively unequal beyond its incentive needs. They felt no identification with the goals of the leadership, because they perceived that leadership to act in its self-interest. Whereas Walt Disney had spoken in inspirational terms, "You don't work for a dollar- you work to create and have fun,"[215] now the company chief operating officer Jeffrey Katzenberg proclaimed: "I'm not interested in Academy Awards, but in Bank of America Awards!"

Disney's employees did not see themselves as rebels but as the upholders of a proud tradition. To them, CEO Eisner and his financial performance-driven style and strategy were the usurpers.

The questions, then, are as follows. How does Disney reconcile its financial objectives with its culture? How can the company modify its corporate culture for the twenty-first century? Could it? Should it?

5.5 Employment in the Digital Economy

5.5.1 Employment Impacts

We end this chapter by looking at the overall impact of the digital economy on employment, because it is important to understand the big picture. For many years, people have believed and hoped that the internet, and more generally the digital economy, would replace and enhance industrial jobs. This was important to developed countries as their traditional manufacturing activities were either being automated or were migrating to developing or emerging countries. It was also important as a way to find a productive space for younger generations who moved from the blue-collar jobs of their parents

209 Noam, Eli. "The Impact of Accelerating Knowledge on the Business Firm." In Antonio Pilati and Antonio Perrucci. Eds. *Economia della conoscenza: profili teorici ed. evidenze empiriche.* Bologna: Il Mulino, 2005.

210 Catmull, Ed. "How Pixar Fosters Collective Creativity." *Harvard Business Review.* September 2008. Last accessed April 30, 2017. ► https://hbr.org/2008/09/how-pixar-fosters-collective-creativity.

211 Paton, Scott M. "Service Quality, Disney Style." *Quality Digest.* January 1, 1997. Last accessed April 30, 2017. ► http://www.qualitydigest.com/jan97/disney.html.

212 Glanville, Monica Caroline Kirkbright, and Mary Tamasco. "Disney: It's a Small World." *Managing the Global Workforce.* 2002. Last accessed October 12, 2008. ► http://www.ghrm.rutgers.edu/files/disneypaper_final.doc.

213 Capodagli, Bill and Lynn Jackson. *The Disney Way: Harnessing the Management Secrets of Disney in Your Company*. New York: McGraw-Hill, 1999.

214 The Disney Institute. *Be Our Guest: Perfecting the Art of Customer Service.* New York: Disney Editions, 2001.

215 Ford, Robert C., Frank S. McLaughlin, and John W. Newstrom. "Questions and Answers about Fun at Work." *Human Resource Planning* 26, no. 4 (2003): 18.

to knowledge-based occupations where they could utilize society's investment in their higher level of education. Such jobs were also believed to reduce class division and inequality.

Thus, in countries undergoing deindustrialization an internet-based economic growth has been widely recommended as a way to create economic activity and reduce the inequality of industrial society. In particular, the opportunities that the internet affords to the creative workforce are believed to be an engine for employment. We have now had several decades of digital evolution, and it becomes possible to measure rather than postulate.[216]

The conventional story is one of great success. The internet is supposed to have caused up to 21% of GDP growth in five years in mature countries.[217] In the USA, the internet economy has reportedly created 1.2 million jobs directly.[218] In France, too, the internet has supposedly created 1.2 million jobs directly. But what kind of jobs? In the USA, most of them are in e-commerce, not in anything really creative, but mostly in order fulfillment, packaging and shipping, as well as the delivery of physical goods, through trucking, for example, accounting for more than 500,000 of those 1.2 million jobs. Internet service providers generated 181,000 jobs. Creative jobs were, in particular, in content-related employment, estimated at 60,000, and in software as a service, 31,500.[219] These modest numbers are in contrast to the sometimes breathless hype.

There were also new types of jobs spawned by various applications: for example, new taxi drivers through the car service app Uber, or people creating their own new income streams, an example being renting out their driveways for parking.[220] There are also many indirect job creations. A study found that each internet job supports approximately 1.54 additional jobs elsewhere in the economy.[221]

But one must also consider the downsides. In the USA, industrial blue-collar jobs disappeared at the rate of 350,000 industrial jobs each year for after 2000. (There is also the multiplier effect of jobs to take into account, about 1.6 per industrial worker and 2.5 per skilled industrial worker.) This adds up to a job loss of about half a million each year.[222] Of course, many of these jobs would have disappeared anyway, but more slowly. Transition time is important. People need time to adjust, retrain, and relocate. The internet has accelerated the outmigration of jobs.

Following the blue-collar jobs, the pink-collar jobs in retailing and clerical staff began to shrink as retailing moved online. Similarly, service support jobs such as telemarketing or editorial work have been moving offshore. Middle management levels have been cut as information and communications technology has made supervision and information exchange easier, thus reducing the need for intermediate levels of management.

Online shopping has been growing steadily, with a US share of above 12% ($473 billion) of total retail ($4.03 trillion) in 2014.[223] In the UK, a research project predicted, "By March, we expect 4000 to 5000 stores to close due to competition from online retail, with an acceleration in chains closing stores to focus more on online operations."[224] In America, the drop in retail jobs since 2007—after a four-year boom—has been pronounced, with a reduction of 900,000 jobs in five years, a near 6% decline.[225]

Retailing is not the only service industry to be squeezed. A short list of some of the major industries affected by the internet includes newspapers, travel agencies, stockbrokers, and universities.[226] Thus we can observe not only a deindustrialization but also a "deservicization."

5.5.2 The Unequal Impact on Different Income Classes

The problem is not just the loss of traditional employment at a pace that is hard to counter-act by digital employment, but that the losses are distributed unequally. In the USA, half the 7.5 million jobs lost during the Great Recession were in industries that pay middle-class wages. But only 2% of the jobs gained since the recession ended in 2009 were in mid-pay industries. Nearly 70% are in low-pay industries and 29% in industries that pay well.[227]

In the 17 European countries that use the Euro as their currency, the numbers are even worse. Almost 4.3 million

216 Noam, Eli. "Why the Internet Economy Raises Inequality—Implications for Media Managers". In Herrero, Mónica and Steve Wildman. *The Business of Media: Change and Challenges.* MediaXXI Porto, 2015.

217 Du Rausas, Matthieu Pélissié et al. "Internet matters: The Net's sweeping impact on growth, jobs, and prosperity." *McKinsey Global Institute*. May 2011. Last accessed April 30, 2017. ► http://www.mckinsey.com/industries/high-tech/our-insights/internet-matters.

218 Quelch, John. "Quantifying the Economic Impact of the Internet." *HBS Working Knowledge.* August 17, 2009. Last accessed April 30, 2017. ► http://hbswk.hbs.edu/item/6268.html.

219 Thibodeau, Patrick. "Study: Internet economy has created 1.2 M jobs." *Computerworld.* June 10, 2009. Last accessed April 30, 2017. ► http://www.computerworld.com/article/2525229/internet/study--internet-economy-has-create-1-2m-jobs.html.

220 Bensinger, Greg and Jessica E. Lessin. "Apps are Creating New Jobs." *Wall Street Journal*. Last updated March 5, 2013. ► http://online.wsj.com/news/articles/SB10001424127887323864304578320861732248742.

221 Quelch, John. "Quantifying the Economic Impact of the Internet." *HBS Working Knowledge.* August 17, 2009. Last accessed April 30, 2017. ► http://hbswk.hbs.edu/item/6268.html.

222 Atkinson, Robert et al. "Worse than the Great Depression: What Experts Are Missing About American Manufacturing Decline." *The Information Technology & Innovation Foundation*. March 2012. Last accessed September 14, 2015. ► http://www2.itif.org/2012-american-manufacturing-decline.pdf.

223 Mintel Market Sizes. New York NY. 2014. Last accessed on June 23, 2015 at ► http://clio.columbia.edu/catalog/8010526?counter=2.

224 Reilly, Jill. "Booming internet sales 'will close 5000 High Street stores and const 50,000 jobs'." *Daily Mail.* Last updated January 2, 2013. ► http://www.dailymail.co.uk/news/article-2255677/Booming-Internet-sales-close-5-000-High-Street-stores-cost-50-000-jobs.html.

225 Wright, Joshua. "The Demise of Retail Jobs? Not So Fast." *Emsi.* April 16, 2012. Last accessed April 30, 2017. ► http://www.economicmodeling.com/2012/04/16/the-demise-of-retail-jobs-not-so-fast/.

226 Briefing Investor. "Industries Destroyed by the Internet – A Reflection." July 26, 2012. Last accessed April 30, 2017. ► http://www.briefing.com/investor/our-view/ahead-of-the-curve/industries-destroyed-by-the-internet--a-reflection.htm.

227 Condon, Bernard and Paul Wiseman. "Millions of Middle-Class Jobs Killed by Machines in Great Recession's Wake." *Huffington Post.* Last updated January 23, 2013. ► http://www.huffingtonpost.com/2013/01/23/middle-class-jobs-machines_n_2532639.html.

low-pay jobs have been gained since mid-2009, but the loss of mid-pay jobs has not stopped. In Japan, a report documented a "substantial" drop in mid-pay, mid-skill jobs in the five years through 2005, and linked it to technology.[228]

Many middle-level jobs are easier to automate by smart software programs, or to outsource and offshore, than low level jobs. One can automate travel agents and bank tellers, but it is harder to do it for road construction or cleaning crews. This "hollowing out" of the middle-class workforce will continue. This creates a bottleneck: menial jobs at the bottom, professional jobs at the top, and a weakening in the middle. It means that the job mobility from lower to middle class, which was the historic way to individual progress, is becoming more difficult.

5.5.3 The Generational Impact of the Internet

It is generally believed that while the internet leaves behind older folks unprepared for the digital age, it is a great improvement in the opportunities for young people. Yet their standard of living today is lower than that of the preceding generation.[229] Youth unemployment in 2015 was at 11.7% in the USA, 14.4% in the UK, 24.1% in France, and 48.5% in Spain.

The internet creates, indeed, greater opportunities for a few young people who have education, a spirit of entrepreneurship, and a great deal of luck. But this does not mean that the average opportunities of the young generation have grown.

Paradoxically, a similar problem happens at the other end of the age spectrum. The rapid change in knowledge and technologies means that the learning curve is short and that there is less value to experience. In the past, an experienced elder had advantages. Now, the old are becoming expensive, out of date, and expendable. They get bumped out of the middle-level jobs where there is less room and the competition is tougher than before. Their skills become obsolete for the top jobs, and the menial jobs at the bottom are often physically too demanding.

5.5.4 Is the Creative Sector the Remedy for Industrial and Service Job Losses?

Is the creative sector going to be the substitute for all of these industrial and service sector jobs that are being lost? This claim, often heard, is unrealistic if one looks at the numbers. In America, the number of industrial and clerical jobs lost in the period 2008–2012 has been 7 million, including the multiplier effects.[230] In contrast, the total number of people with jobs in journalism, books, TV, film, theater, and music is less than 1 million.[231] So if creative jobs alone will provide the compensation, that sector will have to expand by a factor of seven. Demand for the output will not grow that fast. Moreover, a lot more people produce content as volunteers, rather than employees. The globalization of media means that every other country's content is also available, and is also expanding, by the same logic.

These emerging employment issues are not the result of digital failure but of its success in penetrating society and economy. And because they are fundamental they are hard to deal with through government action, as we have discussed before.

5.5.5 The Fundamental Characteristics of the Digital Economy and their Impact on Employment

New information industries are more capital intensive than old ones. Their ratio of capital costs to operating costs is higher than in the past. In consequence, their scale economies are greater and their market concentration is higher.

A major characteristic of media is its high risk in the presence of competition. One often observes an 80–20 outcome in which 80% of all media products do not become profitable, 90% of all profits are generated by 10% of the products, and 50% of profits are generated by 1–2% of products. Correspondingly, creatives' incomes are much more unequally distributed than regular incomes, owing to the risk characteristics of their companies and industries. The tournament profile of compensation for aspiring creatives is extraordinarily steep. Pay differentials in media are especially high owing to an oversupply of talent, as well as an incentives structure where the few "winners" receive the majority of the reward.

Creatives usually overestimate the odds for personal success.[232] They also accept low compensation and high risk because of the high level of personal satisfaction inherent in artistic careers. In creative activities such as film and TV, or in sports, small differences in talent may typically result in

228 Condon, Bernard and Paul Wiseman. "Millions of Middle-Class Jobs Killed by Machines in Great Recession's Wake." *Huffington Post*. Last updated January 23, 2013. ► http://www.huffingtonpost.com/2013/01/23/middle-class-jobs-machines_n_2532639.html.

229 International Labour Organization. "World Employment and Social Outlook Trends 2015." (Geneva: ILO, 2015), 21.

230 Kurtzleben, Danielle. "Report: America Lost 2.7 Million Jobs to China in 10 Years." *US News & World Report*. August 24, 2012. Last accessed April 30, 2017. ► http://www.usnews.com/news/articles/2012/08/24/report-america-lost-27-million-jobs-to-china-in-10-years.

231 Bureau of Labor Statistics, US Department of Labor. "Occupational Outlook Handbook: Reporters, Correspondents, and Broadcast News Analysts." December 17, 2015. Last accessed April 30, 2017. ► http://www.bls.gov/ooh/media-and-communication/reporters-correspondents-and-broadcast-news-analysts.htm.

232 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2002.

extreme differences in reward.[233] These small talent differences are rewarded exponentially rather than linearly, which leads to a highly skewed distribution of rewards. This model applies to many industries, but it is most pronounced in the creative industries because spots at the top are scarcer and the bottom is much wider and lower.[234] Thus an economy with a stronger participation by creatives is a more unequal economy; and a digital economy with a strong reward system for the winners is more unequal.

Many individuals in the digital field derive utility from the process of creating a product, not from profiting from its sale. Producing the good is not a chore but a benefit. When this occurs it is hard to distinguish production from consumption. In media production, creatives are incentivized to maximize recognition, not profit, or a combination of the two. Online media provide a greater way to create content and find an audience by lowering the cost of production and distribution, and hence have increased this non-profit participation. As a result, it becomes more difficult for participants to survive economically. "One can't compete against free" affects companies as well as individuals. This is another factor in skewing the income distribution further.

Media production increases exponentially at a substantial rate, while media consumption increases linearly and slowly. Content rises by about 12% and attention rises by less than 4%. Given the gap between production (supply) and consumption (demand), excess supply and price inflation are inevitable.

As a result of these various factors, the digital economy is more volatile than the industrial economy. It is more subject to economic cycles and greater instability. The dynamics are as follows. An innovative idea raises hope. A boom gets on its way, becoming a bubble. But in a competitive environment, competition drives prices down to marginal cost. Marginal cost is close to zero. Such a price is not sustainable for long. Companies go out of business en masse. Investors flee. The economy descends in a downward spiral. But soon the survivors stabilize the industry. Prices rise, and with it profitability. At that point new entrants emerge. The industry becomes more competitive. A new cycle begins.

Thus the information economy is an unstable economy, and employment in it is unstable. And because of the acceleration of technological progress (Moore's Law), the cycles almost inevitably accelerate in frequency and maybe in amplitude.

The economic system based on electronic networks changes work relations. Firms become organized as networks. They hire by project. They outsource to contactors. They do everything they can to reduce the fixed costs and to shift them to others. Examples are chip making and film production. Most chips today are designed by companies but not manufactured by them. Sometimes even the design gets outsourced to design bureaus. The same holds true for the Hollywood studios. Most of the films they distribute are made by independent entities, which in turn contract with others for their temporary services. Increasingly, collaborators are assembled for projects on a project-by-project basis. Companies contract workers, consultants, and outsourced vendors.[235] In the same way that "just in time" (JIT) production has shifted manufacturing, capital assets, inventory, and risk to the suppliers of components, so it is now giving rise to JIT workers—employees whom a business can hire at a moment's notice to fill a moment's need.[236]

These JIT workers have few of the benefits that traditional employees have gained over time, such as health and safety protections, retirement plans, or overtime pay. This organizational model has the potential to become the model for the mainstream firm of the future, given its project-oriented, fluid management structure, flexible skills deployment, and reduction of fixed costs.

5.6 Consequences for Digital Management

Managers and entrepreneurs in the digital economy create value and wealth, but are also part of "creative destruction" and disruption. They must understand the environment in order to function in it. Every time there is a technology shift, there are doubts and fears. Throughout history, technology has been a net job creator.[237] But that did not help those who were dislocated. In the Industrial Revolution, which proceeded at a much slower pace, millions of Europeans ended up destitute and had to migrate to sprawling city slums or to distant shores. Social and political revolutions and upheavals abounded. Now the pace of dislocation is even faster.

5.6.1 A Return of Unionization?

To create employment benefits for the new type of employees, labor unions in the freelance tech sector are likely to emerge, following the model of unionization of creatives in theater, film, and music. The constraint is the difficulty of effectively striking when the work can be easily outsourced to offshore locations. This suggests that the most likely strategy of labor will be that of political pressure and legislation.

233 MacDonald, Glenn M. "The Economics of Rising Stars". *The American Economic Review* 78, no. 1 (March 1988): 155–166.

234 De Vany, Arthur. *Hollywood Economics*. New York: Routledge, 2004.

235 De Vany, Arthur. *Hollywood Economics: How Extreme Uncertainty Shapes the Film Industry*. (New York: Routledge, 2004), 231–254.

236 United States Department of Labor. "Futurework – Trends and Challenges for Work in the 21st Century Executive Summary." ► http://www.dol.gov/oasam/programs/history/herman/reports/futurework/execsum.htm.

237 Smith, Aaron and Janna Anderson. "AI, Robotics, and the Future of Jobs." *Pew Research Center*. August 6, 2014. ► http://www.pewinternet.org/2014/08/06/future-of-jobs/.

5.7 Conclusion and Outlook

Why is it important to understand the HR management of media companies?

Creative workers have a distinctive set of individualistic work styles, meritocratic values, and unconventional social behaviors that pose unique challenges to its HRM.

Management guru Peter Drucker noted: "Knowledge workers and their skills may well be a firm's main asset and can, unlike manual workers in manufacturing, own the means of production: they carry that knowledge in their heads and can therefore take it with them." The media business is essentially a people's business. The long-term survival of firms in the future depends on creating and replenishing those creative resources.[238] Every media company therefore needs a well-honed HRM strategy. Managers must be able to handle creative talent, or at least handle the handlers of talent.

HRM strategies in the media sector help us to understand the more general trends of the employment system of the future. There has been significant change in the media industry structure in organizing talent. Increasingly, groups of creatives are assembled for projects under an entrepreneurial model. Companies partner with contract workers, consultants, and outsourced vendors. This organizational model for the media industry has the potential to become the model for the mainstream firm of the future, owing to its project-oriented, freelance-based emphasis, fluid management structure, flexible skills deployment, high element of creatives, and flat hierarchy.[239]

Managing people rather than managing physical assets is the focus for a media company.[240] The challenge is to manage HR more effectively without alienating the creatives, who are the core productive assets.

Managers of creatives need to consider both the creative and profit aspects of the firm. They must balance their need of operational control with assuring creative freedom.[241] The most successful companies will be those where management provides equal attention and respect to both the "suits" and the "pony tails." They maintain, at the same time, hard HRM and soft control.

238 Lampel, Josh, et al. "Cultural Industries: Learning from Evolving Organizational Practices." *Organizational Science* 11, no. 3 (June 2000): 263–269.

239 Fink, Michael. *Inside the Music Industry.* (New York: Schirmer Books, 1996), 325–346.

240 Cairncross, Frances. *The Company of the Future: How the Communications Revolution is Changing Management*. (Boston: Harvard Business School Publishing Corporation, 2002), 23–46.

241 The Economist. "Special Report: How to Manage a Dream Factory – The Entertainment Industry." January 16, 2003. Last accessed April 24, 2017. ► http://www.economist.com/node/1534766.

5.8 Review Materials

Issues Covered

In this chapter we have covered the following issues:

- How the focus of HRM has changed.
- How HRM is organized in a company.
- How the importance of creativity influences HRM in the media, information, and digital industry.
- How to analyze intra-company labor flows.
- How to shape the optimal organizational hierarchy.
- What implications finance theory has for companies' compensation systems.
- How the power of unions shifted.
- What factors define the creative workforce.
- How the increase in freelancing affects labor relations.
- What the special HR factors are for middle managers and freelancers.
- How soft control based on interpersonal relationships can be more effective.
- What the explanations are for employee unionization in media industries.
- How firms can leverage motivation theory to motivate their employees.
- What the significance of corporate culture is.
- What the impact of the digital economy on employment is.
- How to design financial incentives for promotion.
- How to negotiate with unions.
- How to deal with the creative workforce.
- Why one company—Disney—failed in its labor relations.

Tools Covered

We used these tools to address HRM issues:

- Rate of ROI in human capital.
- Productivity measurement.
- HRIs.
- Hiring of risky employees.
- Outsourcing/offshoring.
- Internal labor market analysis.
- Organizational pyramids.
- Fixed versus variable pay.
- Optimal compensation gradient.
- Incentive scheme design and promotion.
- Union negotiations.
- Elements of soft control.
- Leading and motivating geeks.

5.8.1 Questions for Discussion

1. How do producers assess how much to compensate a star or superstar for their services?
2. How has the relationship between actors and production studios changed over the past 50 years?
3. Discuss whether the compensation structure utilized in the film and telecom industry is an appropriate method to promote productivity and creativity.
4. Are individuals motivated by their enthusiasm for their craft and profession rather than by hope for financial gain more valuable to the overall success of a media company than those seeking mostly money and power?
5. Discuss whether the humanistic approach toward a business environment, known as Theory Z, can be a successful permanent strategy, or whether it is only applicable for a temporary timeframe?
6. What is the reason for the strong unionization in many media industries? Should one expect similar trends in new creative industries such as game development?
7. How can a TV network company measure ROI in human capital?
8. Discuss the impact of unions on the media industry. Are they conducive to enhancing productivity, or do they hinder a creative and competitive work environment?
9. How should an e-commerce company determine its compensation mix of fixed salary and contingent compensation? What factors should the company consider?
10. Why are stars so highly compensated if the difference to thousands of other talented people is so small?
11. Discuss where the creative workforce is going. Will it continue to keep growing, or will it peak and decline, as agricultural or industrial workers have in the past?
12. How should a start-up proceed in motivating its employees?
13. How can a firm use the concepts of tournament theory to design a compensation gradient for the firm's employees?
14. Discuss how a company could use an internal labor market map to improve its performance.

5.8.2 Quiz

1. What is the best way to judge a creative's output?
   1. comments from senior creatives
   2. comments from his/her peers
   3. number of usable product ideas created
      A. 1 and 3;
      B. 2 and 3;
      C. 2 only;
      D. All of the above.
2. What is the most cost-effective/best way of increasing a firm's creativity?
   A. Hire outside talent;
   B. Train current employees;
   C. Redesign the organizational environment.
3. According to studies, to have a project team maximize its total creative output, how many people should usually be in it?
   A. 20;
   B. 5;
   C. 10.
4. An employee who scores high on the "judging" versus the "perceiving" part of a personality questionnaire is likely to be a
   A. Creative;
   B. Manager;
   C. Geek.
5. In the publishing business, how has the typical contract changed over time?
   A. It has allocated authors a higher percentage of profits;
   B. It has allocated authors a lower percentage of profits;
   C. It has allowed authors the same percentage of profits.
6. Which best describes the actor compensation practices used in Hollywood right now?
   A. Producers and studios often end up paying stars way more than they're actually worth;
   B. Studios and producers end up paying actors much less than they're actually worth;
   C. Producers and studios pay a pretty accurate amount to actors—giving them about as much as their presence in a film adds to its value.
7. A company's internal labor market map is broadly pyramid shaped. What can we conclude from this?
   A. This firm prefers to build rather than buy its workforce talent;
   B. The firm likes to buy rather than develop its workforce talent;
   C. It's difficult to reach any significant conclusion from this bit of information.

8. 80% of Company X's employees are at or below Hierarchy Level 5 out of a possible 7. The company tends to hire Level 6 and 7 employees from outside the firm. What kind of employee turnover can this company expect at Level 5 and below?
   A. High—employees see they're not likely to be promoted past Level 5;
   B. Low—employees see that although they won't reach upper management they have very high job stability;
   C. Average.

9. When a company hires aggressively in tight labor markets, what does it run the risk of doing?
   A. Undervaluing its current employees by underpaying;
   B. Attracting top talent to work for it, only to have them leave after a short time;
   C. Not providing incentive for employees to perform at their capability level;
   D. All of the above.

10. Company ABC has been calculated to have 20% market risk, 35% industry risk, and 45% firm-specific risk. For this company, would it be wise to base employee compensation on stock options?
   A. No;
   B. Yes;
   C. More information required;
   D. No answer capable.

11. Which of the following is not a direct reason for the unionization in crafts, and among media creatives?
   A. Scarcity of talent;
   B. Oversupply of talent;
   C. Stress;
   D. Need for respect.

12. What are factors for the low unionization in high tech start-ups?
   A. Foundercentric culture;
   B. Subjective pay practices;
   C. High turnover;
   D. Egalitarian culture of managers and employees.

13. How should managers design its wage spread when the company faces a riskier environment?
   A. The wage spread should be smaller;
   B. The wage spread should stay the same;
   C. The wage spread should be larger;
   D. The wage spread should be indexed to the inflation rate.

14. What main effect, does the firing of older employees have, besides anger by these employees?
   A. Rewards for young employees should be lowered;
   B. Need to better reward younger employees;
   C. Younger employees are not effected;
   D. Younger employees want to stay with the company.

15. When should a manager hire Person A over Person B even though A's expected NPV for the first year is lower?
   A. When the upside potential for A is higher than for B;
   B. When A is more experienced than B;
   C. When B is younger than A;
   D. When A has better personal relations to the management.

16. What does Theory Y state on the motivation of workers?
   A. Workers should be closely supervised and incentivized;
   B. Workers enjoy work and are self-motivated;
   C. Workers are lazy and avoid responsibility;
   D. Workers are creative and innovative.

17. What level of Maslow's Hierarchy is the most defining one for creative employees?
   A. Esteem needs;
   B. Safety needs;
   C. Social needs;
   D. Self-actualization.

18. What is the "Hawthorne Effect"?
   A. Performance decrease because individuals are observed;
   B. Improvement of behaviors owing to monetary incentives;
   C. Occurrence of unexpected behaviors;
   D. Improvement of behaviors because individuals are observed.

19. What is not a reason for difficulties in measuring productivity for "black-collar" creative jobs?
   A. Outputs hard to define and measure;
   B. Differences in quality;
   C. Production is difficult to measure;
   D. Non-homogeneous products.

20. Why is it difficult to manage geeks?
   A. They are judgmental about the company's strategy;
   B. Their values are peer driven rather than hierarchy driven;
   C. Geeks are structured and do not need guidance;
   D. They can be energized by actions.

21. What is not an attribute of commercial papers (CP)?
    A. CP is a way for established companies to raise money for short periods;
    B. CP interest is paid at the maturity date;
    C. The companies borrow money from financial institutions and issue CPs as promises to repay;
    D. CP is most appropriate for companies with steady cash flows or strong growth prospects.

22. Which statement about vendor financing is correct?
    A. Vendor financing of media and digital activities is most developed in the film sector, perhaps because its funding requirements are the largest among content media;
    B. It reduces the debt on a company's balance sheet and enables the firm to take on debt for other purposes;
    C. Under vendor financing the financier typically doesn't influence the production in any way;
    D. Vendor financing in the film industry is also referred to as a negative pickup deal.

23. Which statement is incorrect for Venture Capital (VC) Financing?
    A. VC firms finance new and rapidly growing companies;
    B. VC firms also assist in the development of new products or services;
    C. VC firms differentiate among several stages of startup financing;
    D. Inexpensive for startups as they don't have to pay interest.

24. One source of funding is often self-financing from undistributed profits. Which statement about internal funding is incorrect?
    A. Transaction costs are lower relative to the issuance of securities;
    B. No supervision and review by banks;
    C. Internal funding has no cost to the company;
    D. Less disclosure of financial details that could benefit competitors;
    E. Self-financing has an impact on content and innovation.

25. Which statement about the CAPM is not correct?
    A. 12-month US treasury bonds are typically used to estimate the risk free rate of interest;
    B. A ß value of greater than one, indicates that the company is more volatile than the market;
    C. According to CAPM, a security's expected return is equal to the risk free rate plus a premium;
    D. None of the above.

26. What does the ß in the "capital asset pricing model" (CAPM) stand for?
    A. Estimated cost of capital;
    B. The company's riskiness;
    C. Risk free rate of interest;
    D. Expected rate of return.

Quiz Answers

1. D
2. C
3. C
4. B
5. C
6. A
7. A
8. A
9. D
10. B
11. A
12. D
13. C
14. B
15. A
16. B
17. D
18. D
19. C
20. B
21. D
22. A
23. D
24. C
25. D
26. B

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6.1 Introduction

In this chapter, we discuss how media and information sector firms can fund their activities. We will review financing alternatives and see how they are applied in the media and technology sectors.

We will also ask how the various funding types affect

- the structure of companies and industries;
- content and innovation;
- companies' activities.

6.1.1 The Finance Function in Companies

Within a company the finance function is usually managed by the chief financial officer (CFO). Reporting to the CFO are typically a treasurer and a controller (Fig. 6.1).

The controller handles the accounting function. This includes taxes, cost/financial accounting, and information systems. The treasurer handles cash flows, implements capital expenditure decisions, and makes financial plans. The CFO is in overall charge of raising the funds to carry out business operations, and the amount, source, and type of financing, also conducting financial analyses of the firm's performance. The CFO takes responsibility for the company's primary financial statements—the balance sheet, the income statement, and the statement of cash flows. Publicly traded companies are required to issue financial statements periodically and also to disclose major ownership changes and any insider transactions. In the USA, the legal responsibility of CFOs significantly increased following several financial scandals after the year 2000, in particular the collapse of the energy and commodities company Enron.

6.1.2 Key Questions of Corporate Finance

Optimal financial management is numbers oriented and draws significantly from a body of academic analysis called finance theory. Corporate finance theory is the study of financial decisions made by firms.

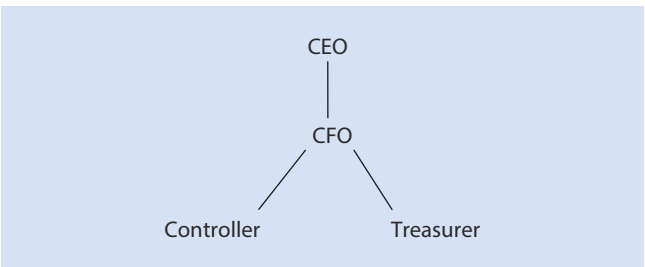

Fig. 6.1 Corporate organizational chart

It addresses questions such as these[1]:

- How much debt should a firm take? (Capital structure).
- How much short-term cash flow does a company need to pay its bills? (Optimal liquidity).
- What is a company's optimal mix of long-term versus short-term debt? (Term structure).
- How does a firm spend its cash and financial assets? (Investment policy).
- How does a firm obtain funds (debt and equity) and dispose of excess cash? (Financial policy).
- How does a firm distribute its earnings? (Payout policy).
- Which projects should a firm select for investments? (Capital budgeting).
- How can a firm reduce its risk exposure? (Risk management).

Financial management is not just about money. The question is whether the different ways in which firms get financed also affect the type of content that gets produced and distributed, and the nature of innovation. What would finance theory suggest about the impact of different financing types? In 1958, the finance professors Merton Miller and Franco Modigliani—both subsequent Nobel Prize winners—postulated a theorem that has become a major concept in finance theory. According to Miller and Modigliani, the value of firms is unaffected by their funding choices such as debt, equity, or private investment. The value of a company is based on its performance, not on funding types. The conduct and behavior of a firm are aimed at maximizing value, and are independent of its funding sources or styles. Applied to a media and communications firm, this would mean that its production or marketing decisions would not be affected by its funding. Miller and Modigliani's conclusion is based on several unrealistic assumptions.[2] But is the basic point plausible, that content and innovation are independent of a media organization's financings? We will keep returning to that question.

6.1.3 Basic Factors in the Finance of Media and Communications

We have earlier identified 12 factors of the media and information industries which, in combination, make their management different from that of other activities. Most of these factors affect financing.

The high fixed costs of many media and communications projects often force media companies to make large early

1 Ross, Stephen, Randolph Westerfield, and Jeffrey Jaffe. *Corporate Finance*. (New York: McGraw-Hill, 2002), 2; Ozanich, Gary W. "Media Finance and Valuation." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

2 These include an efficient financial market, no taxes, symmetric information, and no bankruptcy costs.

investments far ahead of the collection of revenues. To bridge that gap they must often borrow large amounts. Investment needs in media products, platforms, and devices are high and keep increasing. Investments in the USA in 2014 for wireline infrastructure, including for the backhaul of mobile, were $30 billion, and for wireless $17 billion. US cable television companies, 2015 investments in infrastructure were $13 billion.[3] The two major telecom companies AT&T and Verizon are spending about $17–20 billion on their networks.[4] For several years, Verizon's capex was the highest of all US firms and among the world's highest for any private company. To get a sense of the magnitude required: the cost of full residential fiber connection for the USA would be about $500 billion. Similarly, a broadband wireless infrastructure that would cover most of the population is estimated to require about $100 billion per network company for nationwide coverage, and about $500 billion total for the entire mobile industry.

Deutsche Telekom invested more than $14.6 billion in 2015 in fixed and mobile infrastructures. France Télécom/Orange invested $21.2 billion. Between 1997–2001, over $4 trillion were invested in European and US telecom ventures and firms, traditional and new.[5]

Similarly, the production of premium media content is often expensive. It often requires over $100 million to make and market a Hollywood movie.[6] Films are perishable, with a short window of revenue generation, yet delayed in the collection of revenues. In network television, average production cost for a primetime network show rose from $200,000 in 1971 to $1 million in 1991, $1.9 million in 2008, and $3 million in 2017. The average preopening budget for a musical on Broadway was $10 million and for a play about $4 million. Even "Off-Broadway" theater required $2 million for a commercial and $300,000 for a non-profit production.[7] (These figures were about two to three times higher than they had been in 2002). In the aggregate, annual US investment in content media are about $25 billion in film, $25 billion in TV and cable programs, $5 billion in games, and $3 billion in music. In 2010, the UK television channels spent $8.5 billion on content.[8]

These high fixed costs, in combination with low marginal costs and network effects, also create major economies of scale, barriers to entry, and oligopolistic markets.

On top of this, investments are highly risky. Of all films, books, and music, 80% do not generate enough of an audience to become profitable. Most new commercial online sites fail to make money. Two-thirds of new magazines fail in the first year. The distribution of success is extremely skewed. Success payoff is very high for a few products and low or negative for the rest. Risk is also increased by the long lag between a project's inception and its transformation into a revenue stream, as well as due to the excess supply of products relative to demand, and by the price deflation toward low marginal costs. For investors, the prevalence of intellectual assets among overall assets means that the value of collateral is low.

6.1.4 Case Discussion

Time Warner Versus Start-Up Entrant

The company Time Warner Media, acquired in 2018 by AT&T, is looking into the possibility of starting a new Internet television project. It is named Time Warner Internet Television (TWIT). The capital costs of the TWIT project will be $1 billion: $300 million to support the upgrade of its network distribution infrastructure, $200 million for upfront marketing and administrative costs, $100 million software development costs, and $400 million for content production. With all of these expenditures, the company must ask itself if this is a worthwhile investment. And how is it going to fund it? Even if it has enough cash on hand, this does not mean that it should spend it on the new project, just as a family buying a home will in most cases not fully deplete its liquid assets and instead will take a mortgage. Time Warner must consider, at the very least, how its actions regarding TWIT will affect its profitability, share price, debt repayment burden, and how much control it is willing to give up.

An alternate (and entirely hypothetical) entrant contemplating a foray into internet TV is a company called Start-up New-Generation Internet Television (SNIT). SNIT's founders have estimated its initial capital costs to be $100 million, one-tenth of the better-established TWIT, and with the same proportions for the major components of the project as they are projected for TWIT.

3 Statista. "Total capital expenditure for major cable service providers in the United States from 2008 to 2015 (in billion U.S. dollars)." Last accessed May 15, 2017. ► https://www.statista.com/statistics/209148/total-capital-expenditures-of-major-cable-service-providers-since-2008/.

4 Atkinson, Robert C. and Ivy E. Schultz. *Broadband in America, Where It Is and Where It Is Going*. New York: Columbia Institute for Tele-Information, 2009; AT&T. AT&T Inc. 2016 annual report. February 17, 2017. Last accessed May 16, 2017. ► https://www.att.com/Investor/ATT_Annual/2016/downloads/att_ar2016_completeannualreport.pdf; Verizon. Verizon 2016 Annual Report. Last accessed May 16, 2017. ► http://www.verizon.com/about/sites/default/files/annual_reports/2016/downloads/Verizon-AnnualReport2016.pdf.

5 This figure covers not only infrastructure but all telecom investments, including start-ups that did not succeed and corporate acquisitions.

6 A typical theatrical film in Europe cost €11 million to produce. European Commission. "New European film strategy aims to boost cultural diversity and competitiveness in digital era." May 15, 2014. Last accessed May 16, 2017. ► http://europa.eu/rapid/press-release_IP-14-560_en.htm.

7 Janeway, Michael and András Szántó, eds. *Wonderful Town: The Future of Theater in New York*. New York: National Arts Journalism Program, Columbia University, 2002; Rubino-Finn, Olivia. "Broadway Budgets 101: Breaking Down the Production Budget." *New Musical Theatre*. January 22, 2016. Last accessed May 16, 2017. ► http://newmusicaltheatre.com/greenroom/2016/01/broadway-budgets-101-breaking-down-the-production-budget/.

8 Ofcom. "Communications Market Report: UK." August 4, 2011. Last accessed October 27, 2011. ► http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK_CMR_2011_FINAL.pdf.

6.1.5 An Overview of Funding Sources

We will now look at how the different sources of financing are used by media and how they affect them. What are generally the funding sources for a business? They are, in particular:

- the creator/entrepreneur personally;
- family and friends;
- retained earnings of the company:
- banks and other lenders;
- private investors;
- vendors and buyers;
- institutional investors (mutual and pension funds, insurance companies, private equity (PE) funds, etc.);
- governments.

Within each category, there are multiple varieties. Often a mix of several funding sources will be put together as a package.

The funding mix keeps changing. Take the financing of Hollywood film, which has gone through cycles. In the "Golden Age" of film in the 1930s and 1940s the studios themselves typically financed movies, out of their own money. In the early 1980s public equity (i.e. the issuance of stock for new film production companies with a set of projects) became popular, and enabled the new studios Cannon and Carolco to establish themselves. When these companies went bust, investors soured on this type of financing. Next came a wave of Japanese direct financing in the 1980s. Matsushita acquired Universal, and Sony acquired Columbia, and both pumped money into these studios. Then Japan's economy slowed and that wave of funding source ended. In the 1990s, there was a foreign bank funding phase through institutions such as Credit Lyonnais, the state-owned and largest bank of France. This financed independent producers, many of whom went bankrupt. After losing $5 billion on film deals, mostly in Hollywood, as well as other loans, Credit Lyonnais had to be bailed out by the government—but eventually went under.

This phase was followed by an insurance-backed financing wave that crashed in 2000. Then came a German limited partnership financing phase in the 1990s until tax laws were changed in 2001.[9] And in the 2000s, Middle Eastern sovereign funding started to emerge as funding sources.[10] For example, in 2008 Abu Dhabi set up a fund with over $1 billion to support film productions and digital content.[11] A spinoff subsidiary of Qatar-controlled Al-Jazeera bought the Miramax studio in 2016. China may be next. And then, there are the online giants Google, Amazon, and Netflix with their insatiable need for content.

An example for the mix of financing sources is the film *Laws of Attraction*, a 2004 romantic comedy starring Pierce Brosnan and Julianne Moore as two divorce lawyers who accidentally get married. The film's production budget was $28 million. Marketing and so on added $17 million, for a total of $45 million in cost. On the income side, worldwide box office gross was $30 million, with a US domestic share of $17.9 million and international $12.1 million. The net of the share of theaters was $15 million. Therefore, the film was $30 million in deficit before revenues from home video, VOD, pay-TV, and other streams.

The $45 million overall budget was raised in the following way:

- 32% foreign presales to international distributors and pay-TV operators;
- 20% US domestic distribution deal with New Line;
- 15% German tax fund;
- 15% UK sale-and leaseback;
- 8% Irish tax incentives;
- 10% equity, in other words direct investment by the principals.

The German and UK funding components are tax shelter deals for rich investors. The Irish funding is based on some of the production taking place in Ireland, and was possibly available because of Brosnan's nationality and stature.

Finding is thus assembled in often complex packages from various sources, and these sources keep changing. Similar volatilities exist in the financing of several other media and information industries and media technology ventures. The upshot is that rarely is there a routine transaction, and that financing a media project may sometimes be its most creative aspect. We will now look at how the different sources of financing are used by media and the effects they have.

6.2 Internal Funding

6.2.1 Self-Financing

The first and most obvious source of funding is the company itself, or the owners and entrepreneurs who start it, as well as their family members and friends. Why not go instead to the bank for a loan? Because new businesses initially lack just about everything that a bank looks for in assessing and reducing risk: a record as an operating entity, audited financial statements, assets that can be used as collateral, a repayment history, or traded securities that are continuously evaluated in the market. This makes it difficult to obtain debt financing in the early stages of a business. The alternative for a start-up is self-financing. Of all funding for small businesses, 31% came from the principal owner.[12] A survey of the 500 fastest growing US companies (by *Inc.* magazine) shows that a quarter of them started with an initial investment of less than $5000, half with less than $25,000, and three-quarters with less than $100,000. Fewer than 5% required more than

9 Moore, Schuyler. "The Next Wave of Film Financing: German Tax Shelter Funds." *AllBusiness*. July 30, 2001. Last accessed September 28, 2011. ► http://www.allbusiness.com/personal-finance/individual-taxes-tax-exemptions/801082-1.html.

10 Jaafar, Ali. "Oil Gives Way to Film in Middle East." *Variety*. March 10, 2010. Last accessed July 9, 2012. ► http://www.variety.com/article/VR1118016308.html?categoryid=3217&cs=1&nid=2562.

11 Hussain, Aabid. "$1 Billion Being Invested by Abu Dhabi for Hollywood Project." *Top News*. September 6, 2008. Last accessed July 9, 2012. ► http://topnews.ae/content/211-1-billion-being-invested-abu-dhabi-hollywood-project; Albawaba. "Record number of films seek grants from Abu Dhabi film fund." July 20, 2015. Last accessed May 16, 2017. ► http://www.albawaba.com/entertainment/record-number-films-seek-grants-abu-dhabi-film-fund-721018.

12 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6–8 (1998): 613–673.

$1 million in capital.[13] Almost 80% of the *Inc.* 500 companies relied on personal resources as a financial basis for starting. These included:

- personal savings;
- severance packages;
- bank overdrafts;
- credit cards;
- pension plans;
- mortgage on residence;
- sale of personal assets;
- freeing up capital from other available sources.

Friends and family will often play an important role. When Bill Gates started Microsoft with Paul Allen, his well-to-do parents contributed money to the fledgling firm. But when seeking help from friends and family one must be mindful of several problems:[14]

- It puts pressure on the relationship and often changes its nature. An entrepreneur who brings in friends as investors must be prepared to lose some of them when things go wrong.
- It affects the entrepreneur's peace of mind: It is one thing to default on a bank loan, and another to burn through grandma's retirement nest egg.
- Family members and friends often feel free to meddle in the running of the business, and it is hard to maintain an arm's-length relationship.
- There has to be a clear exit strategy for such investors/friends.
- It deters outside investment. The presence of active relatives/insiders can dissuade professional investors from participating.

On the other end of the spectrum of business size, internal funding can also make sense for very large firms. The resources come from past capital injections or from earnings which were not returned to shareholders as dividends but were retained for new investments.[15] Some firms have accumulated vast reserves and can fund virtually every prospect on their own. In 2018, Microsoft had cash holdings of $146 billion. Google held more than $62 billion of its assets in investment securities, which meant it faced the problem of being treated like an investment fund under American law.[16] This money could be used for investments, acquisitions, and diversifications or paid back to shareholders. However, most serious investors would not want Google or Microsoft to buy outside assets and diversify just to reduce their cash holdings. Professional investors such as mutual funds and PE funds believe that they themselves can pick more effectively the kind of diversified portfolio that best fits their needs. Institutional and ordinary investors want overcapitalized corporations to instead pay higher dividends or buy back shares and raise their price. They also fear a less stringent assessment of internally funded projects, at times based on internal corporate politics, in contrast to the scrutiny than would be applied by more detached outsiders reviewing the project.

That said, internal financing by large companies has several advantages:

- funding may be immediately available;
- transaction costs are lower relative to the issuance of securities;
- no supervision and review by banks;
- less disclosure of financial details that could benefit competitors;
- a better informed evaluation of the project and its risk.

Well-established firms will often use a mix of internal and external financing: small projects are funded internally but large ones externally. Thus, over the life-cycle of a firm, internal funding is most likely to be used in the early stages of start-ups, but also in the mature stages of well-established firms operating in steady state.[17]

For films, a financial contribution by major performers is not unusual, either to obtain a larger share of the profits or in order to create a vehicle for themselves. An example of a self-financed film is *The Passion of the Christ*, a movie produced by actor Mel Gibson's company. He believed that the Hollywood studios were uncomfortable with his fundamentalist religious message, so he self-financed the film's production ($30 million) and marketing ($15 million) with his own money. The film was highly successful financially, grossing $611 million.[18] More common is for small independent films to be self-financed, for lack of alternatives. The Canadian film *Murder in Hopeville* cost $800,000, and film-maker Wendy Ord had to mortgage her home, sell her car, and max out her credit card to get it made.[19] The film was very popular, with a return on investment (ROI) of thousands of per cent.

It would be a mistake to view self-financing as "free." Internal funding has an opportunity cost to a company or individuals and a very real cost to shareholders. Profit that is reinvested is money that could have been paid out as a dividend to stockholders. In the words of the investment guru Warren Buffett, "earnings should [only] be retained when there is a reasonable prospect—backed preferably by historical evidence or, when appropriate, by thoughtful analysis of the future—that for every dollar retained by the

13 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211–234.

14 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211–234.

15 Stevenson, Howard H., Michael J. Roberts, and Harold I. Grousbeck. *New Business Ventures and the Entrepreneur.* (Homewood, Illinois: Irwin, Inc., 1985), 190-199.

16 Weiss, Miles. "Google Seeks Fund Rule Exemption to Increase Investment Returns." *Bloomberg*. August 24, 2006. Last accessed July 18, 2012. ► http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a7cZrfAtxQPw.

17 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6-8 (1998): 613-673.

18 Kronemyer, David. "A Template for Independent Film Financing." *Deconstructingpopculture.com.* November 15, 2006. Last accessed July 9, 2012. ► http://deconstructingpopculture.com/2006/11/a-template-for-independent-film-financing/.

19 Ord, Wendy. "Don't be afraid of self finance." *Canadian Filmmaker*. Last accessed July 9, 2012. ► http://www.canadianfilmmaker.com/content/view/83/38/.

corporation, at least one dollar of market value will be created for owners."[20]

There are various ways to estimate the cost of self-funding. For established firms, the finance literature typically uses a "bond-yield-plus-premium" approach. It takes the interest rate of a company's long-term debt (bonds) and adds a risk premium for the firm.

$$\text{Cost of Retained Earnings} = \text{Firm's Long Term Bond Yield} + \text{Risk Premium}$$

The cost of self-financing also has costs in terms of share value, and these rise with the amount of the retained earnings used. Investors typically buy common stock for two reasons, the cash dividend and the potential for capital gains. Together, they define an expected return.

$$\text{Expected Return} = \frac{(\text{Dividends} + \text{Capital Gain})}{\text{Price of Stock}}$$

If a company, for example, were to take its entire yearly dividend and use it to fund its projects there would likely be a significant sell-off reaction by those shareholders seeking steady income, and by all others whose expected return, to remain stable relative to that of similar projects, would require a lower yield (the numerator) to be matched by a corresponding drop in the price of the stock (the denominator). Unless more risk-tolerant investors step in, seeking the future growth from these investments, this sell off would often cause a drop in the stock's price, thus lowering the overall expected returns for the firm's project.

For a start-up company, too, there is an opportunity cost for self-financing. Its calculation is more complex since as a new company it has not yet established a long-term debt interest rate and thus one cannot use the "bond risk plus premium" approach of the equation above to estimate the cost of capital. Instead, one looks at a benchmark use for these funds, which would be to invest them in a project of comparable riskiness to the prospect at hand. This is done through the capital asset pricing model (CAPM) approach, in which the cost of capital is estimated as[21]:

$$r_a = r_f + \beta_a (r_m - r_f)$$

r_a = estimated cost of capital

r_f = risk free rate of interest

β_a = "beta" : the volatility of the specific industry versus the volatility of the stock market as a whole

r_m = expected rate of return for a similar firm

The CAPM approach has three basic steps. First, one estimates the risk-free rate (r_f) on an investment with zero risk. Typically used is the rate of US Government bonds. The 12 month US treasury bond rate average since 2000 has been about 2.75%.[22] Second, one determines the expected rate of return for similar firms (r_m). For start-ups, the comparison would be with "small cap" stocks, that is, of moderately sized firms. Since the 1980s, the average yearly return for small cap firms has been 13.8%.[23] The last step is to estimate the company's riskiness, as expressed in its "beta" (β_a). Beta is an important element in many analyses of stocks and can be calculated from the stock market price fluctuations of a stock in comparison to overall market fluctuations. When one does not know a firm's specific price volatility because the company's stock is not traded in a stock exchange and has no reported prices, one can estimate it by using average betas of similar firms in similar industries. For example, the average beta for the "Internet Sector," based on 180 firms, is 1.11.[24]

Self-financing has an impact on content and innovation. On the one hand, creators and entrepreneurs, since their personal money is on the line, might actually take less risk than a corporate manager whose owners are diffuse and distant, especially when it comes to large projects that could wipe them out financially. But this is usually more than offset by the impact of independence and the prospects of an upside financial and reputational gain. With self-financing, the owner is in control. Content produced and distributed may reflect the owner's own opinions and aesthetics. In technology, owners can take greater risks in backing projects in which only they have faith. This encourages greater innovation.

6.2.2 Case Discussion

Internal Funding

Time Warner Media could use retained earnings as a funding source for TWIT. What will be the cost and the availability? Though there are no interest payments associated with using retained earnings, there is still the opportunity cost for the money. As shown above, for established firms the opportunity cost of capital is given by[25]:

$$\text{Cost of Retained Earnings} = \text{Firm's Long Term Bond Yield} + \text{Risk Premium}$$

20 Buffet, Warren E. and Lawrence A. Cunningham. *The Essays of Warren : Lessons For Corporate America.* Durham, NC: Carolina Academic Press, 2015.

21 Investopedia. "CFA Level 1- Cost of Retained Earnings." 2012. Last accessed May 16, 2017. ► http://www.investopedia.com/exam-guide/cfa-level-1/corporate-finance/cost-of-retained-earnings.asp.

22 Mortgage-X. "Mortgage (ARM) Indexes." 2012. Last accessed July 18, 2012. ► http://mortgage-x.com/general/arm_index_average.asp.

23 AXA. "Good Things May Come In Small Packages: Small-Cap Stocks." 2013. Last accessed May 16, 2017. ► http://www.axa-equitable.com/investments/small-cap-stocks.html.

24 Damodaran, Aswath. "Betas By Sector." New York University Stern School of Business. January 2012. Last accessed July 18, 2012. ► http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html.

25 Brigham, Eugene F., Dilip K. Shome, and Steve R. Vinson. "The Risk Premium Approach to Measuring a Utility's Cost of Equity." *Financial Management* 14, no. 1 (Spring 1985): 33-45.

We will see in later sections that the interest rate on the company's long-term debt is 6.9%. The risk premiums for media firms run in the 2–5% range,[26] and since Time Warner is well-established with a good credit rating its risk premium would be at the lower end of the range. The cost of retained earnings can thus be estimated as 6.9% + 2% = 8.9%. Expressed in terms of the average US prime rate of the preceding five years (5.45%), it would be 3.45% above that rate. A ceiling to such self-financing owing to its impact on the share price. Time Warner's stock sold at the time for $33.00 per share, on average. This price has expectations incorporated in it. Partly based on Time Warner management's statements, analysts predicted a cumulative dividend of roughly $1.00 for the next year, which means a cumulative quarterly dividend payouts to stockholders of $235 million. Analysts expected the stock market to appreciate at roughly 5% in that year, that is, by $1.65. The expected return for investors can then be determined using the expected return formula:

$$\text{Expected Return} = \begin{pmatrix}\text{Dividend Paid} + \\ \text{Capital Gain}\end{pmatrix} \div \text{Price of Stock} = (\$1.00 + \$1.65) \div \$33.00 \approx 8.0\%.$$

What will happen to Time Warner's stock price when one quarterly dividend is invested by the company to fund TWIT rather than paid out to stockholders who have anticipated such an overall annual return of 8.0%? We can estimate the fall in Time Warner's stock price from the one reinvested quarterly dividend:

$$\text{Stock Price} = (\text{Dividend Paid} + \text{Expected Price including appreciation}) \div (1 + \text{Expected Return})$$
$$(\$0.75 + \$34.65) \div (1.08) = \$32.77$$

Thus, when the dividend is cut (reinvested) by 25% to $0.75, Time Warner's stock price would decline by $0.23 to maintain an 8% return. This represents a drop of about $225 million in market valuation. (We assume that investors will not value the potential but hypothetical long-term impact of the investment.) Time Warner has thus gained a financing of $235 million (the reinvested quarterly dividend) at the cost of a drop in valuation of about the same amount. It gained liquidity in the short term with the cost of a diminution in capitalization value. But if Time Warner were to withhold a second quarterly dividend per year, the stock would drop still more, and likely more steeply since it would rightly be seen as more than a small adjustment. Thus, the company's management would limit such dividend withholding, in accordance with the rule articulated by Warren Buffett that was quoted earlier, at the equivalent of one quarterly dividend.

SNIT

Each of the three founders of SNIT has a total of $10 million of their own money to invest, plus $10 million from their friends and relatives. The CAPM equation estimates the cost of SNIT's internal funding:

$$r_a = r_f + \beta_a (r_m - r_f)$$

The risk-free rate $r_f = 2.75\%$. The return for small cap firms has been $r_m = 13.8$. The return for internet firms has been $\beta_a = 13.8$, and their beta has been 1.11. Thus, SNIT's estimated cost of capital is

$$r_a = 2.75 + 1.11(13.8 - 2.75) = 15.02.$$

Expressed in terms of the average US prime rate, this would be 5.45% (the average prime rate over five years) plus 9.57%. The ceiling to $r_a = r_f + \beta_a(r_m - r_f)$ SNIT's self-funding is $20 million, the amount assumed to be available from the founders, their family and friends.

6.2.3 Project Selection for Self-Funding

A company that allocates its resources must invest them optimally. This is done through the process of capital budgeting. There are various stages in this process. One of the most important is the investment selection process where major techniques are used to evaluate the project's feasibility.

Major techniques for screening and evaluating projects include those of:

- payback period;
- discounted payback period;
- net present value (NPV);
- profitability index;
- internal ROI.

$$\text{Payback Period} = (\text{Cost of Project or Investment}) / \text{Annual Net Income}$$

In using this technique, a project is selected (or not) based on the time it takes to recover the investment. An example is the payback period a project that costs $500 million to create and construct in year 1, and is expected to earn, after operating expenses, $200 million a year. By Year 5 the project has repaid its initial investment cost and early operating losses; in other words, it becomes cash-flow positive.

To find the payback period one builds a table with estimated annual cash flows, as in Table 6.1.

Table 6.1 Annual cash flow

Year	Operating and investment costs	Revenues	Net cash flow ($ millions)	Cumulative net cash flow ($ millions)
1	(700)	100	(600)	(600)
2	(200)	200	0	(600)
3	(200)	300	100	(500)
4	(200)	400	200	(300)
5	(200)	500	300	0
6	(200)	500	300	300
7	(200)	500	300	600

The problem with using the measure of the payback period is that it ignores the time value of money, the riskiness of the project, and the cash flow that follows the payback period. These problems are addressed by incorporating the time value of money and the riskiness of the investment, by discounting future cash flows by the cost of capital, which is required by creditors and owners as compensation for their money.[27] The NPV method considers all future cash flows, including those received after the break-even point. It discounts each year's

26 Investopedia. "CFA Level 1- Cost of Retained Earnings." 2012. Last accessed May 16, 2017. ▶ http://www.investopedia.com/exam-guide/cfa-level-1/corporate-finance/cost-of-retained-earnings.asp.

27 Peterson, Pamela P. and Frank J. Fabozzi. *Capital Budgeting: Theory and Practice*. (New York: John Wiley & Sons, 2002), 64.

Table 6.2 Net Present Value

Year	Costs	Revenue	Net	Discounted (12% per year)
1	(700)	100	(600)	(600)
2	(200)	200	0	0.00
3	(200)	300	100	71.39
4	(200)	400	200	120.65
5	(200)	500	300	152.91
6	(200)	500	300	129.21
7	(200)	500	300	109.17
8	(200)	500	300	92.25
9	(200)	500	300	82.36
10	(200)	500	300	73.54
			NPV	*$231.48*

net cash flow by the discount factor, and the time of that cash flow. For each year, the present value (PV) is

$$PV_i = \frac{NCF_i}{(1+r)^i}$$

where I is the time until the cash flow is received (Year 1, Year 2). Added together, the NPV of future cash flows, net of expenses, is

$$NPV = \sum_{i=1}^{\infty} PV_i = \sum_{i=1}^{\infty} \frac{NCF_i}{(1+r)_i}$$

Table 6.2 uses for the discount rate for the cost of capital, assumed as $r = 12\%$, and adds up the discounted cash flows. The NPV of ten years of cash flows is $231.48 million, including the initial outflow of investment. That number would be somewhat larger if one calculated beyond 20 years. However, the discounting over a longer period does not add much in terms of PV. For example, a dollar earned 30 years hence, with a discounting at an annual 12%, is worth today 3 cents.

NPV calculations show us a dollar amount (Table 6.2). But what is that dollar amount as a percentage of return to the investment? This gets us to the next measure, the internal rate of return (IRR).

The IRR is the discount rate that makes the PV of all expected future cash flows equal to zero.[28] IRR is given by the equation $NPV = O = \sum_{i=1}^{\infty} \frac{NCF_i}{(1+IRR)^i}$

Finding IRR involves some arithmetic. Typically, this is done by estimating an initial IRR, calculating the NPV, and adjusting the IRR upwards or downwards until the NPV is close to zero. Financial calculator software programs can be used to do this. For a company to undertake a particular project the latter's IRR must exceed the company's "hurdle rate." That hurdle rate would be higher for riskier projects and industries, and varies accordingly. A survey of CFOs found their companies using hurdle rates ranging from 6% to 25% and centered on 15%.[29]

Which hurdle rate to use, that of a company or of the industry? After all, many companies straddle several industries, each with different risk characteristics. Most companies, according to the surveyed CFOs, use a company-wide hurdle rate, but some use the hurdle rate specific to the industry within their division. The German technology firm Siemens assigns a different hurdle rate to each of its 16 major business lines. They range from 8% to 11%, based on the volatility of stock of rival companies in the relevant industry.[30]

6.2.4 Case Discussion

Time Warner—IRR

Time Warner's IRR cost of capital, as will be determined later in this chapter, for an optimal mix is a low 7.27%. Hence TWIT is a feasible project. Feasible, however, does not mean optimal. The TWIT project must also compete for investment funds with other Time Warner projects that may have a better return and/or less risk.

For start-up SNIT things are more pessimistic. Suppose the company calculates its IRR to be 13%. As we shall see later, it costs SNIT 14.19% to raise funds. This would negate economic logic for the venture. However, if management is very optimistic about this project it may go ahead anyway, hoping for the best.

6.3 Debt Financing

6.3.1 Pros and Cons of Debt

Other than internal funding, debt is usually the cheapest form of financing. Debt is typically money borrowed from an outside source such as a bank or another type of lender, with the promise to return the principal (the original amount borrowed) and in addition pay an agreed-upon level of interest, either regularly or at the end.

There are several advantages to debt. It is:

- quicker to create than equity;
- does not change the existing ownership structure;
- allows for interest payments to be deducted from taxes;
- keeps the upside potential of the project with shareholders.

28 Peterson, Pamela P. and Frank J. Fabozzi. *Capital Budgeting: Theory and Practice*. (New York: John Wiley & Sons, 2002), 64.

29 Meier, Iwan and Vefa Tarhan. "Corporate Investment Decision Practices and the Hurdle Rate Premium Puzzle." Working Paper. January 28, 2007. Last accessed May 17, 2017. ▶ https://doi.org/10.2139/ssrn.960161.

30 The Economist. "Finance and Economics: How high a hurdle?" May 6, 1999. Last accessed May 17, 2017. ▶ http://www.economist.com/node/607466.

But there are disadvantages to debt:

- Loans must be repaid in a timely manner and can lead to the bankruptcy of even a good project if it is caught in a cash flow squeeze.
- The borrowers may have personal liability with their assets.
- Assets pledged as collateral may be lost.
- There is a hidden cost to debt as it makes the company riskier for investments.

A bank will scrutinize a company's business plan, management, financial reports, and the other financial backers, and will set conditions on how the company must operate. These debt covenants give lending institutions control and prevent borrowers from increasing riskiness. Debt covenants may include specific financial ratio "triggers," restrictions on certain activities, and periodic submission of financial information.

In recent history, in the USA, 92% of all small business debt to financial institutions was secured and backed by collateral. In addition, 52% of such financial institution debt was guaranteed, usually by the owners of the firm, including by collateral such as a house.[31] Banks and other lenders might also require a third-party endorser or guarantor to be personally liable for payment if the borrower defaults.[32]

In the film business, debt is the most common form of financing, after the pre-sale of distribution rights. Loans to the production can be made by the distributor or studio in return for a commitment of the producer to use the distributor who lends the money. An alternative mechanism to secure debt financing is a negative pick-up deal. A commitment is made by a distributor to the producer to purchase or license the film's distribution rights once the physical negative has been produced. That commitment (the pick up letter) is then taken to a commercial bank and is used as collateral to borrow production funds from the bank. If the producer defaults on the repayment, the bank is then entitled to payment from the distributor from the revenues that the film generates.

Internet firms have difficulties getting debt financing. They typically have low cash flows and few real assets to borrow against, and often have negative profits for quite a while, also known as cash burn. In contrast, established telecommunications and cable TV firms have lots of assets and are fairly stable. In consequence, it is a way of funding they often employ. For established cable or telecom firms, debt represents 40–90% of their overall funding.

As a company goes through the specific phase in its lifecycle its access to credit changes, as does its need for outside funding. When companies grow, their financial needs and their projects also tend to grow. At some point, a single bank will be reluctant to place too big a bet on a single company by itself. Syndicated loans have a broader participation beyond a single bank, with several banks co-sponsoring or underwriting loans to spread their risk. For example, when the Indian mobile telecom operator Idea Cellular needed a $1 billion loan, a syndicated loan deal was managed by several lead banks, who in turn organized about 50 smaller banks to supply the funding.[33]

6.3.2 The Hierarchy of Debt

Debt comes in many forms, with some more secure than others. A hierarchy of debt ranks it from the most secure to least secure. In the case of bankruptcy the most secure debt is paid first and the least secure debt last, which often means never.

Most midsized firms have arranged for a bank debt line (or letter) of credit (LOC) or credit security. An LOC is an agreement in which the lender gives the borrower access to a certain level of funds. This is on condition that the borrower's condition has not suffered material adverse change or that the borrower has violated a covenant in the contract. In a way, it is like an overdraft privilege for personal checking accounts with a ceiling.

LOCs are typically secured by two types of fairly liquid assets, namely accounts receivable and inventory. Because of its low risk profile, LOC financing is usually the least expensive at about 1–1.5% over prime.

The lender charges for the loan either a fixed or a variable interest rate that fluctuates depending on the prevailing interest rates. LOCs typically comprise one-sixth to one-third of an established company's outstanding debt.[34] LOCs may have a term length of one to three years, and after their expiration may be rolled over into the next LOC by the bank. The LOC is likely to be reauthorized as long as the borrower continues to make repayments on time and the lender continues to feel comfortable about the loan. In lending to film companies, production loans to low-risk firms (such as the major studios) are set at 0.5–1% above the prime rate. Small production companies are riskier and pay 3% above the prime rate.

As an example, in 2008, the IMAX Corporation, a Canadian producer and exhibitor of 3D films, had total revolving LOC lines of $40 million, of which $10 million came from the Bank of Montreal, made available to the company to roll out its digital projection systems.[35]

6.3.2.1 Senior Term Debt

The second most common form of bank financing for small and mid-sized companies is senior term debt. This is offered to a company by a bank or finance company. These loans are made against fixed assets that are fairly liquid, such as real property, plant, and equipment. A "senior" lender ranks ahead of some other creditors in the event of liquidation, and

31 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6-8 (1998): 613-673.

32 DiGregorio, Robert, C. "How to Finance Your Film: Part 2." *New England Film*, November 1998.

33 TNN. "Idea to raise $1bn via syndication to clear costlier debt." February 28, 2005. *The Economic Times*. Last accessed May 17, 2017. ► http://articles.economictimes.indiatimes.com/2005-02-28/news/27475159_1_loans-reliance-industries-plans-bank-of-india-plans.

34 Sufi, Amir. "Bank Lines of Credit in Corporate Finance: An Empirical Analysis." *The Review of Financial Studies* 22, no. 3 (Jan. 2007): 1063-1065.

35 IMAX Corporation. "IMAX Corporation Announces New Revolving Letter of Credit Facility with Bank of Montreal." *StudentFilmmakers.com*. October 18, 2008. Last accessed July 18, 2012. ► http://www.studentfilmmakers.com/news/article_1768.shtml.

can seek repayment from the forced sale of the secured assets. Such loans will usually not be provided for a venture whose debt load already exceeds equity. Senior term debt runs for five to ten years, costs 1–2% over prime, and may often represent 25–30% of the total outstanding debt of a corporation.

As an example, in 2006 the Australian private equity (PE) firm Babcock & Brown acquired the Irish national phone company Eircom for €4 billion through a €3.65 billion senior debt loan from Credit Suisse, Deutsche Bank, and JPMorgan. At the time of the transaction, Moody's and S&P had graded the company debt at Ba3/BB-,[36] which is a poor rating and a reason why the lending banks required the assurance of senior debt secured by the assets of Eircom itself. In the end, Babcock & Brown went bankrupt in 2009. Its share price dropped 99%. Unsecured lenders were offered $.001 on the dollar and rejected it. Babcock & Brown was liquidated and the proceeds distributed to those creditors for a minuscule payback. But the secured lenders held 57% of Eircom as a collateral and ended up mostly OK, because Eircom itself was operating in the black, in contrast to its overstretched parent company.

6.3.2.2 3rd Level of Debt: Subordinated Debt

Subordinated or non-collateralized debt ranks below senior debt in repayment when there is a bankruptcy. It can be secured by a second lien on company assets (like a second mortgage on a house) or be unsecured. It can have an "equity kicker," which gives the lender the option to trade the debt for an equity stake in company, in a similar way to convertible bonds (discussed below). This gives the lender an upside potential if the stock price rises, and makes the loan more attractive.

Subordinated debt is costlier than senior debt, because it is less secured by liens or collateral and gets paid off only after the senior debt. The interest rate on subordinated debt was 3–7% over prime.

An example is the subordinated debt that was issued by the major British cable TV companies NTL and Telewest to finance their expansion.[37] In 2003 NTL, unable to repay its obligations, converted $11 billion of subordinated debt into shares instead of repaying the debt. This was the largest debt default in UK history at the time. A year later, Telewest, similarly, swapped (paid off) its unsecured debt in return for 98.5% of its shares. In other words, both companies sold themselves to their creditors. The companies thus technically avoided bankruptcies. NTL merged with Telewest in 2006 and was rebranded as Virgin Media, which was bought by Liberty (John Malone, USA) in 2013.

6.3.3 The Impact of Secured and Unsecured Debt on Content and Innovation

The more secured a lender is, the greater its support is for risky activities in content and technology. But content producers can rarely offer collateral of any value until near the completion of their productions. Some producers may own a library of films that can be used as collateral. When there is no collateral, lenders will seek:

- low-risk projects;
- insurance;
- risk-shifting to other participants, partners, and investors.

6.3.4 Case Discussion

Line of Credit

TWIT

Viable loan programs available to TWIT include a commercial bank loan (term loan) and revolving LOC secured by the full faith and credit of its parent company. In 2011 Time Warner entered into a credit agreement with Citibank for a five year revolving credit line totaling $2.5 billion. The funds were for Time Warner's "general corporate purposes" and "working capital needs." Such borrowings are charged an interest rate that is determined on the basis of Time Warner's senior debt rating (BBB+ at the time) and the percentage of commitments used. Time Warner's agreement with Citibank stipulates that the London Interbank Offer Rate (LIBOR) is used to determine the interest rate. (LIBOR is based on the rate of interest that banks borrow from other banks in London's wholesale money market. It is typically used as a reference in deals that are international in scope.) The LOC agreement asserts that Time Warner will pay LIBOR plus 1.5%, plus a 0.3% "facility fee." With the five year average LIBOR at 3.21%, interest cost on the LOC is therefore 3.21% + 1.5% + 0.3% = 5.01%, or, expressed differently, it is the five-year average US prime rate of 5.45% minus about 0.50%.[38]

This does not take into account the tax angle of a debt transaction. Interest payments on business debt are a tax-deductible expense. The magnitude of such deductions varies by the tax rates of a jurisdiction; we assume a 30% income tax deduction on interest payments. The interest cost of LOC debt is therefore 30% lower after taxes.

Time Warner, in addition to the TWIT project, has also many other worthy projects and operations to fund by an LOC. We assume that it will allocate to the TWIT

36 Guider, Ian. "Eircom Set to Change Hands for 2.5 bn." *Irish Examiner.* May 24 2006. ► http://www.irishexaminer.com/ireland/eircom-set-to-change-hands-for-25bn-4168.html.

37 Milmo, Dan and Richard Wray. "Cable merger revives telecom sector calls for access to network." *The Guardian.* October 4, 2005. Last accessed July 18, 2012. ► http://www.guardian.co.uk/media/2005/oct/04/broadcasting.citynews.

38 While traditionally prime rate was the interest charged by banks to favored customers, banks may offer interest rates that are below the current prime rate to highly qualified clients in order to generate business.

project up to 10% of the available five-year revolving credit line of $2.5 billion.

SNIT

In contrast, start-up company SNIT has no or only limited access to bank loans or credit lines owing to its small size, lack of assets, and lack of a historical track record. What interest rate would conceivably compensate a bank for the risk? Assume that the founders themselves have found limited sources for a loan.[39] The loan amounts and the interest charged are based on the credit scores of the founders, their income streams, and the personal assets that can be pledged as collateral.

Assume that SNIT's five founders have found a lender willing to issue them an LOC in an amount equal to 20% of their net worth. Each of the founders has an impeccable credit score, a private home, an ongoing relationship with the lending bank, and an average net worth of $1 million. The cumulative LOC amount would therefore be $1 million. The rate of interest on the LOC would be 15%.[40] This translates into the five-year average prime rate (5.45%) plus 9.55%. This does not incorporate tax deductibility, which might reduce the cost by 30%, that is to 10.5%, assuming that there is an income to deduct against.

6.4 Short-Term Debt

Different types of debt can be ordered by the length of time until full repayment is due. Short-term debt is typically considered to be less than one year in length.

In the media sector, several types of short-term debt are used:

- gap financing;
- completion loans;
- bridge loans;
- commercial paper (CP).

6.4.1 Gap Financing

Gap financing in media is used to cover the difference between the amounts raised in the early sale of distribution rights and the actual cost of finishing the project.[41] In other words, it is the part of the budget that must come from the outside, from parties not directly related to the project and its further exploitation. Gap levels in film are usually 15–25% of budget.

To add security to the lender, there exists gap financing insurance that kicks in if the producer cannot repay the entire loan to the lender. This business is risky. Insurers reportedly lost $1.5 billion in 2000 on bad film projects with gap insurance policies. The French insurance giant AXA insured about 150 films for a total of approximately $500 million in the 1990s. This enabled American independent producers to secure loans from banks. Of the approximately 150 films which AXA insured, only about 30 could repay their loans. AXA faced at least $250 million in losses, plus huge legal bills.

6.4.2 Completion Loans

Completion loans are for projects that have already been finished or are close to being done. With the project substantially completed and available for review, the risk to the lender is much reduced. Completion loans/funds are often provided to smaller film-makers for distribution costs, and are usually much smaller than gap loans.[42] For example, the UK Film Council offered completion loans totaling £70,000 in 2010 for short film projects that were already shot but not yet finished.[43] In other cases, completion loans are made by parties interested in assuring the conclusion of projects they feel positive about. For example, Frameline provided in 2008 completion funds of $20,000 for four gay-themed films.

6.4.3 Bridge Loans

Short-term bridge loans are made to enable transaction from one long-term arrangement to another. As an example, in 2000 Time Warner purchased the assets of the bankrupt competitive telecom local exchange carrier GST for $700 million. Time Warner got a bridge loan to provide the time to structure the new financing for the long term. To repay the bridge loan, Time Warner then issued new shares of common stock for $317 million (i.e. equity) and also took on debt for $400 million. Bridge loans are expensive when compared with other financing options. They are short-term lending options, and the higher fees are implemented because the period with interest payments will likely be brief.

6.4.4 Commercial Paper

A major way for established companies to raise money for short periods is CP. CP loans are unsecured and taken by a company with a repayment period ("maturity") of up to 270 days, but an average of about 30 days. CP interest is paid

39 Credit Guru Inc. "Setting Credit Limits." 2012. Last accessed May 17, 2017. ► http://www.creditguru.com/CreditLimits.htm.

40 Marlon, Sharon. "Unsecured Personal Loans On The Increase." *MarketProSecure*. March 14, 2011. Last accessed July 18, 2012. ► http://www.marketprosecure.com/personal-finance-news/unsecured-personal-loans-on-the-increase-198.html.

41 Insurance Journal. "Film Financing Trial Starts in London." January 14, 2002. Last accessed May 17, 2017. ► http://www.insurancejournal.com/news/international/2002/01/14/15980.htm.

42 Alberstat, Philip. *The Insider's Guide to Film Finance*. London: Focal Press, 2004.

43 Maya Vision International. "The Short Film Completion Fund." 2011. Last accessed July 18, 2012. ► http://www.mayavisionint.com/Funding/The_Short_Film_Completion_Fund/index.html.

at maturity date. The companies borrow money from financial institutions and issue CP as promises to repay. These promises, in turn, are resold by the lenders to other investors at a discount.

CP is bought by banks, insurance companies, money market and pension funds, and other institutional investors. It is typically issued (i.e. money is borrowed) by companies with good financial standing, because they are unsecured by assets and thus stand on the reputation of the borrowing company. It is often said they are the kind of loans made to companies that do not really need them, except for the purpose of smoothing their income. CP buyers (the lenders) in turn do not need to do much in the way of due diligence to investigate the borrower because those firms are low risk. In addition, a "back stop" is often used to guarantee payment by the bank that originated the paper. Securities that are offered to the public usually need to be registered with the securities regulators such as the SEC in America, but most CP is exempt from such a registration requirement.[44]

An advantage of CPs is relatively quick access to low-cost financing. As examples, in 2006, China Unicom issued $750 million in CP for investment in its 3G wireless network,[45] and the American mobile company Sprint issued $2 billion in CP. In both cases, investments in network infrastructure are long term. Even so, the companies chose short-term CP financing to benefit from the low interest, quick funding option.[46]

In other cases, companies use short-term CP because they have no access to long-term financing or because they expect long-term interest rates to drop soon. But commercial paper use is subject to a "roll-over risk" or "liquidity risk" as investors may not be willing to refinance CP that has reached maturity, owing to changing market conditions or changes in the borrower's overall financial circumstances. For example, in 2002 the old AT&T, having amassed a huge debt, had difficulty getting long-term loans through the issuance of quality long-term bonds. It therefore used the CP market for short-term loans which it would roll over periodically, paying off the old short-term debt by new short-term debt. By 2001 AT&T had a $16–$18 billion debt in CP out of its total $50 billion of debt. AT&T's strategy was to improve its financial condition and then refinance its short-term CP debt through long-term debt. Unfortunately for AT&T, this did not work out, and running out of money it was forced to sell itself to SBC in 2005.

CP comes in several qualities ("tiers").[47] Each of these has sub-tiers. Tier 1 CP is usually rated AA. The interest rate is usually below LIBOR. This rate fluctuates greatly. In May 2000 it was high, 7.34%. In October 2003 it was low, 1.42%. In August 2006, it was high again at 5.23%, but by January 2015 it was 0.25%, and in August 2018 it was 2.82%. Tier 2 CP tends to have an interest rate a little higher than LIBOR. The Tier 2 and 3 markets are smaller, less deep, less liquid, with fewer buyers, and greater risk.

6.4.5 Case Discussion

Commercial Paper Debt

TWIT
One major debt option for TWIT is unsecured CP backed by its well-established parent company, Time Warner. Generally speaking, a long-term project such as TWIT should be financed through long-term means rather than using a short-term approach.[48] But the CP could be used as a temporary financing vehicle. In February 2011, the company issued $5 billion in CP, rolling over (replacing) the previous $6.9 billion CP. ($5 billion in 2001, and $2 billion in 2002.) The five year average (2006–2010) interest rate on corporate three month (90-day) Tier-2 CP was about 3.2%. This translates into the five-year average prime rate of 5.45% less 2.25%, before taxes.

SNIT
SNIT, as a newcomer, would not be able to issue CP. To enter the CP market, it would require sponsorship from a commercial bank or third party to guarantee payment. But in SNIT's circumstances this would be unlikely.

6.5 Long-Term Debt

6.5.1 Corporate Bonds

Once a firm is well established, its next stage of financing is to access long-term corporate debt. The typical form of such debt is typically in the form of bonds. When such debt is traded in financial markets it is known as public debt, which should not be confused with governmental debt. The standard length to maturity of a corporate long-term bond is between three and 30 years. But some bonds have a 100-year maturity date, or even go on forever. If the maturity date is less than ten years it is a "note," and if it is over ten years it is a "debenture." Many deals have multitranche maturities, in which there are several categories of bonds with different lengths of repayment to even out the repayment schedule over time. There are also "zero coupon" bonds. These bonds do not make periodic interest payments but are sold below face value. The interest fee is then in effect through the higher repayment at the maturity date.

44 Liu, Henry C. K. "Pathology of Debt, Part 2: Commercial paper and pesky SIVs." *Asia Times Online*. November 28, 2007. Last accessed July 18, 2012. ► http://www.atimes.com/atimes/Global_Economy/IK28Dj04.html.

45 China Unicom to sell 6b yuan notes to raise working capital; Operator's short-term debt sale follows US$1 billion bond deal with SK Telecom, South China Morning Post 2006. Telco Trash & ICT Reboot. "G China Telecom News – 5 July 2006." July 5, 2006. Last accessed July 18, 2012. ► http://khcheng.blogspot.com/2006/07/g-china-telecom-news-5-july-2006.html.

46 Online Investing. "MTN Raises 3.5bn Rand in Bods, Commercial Paper." July 16, 2010. Last accessed September 28, 2011. ► http://hyip-online-investing.com/telecommunications-mtn-raises-3-5bn-rand-in-bonds-commercial-paper.html.

47 Reason, Tim. "Good to Rate." *CFO Magazine*. September 1, 2003. Last accessed July 18, 2012. ► http://www.cfo.com/article.cfm/3010263/3/c_3046597.

48 The ceiling on tier 2 issues is usually around $6–8 billion. For example, the Walt Disney Company had a substantial $4.5 billion in outstanding Tier 2 CP debt in 2004. By 2010, this had declined to $794 million. Tier 3 CP debt is usually rated in the mid-BBB level. It has an interest rate well above LIBOR and smaller issues of $200–300 million. See also Kacperczyk, Marcin, and Philipp Schnabl. "When Safe Proved Risky: Commercial Paper During the Financial Crisis of 2007–2009." *Journal of Economic Perspectives* 24, no. 1 (Winter 2010): 29-50.

Table 6.3 Cost of debt of major media firms (2006)

Company	Rating	Approx. interest rate for rating	Total debt in $ billions	Annual cost of debt in $ billions	Annual cost of debt if rating were AAA, in $ billions	Annual savings if rating were AAA, in $ millions
AT&T	A	5.50%	30.47	$1.68	$1.52	$160
CBS	BBB	6.10%	7.04	$0.43	$0.35	$80
Comcast	BBB+	5.90%	24.12	$1.42	$1.21	$210
News Corporation	BBB	6.10%	11.43	$0.70	$0.57	$130
Time Warner	BBB+	5.90%	23.47	$1.38	$1.17	$210
Verizon	A	5.50%	42.36	$2.33	$2.12	$210
Viacom	BBB	6.10%	7.66	$0.47	$0.38	$90
Vodafone	A–	5.70%	37.78	$2.15	$1.89	$260
Disney	A–	5.70%	12.67	$0.72	$0.63	$90

Chart compiled with data from Standard & Poor's bond ratings and interest rates in 2006. ► http://www.standardandpoors.com/ratings/en/us/

Long-term debt is most appropriate for companies with steady cash flows or strong growth prospects. Examples are companies in cable TV, direct broadcast satellite, wireless, and telecom. In 2001, Deutsche Telekom issued €8 billion bonds to pay for 3G mobile phone licenses. In 2004, Korea Telecom issued $100 million in 30-year corporate bonds. In 2006, debt accounted for 52% of Viacom's enterprise value. Of this, 99% was long-term debt. For AT&T long-term debt was $125 billion and 51% of market capitalization, and for Verizon $106 billion and also 51%. In contrast, the relatively young and asset-lean Netflix had $3.3 billion debt which was only 6% of the company's market capitalization. Netflix, once established raised another $1 billion in the bond market to help fund content expansion, with a 4.375% interest rate. Comcast had $60.4 billion in debt in 2016, about 37% of the company's market capitalization. To borrow additional money, Comcast issued A3/A-rated high-grade bonds worth $4.5 billion in four parts[49] that form a "ladder" for repayment:

- $700 million in 1.6% five-year notes issued at a spread of 55 basis points (bps) over similar-maturity Treasury bonds.
- $1.4 billion in 2.4% ten-year notes issued at a spread of 85 bps over similar-maturity Treasuries.
- $1.0 billion in 3.2% 20-year bonds issued at a spread of 100 bps over similar-maturity Treasuries.
- $1.4 billion in 3.4% 30-year bonds issued at a spread of 120 bps over similar-maturity Treasuries.

Sometimes, interest rates drop substantially and the borrower would like to refinance at a lower rate. Therefore, some bond debt comes with a "call" feature which allows the issuer (the borrower) to pay back the bond's face value to the investor (the lender) prior to the maturity date. To compensate the lender, there is a penalty for early repayment.

Companies issuing bonds are evaluated by rating agencies in terms of their credit quality based on business and financial analysis. Three firms lead the credit rating market in the USA, Moody's, Standard & Poor, and Fitch. There are also second tier and web-based rating services. Rating agencies look at both quantitative and qualitative factors when analyzing bond issuers. Qualitative factors include industry risk, operating environment, market position, management track record, and especially accounting data. Quantitative factors include cash flow, capital structure, and financial flexibility. Bonds with an acceptably low risk of default are rated BBB and higher. These bonds are considered investment grade. Bonds with a rating of BB or lower have a higher risk of default and are considered speculative grade, high yield, or, colloquially, junk bonds.

Table 6.3 details the ratings of major media firms, the resulting average interest rate assigned to those ratings, the subsequent dollar denominated cost of the ratings, and the annual savings if the firm could attain a debt rating of AAA.

As one can see, the difference can be substantial; for example, an annual $210 million for Comcast, Verizon, and Time Warner, and $260 million for Vodafone. Most established telecom companies used to be rated AA. They were downgraded when they took on huge debt for buying spectrum licenses and for mergers and acquisitions.

49 Noah, Lynn. "Comcast Issued the Most High-Grade Bonds Last Week." *Market Realist.* July 19, 2016. Last accessed May 17, 2017. ► http://marketrealist.com/2016/07/comcast-issued-high-grade-bonds-last-week/.

As an example, in 1998 British Telecom had a debt of £1.5 billion, but by 2000 this had skyrocketed to £30 billion. Credit rating was lowered to A. The interest rate rose 1% (150 bps–250 bps). On a debt of £30 billion this is an extra £300 million a year in interest payments.

There are other consequences and lowered ratings due to high debt. Many investors such as pension funds have internal policies about the minimum rating levels which they require, and they must sell bonds whose ratings drop below that threshold. In other cases, bonds may have "triggers" that automatically increase interest rates in old bonds if the firms are downgraded.

Investment grade firms have debt of up to perhaps three times earnings (earnings before interest, taxes, depreciation and amortization, EBITDA). Junk bonds have four to eight times EBITDA. Some issuers of junk bonds are "rising stars" (new companies). In other cases, it may be a solid company that borrows heavily to finance an acquisition. In still other cases, the company borrows to pay for its own acquisition by others (leveraged buyout).

As an example, in 2007 the mobile phone company Alltel issued $7.7 billion worth of junk bonds to help fund the $27.5 billion buyout of itself by the investors Texas Pacific Group and Goldman Sachs. In other words, the buyers—two PE funds—financed a significant part of their acquisition by borrowing against the company they were buying, and selling this new and expensive Alltel debt (i.e. the bonds) to private investors.

The default rates of junk bonds are, on average, about 3–4% of all such bond issues but much higher during downturns in the economy. With the dot-com bust after 2000, the default rate exploded to 43.5% of telecom loans in 2002. The borrowers filed for bankruptcy protection, banks and bondholders lost hundreds of millions of dollars, and the debt financing market for telecom start-ups essentially closed for years.[50]

The telecommunication sector had by far and away the highest default rate on corporate bonds of any industry for the period, with average annual default rate of 11.5% for the period 1980–2007.[51] The average corporate default rate during that period was 0.5%.[52] The default rate for broadcasting and media over that period was 2.1–1.6%.

6.5.2 Short-Term Versus Long-Term Debt

Maturity analysis is the examination of the pattern of future financing cost (such as dividends, interest expenses, and repayments of the principal) and its relation to future cash flows that can cover such payments. Companies try to match the amounts and timing of payments to the projected dates of future revenues. This process is called duration matching. Companies usually try to link the funding to the life of an asset. Short-term debt would thus be appropriate to project-oriented industries such as film production or video game development. In contrast, long-term debt is seen as more appropriate for the long-term investments of infrastructure firms such as telecom or cable TV operators. Mismatches can have negative consequences. When funds are raised before they are actually needed, the issuer suffers negative arbitrage. Unused funds sit around and usually earn a lower interest rate than the borrower's cost of funds. The reverse mismatch may require a borrower to pay back (retire) the debt before the completion of the project and before it starts earning money. The firm then might become insolvent financially even though the project is proceeding well in every other respect.

Long-term debt tends to be preferable for large established companies. Short-term debt is preferable for companies with high growth. If a firm's income is vulnerable to interest rate upswings it will prefer long-term fixed rate debt.[53] If it uses debt with shorter maturities, it may have to repay them with proceeds from fresh issues ("roll-over of debt"). But this exposes the issuer to roll-over risk when credit freezes up. In situations where the firm expects the interest rate will go down, it will try to avoid being locked in a relatively high interest rate, by either going for a short-term debt or through a long-term debt with "floating" (i.e. variable) interest.

6.5.3 Impact of Short Term Versus Long Term Debt on Media and Digital Tech Companies

Media companies that must seek frequent refinancing are under greater performance pressure. This favors low-risk technology projects, non-controversial content, and a short time horizon. In contrast, long-term debt allows for a longer time horizon to create and innovate, but investors require a risk premium for committing their funds to long and uncertain prospects. Creative long-term opportunity is thus more expensive than short-term and modest innovation. However, it has a higher upside.

50 Burns, Mairin. "Feet to the Fire: Distressed-debt investors force needed discipline on telecoms." *The Investment Dealers' Digest*. May 5, 2003.

51 Fitch Ratings. "Fitch Publishes 'Credit Encyclo-Media Volume VIII." September 22, 2015. Last accessed May 17, 2017. ► https://www.fitchratings.com/site/pr/991149.

52 Even real estate had a lower default rate, 1.5%, during that period. This changed after the next crisis, the sub-prime mortgage crisis after 2008.

53 Aivazian,Varouj, Ying Ge, and Jiaping Qiu. "Debt maturity structure and firm investment." *Financial Management* 34, no. 4 (Winter 2005): 107-119.

6.5.4 Case Discussion

Corporate Bonds

TWIT
Corporate bonds require steady cash flows and strong proven performance. Time Warner had these characteristics. It could issue corporate debt through a process called underwriting, with one or more securities firms or banks forming a syndicate and buying the entire issuance of bonds (i.e. they lend the company the money). The banking syndicate will then resell much of that debt to investors at a higher price and hence at a lower yield. Based on the company's corporate credit rating of BBB it would have to pay an annual interest rate of about 6.9% on ten-year corporate bonds.[54] The Federal Reserve sets a federal funds rate for bank loans. The "Prime" rate is the interest rate charged by banks to their best customers, usually 3% above federal funds rate set by the Federal Reserve Bank, and is determined by polling the ten largest banks in the USA. The average prime rate prevailing during a five-year period was 5.45%. For BBB bonds, therefore, the risk premium was 1.45%. Time Warner could finance TWIT's entire $1 billion budget through corporate bonds, but there are other variables that affect its funding decisions so it may limit the use of corporate long-term debt. In 2010 the company's debt-to-capital ratio was 33.3%.[55] The company made major efforts to lower its debt in an effort to boost its stock price and lower the cost of borrowing. If it does not want to overload again with debt but rather apply its debt financing ratio ceiling of 33.3% to the $1 billion needed to fund TWIT, this would put a ceiling on its new borrowing.

SNIT
In order for SNIT to issue corporate bonds to the public bond market it needs to be rated by the major rating agencies to satisfy investors. SNIT, as a start-up, would not attain a decent rating, if at all. A SNIT borrowing would be considered a high-risk non-investment grade bond. It would receive a rating as a corporate junk bond rating of CCC, CC, or C.[56] It would probably hold a CC rating ("obligations which are highly speculative or which have a high risk of default"). This rating is associated with a steep cost of 30% interest before tax. We assume, hypothetically, that SNIT could find private investors who are willing to buy these highly speculative bonds directly through a private placement offering. This translates to the five-year average prime rate of 5.45% plus 24.55%. Even after-tax deductibility the cost would be 21%, much higher than the company's hurdle rate of 16.34%, and hence not desirable for SNIT.

6.6 Other Types of Debt

Other categories of debt include:
1. hybrid debt-equity:
   (a) convertible equity bonds;
   (b) mezzanine finance;
   (c) preferred stock.
2. securitization;
3. vendor and buyer finance;
4. government loans.

6.6.1 Hybrid Debt-Equity

6.6.1.1 Convertible Bonds

Convertible bonds have properties of both debt and equity. A bond holder (the lender) can convert the bond into a stock at a certain point. This offers investors the relative safety of regular bonds but also the option of converting them to equity if the stock price goes up. Thus, they have a higher upside than a bond and a lower downside than a stock. This often leads to a lower interest rate on the bond, which makes them a cheaper option—in terms of cash outflows of interest—than regular bonds. Another advantage of convertible bonds is that they delay a firm's need to issue stock to raise capital and therefore postpone the dilution of existing shareholder control, and the associated downward pressure on the stock price.[57]

Here are some examples of this. In 2003, Sony issued $2 billion in convertible bonds to raise money to invest in the next-generation Cell microchips as well as to finance a restructuring plan. Sony set the conversion premium—convertible in 2006–2008—at a rate that was 48% higher than its then existent stock price.[58] Because of the upside potential, convertible bonds typically cost more than regular bonds, and Sony could sell them at a lower interest rate. What happened subsequently? Sony's average stock price for 2003 was $33.94, so a 48% premium would value the stock at $50.23. For much of 2007–2008 the stock was above that price. (At its peak, on May 22, 2007, it was $59.46, about 18% higher.) During that period, the price of the convertible bond was below the market price and it consequently made sense to convert. The bonds would have proven to be a good investment in the short term. Subsequently, however, the stock price dropped, to less than $10 in 2012. Thus, a bond holder who did not convert at that time would have avoided the huge losses that Sony stockholders took.

54 Besley, Scott and Eugen F. Brigham. *Principles of Finance.* Independence, KY: Cengage Learning, 2009.

55 Martin, Laura and Dan Medina. *Time Warner Inc (TWX): An Investment Analysis.* New York: Needham & Company, LLC, 2010.

56 Fitch IBCA. "Credit Ratings." June-November 2006. Last accessed July 19, 2012. ► http://www.tgbr.com/tgbr/cont/Credit_Ratings.pdf.

57 Cloutier, Richard. "Convertible Bonds: Pros And Cons For Companies And Investors." *Investopedia.* Last accessed May 18, 2017. ► http://www.investopedia.com/articles/bonds/08/convertible-financing.asp.

58 Pei-ling, Long. "Sony Shows Spark With New Issue." *Asiamoney* 14, no. 10 (Dec. 2003/Jan. 2004): 8-11.

In 2001, France Telecom issued convertible bonds worth $2.68 billion, because the stock market was depressed at the time and issuing new stock was therefore not a good strategy. When the market rose, the bonds could be converted by the lenders into stock. This option made the bonds attractive to investors and hence carried a lower interest rate for France Telecom than regular bonds.

In 2004, the major American cable TV firm Charter Communications issued $750 million convertible bonds to repay its considerable debt load. Its shares were traded at the time for a depressed price of $2.75. The idea was that investors could redeem the bonds by exchanging them later for stock, which was likely to have risen in price. But stock analysts quickly realized that the deal's conversion price for the bond would be $2.42 in 2009, a lower price than the stock price of $2.75 prevailing in 2004. The implication was that the company valued its growth prospects as weak and was willing to dilute shared ownership. In consequence, the stock plunged by 20%.[59]

6.6.1.2 Mezzanine Finance

Mezzanine financing was originally developed in the UK in the mid-1980s to provide a layer between debt and equity. It is a hybrid that gives the lender the rights to convert a bond into stock if the loan is not repaid in time and in full. In other words, the lender then becomes an owner. In bankruptcy, the holders of mezzanine loans are ahead of common shareholders in repayment. Even with the conversion feature this debt is riskier than senior debt, and hence costlier by 1–3%. Mezzanine finance is useful in financing buyouts, acquisitions, and recapitalizations.

For example, in 2004 International Finance Corporation, part of the World Bank, arranged for a loan to TV3 Russia, a terrestrial broadcaster. TV3 Russia issued $7 million in secured senior loans and $3.5 million in mezzanine financing.[60] The mezzanine structure was used to compensate the bondholders (lenders) for the risk they were assuming. TV3 Russia was expected to grow quickly with a correspondingly rising share price. When that happened, the bondholders could convert into stock. The mezzanine structure therefore offered upside to the investors. Unfortunately, this did not work out. Following the economic downturn in the late 2000s the profitability of the company dropped severely. It had over $80 million in mezzanine debt whose interest TV3 could not pay, and its share price tanked. In 2013 the company was sold to the Russian energy giant Gazprom.

In 2006, Casema, a major Dutch provider of cable TV, internet, and phone services, issued €1 billion of mezzanine debt. This was a mechanism for the buyout of Casema by several major PE firms,[61] who partly financed that acquisition by borrowing against the acquired company itself. The mezzanine arrangement then gave lenders the upside potential of equity.

6.6.1.3 Preferred Stock

There are two major types of preferred stock: preferred stock that grants extra voting rights and preferred stock that receives priority in receiving dividends. The latter is a hybrid of debt and equity. It typically pays a specific dividend. It is similar to a corporate bond except in bankruptcy claims, where its priority is behind regular bonds though ahead of common stock, and does not want to overload debt. Preferred stock might be issued when a company is under financial stress. Preferred stockholders get priority before common stockholders in case of company liquidation, and might therefore be attracted.

Preferred stock receives dividends ahead of regular common stock. If no dividends are paid in one year, the obligation passes on to the next year if it is cumulative. These features, however, put downward pressures on the price of regular stock, because they might receive lower dividends.

An example is part of a 2005 restructuring agreement for the home video rental chain Blockbuster in order to reduce its massive debt, in which preferred stock was issued at $1000 per share, paying out a dividend of $18.75 per quarter.[62] These preferred shareholders received $300 in dividends over the years 2006–2009, but then lost all equity after Blockbuster declared bankruptcy in 2010.

6.6.1.4 Case Discussion

Convertible Bonds

TWIT

To finance TWIT with a convertible bond would lower cost by typically 1–3% below a straight corporate bond.[63] The corporate long-term bond interest rate for Time Warner is rated BBB, at 6.9%. A convertible bond issued by a quality firm such as Time Warner will offer a 1% discount, that is an interest rate of 5.9%. This translates to the five-year average prime rate of 5.45% plus 0.45%.

Here, too, we assume that Time Warner will stay within its debt-capital ratio of 33.3%, in other words limiting borrowing up to $333 million for the TWIT project, while the rest must be raised in other ways.

SNIT

SNIT would not be able to sell the hybrid debt on the open market without a credit rating and without a publicly traded stock to convert into.

59 Farzad, Roben. "Charter: Cable's Sucker Stock." *Bloomberg Businessweek*. May 28, 2006. Last accessed July 19, 2012. ► http://www.businessweek.com/stories/2006-05-28/charter-cables-sucker-stock.

60 International Finance Corporation. "Global Reach and Developmental Impact." Last accessed October 31, 2011. ► http://www.ifc.org/ifcext/gict.nsf/Content/Global-ReachandDevelopmentalImpact.

61 Gutscher, Cecile. "Investors scramble for mezzanine seats." *International Herald Tribune*. January 18, 2007. Last accessed July 19, 2012. ► http://search.proquest.com/docview/318798383.

62 Spielvogel, Cindy. "Blockbuster secures quarterly dividend." *Video Business*. October 23, 2006. Last accessed June 21, 2007. ► www.videobusiness.com/article/CA6384088.html.

63 Schroders. "The Case for Convertible Bonds, Opportunities in Convertible Bonds." July 2008. Last accessed July 19, 2012. ► http://www.schroderstalkingpoint.com/files/2008_July_the_case_for_convertibles.pdf.

6.6.2 Securitization

6.6.2.1 Why Securitization?

Artists often have a problem: intellectual property (IP) is difficult to securitize. Intellectual assets are potentially valuable, but they are illiquid, and traditional lenders do not consider IP as collateral. Yet independent music producers, artists, and labels must borrow capital to fund the production of their work, its promotion, as well as their lifestyle. To deal with this situation the technique of securitization has emerged. Securitization allows the creator or her successors to keep 100% ownership of the assets while selling the rights to income from the asset. The singers David Bowie, Elton John, Sting, and others issued publicly traded bonds, using future album revenues to pay back that debt. David Bowie issued (i.e. borrowed) $55 million and James Brown issued $30 million. By buying such securities, banks and investors lend against a future stream of bundled cash flows. These cash flows can include music royalties, projected movie revenues, and long-term telecom traffic agreements. The artist sells these royalty rights to a company, usually known as a special purpose vehicle or entity (SPV or SPE), for a lump sum payment,[64] and the SPV issues bonds to investors. The SPV can also pool the rights of several artists, aggregate their revenue streams, and then package them as debt securities and sell them to institutional investors. The SPV holds title to those assets and collects and dispenses the proceeds generated from those assets to make the principal and interest payments to pay back the investors who financed the initial asset purchase.

In book publishing, too, securitization deals have been used to borrow money. Bonds have been issued by John Steinbeck's estate based on the future income of books such as *The Grapes of Wrath*. For films, securitization has been used by borrowing money and pooling a slate of movies such that their future revenue streams cover payment on the debt. Disney issued such a $400 million, seven-year bond in 1992, with its interest rate tied to the revenues from a combination of 13 Disney movies released in Europe.[65] When the films did not do well, repayment of the bond interest and principal slowed. This helped smooth Disney's earnings flows. But such a hybrid proved unpopular with Disney's investors since its income was unpredictable.

Securitization has also been used for other media and tech financing. Radio station acquisitions are an example. Before the 1980s, radio stations in the USA had trouble financing acquisitions. They could not use their broadcast license—the most valuable asset of a station—as collateral for bank loans, making banks reluctant to lend. Eventually, radio entrepreneurs found a different way to access the credit markets. Companies such as Infinity, Clear Channel, or Hicks Muse financed their borrowing by securitizing their future earnings. They used this money to buy up additional radio stations and pledged their future earnings in turn toward future acquisitions. This resulted in large station groups.

In telecoms, the large European phone company Telecom Italia used receipts from telephone bills as collateral against issuing bonds in 2001. It was Europe's first public telecom securitization. Deutsche Telecom and France Telecom soon followed. They issued securitizations of $2–3 billion each.[66]

The reason why some very large companies have used securitization to raise money, as opposed to a straight issue of bonds, is that it is a type of off-balance-sheet financing. Neither the debt nor the assets securing the financing appear on the company's balance sheet, because they reside in the SPV. By removing this debt from the balance sheet, securitization improves some companies' financial ratios.

The cost of securitization is directly influenced by the quality of the assets being securitized. The lower their quality, the higher the risk of default and the higher the required interest payment. It can be difficult to estimate the true overall cost of a securitization. This cost may not be totally understood until the end of the securitization process and until taxes are due. The cost of a securitization includes the interest cost of the debt, the issuance expense of the debt, structuring fees, tax advice fees, rating agency fees, and management's time.[67] Therefore, the main problem with securitization is that it is an expensive way to raise money. Including transaction costs, small-scale securitization such as those of artists and their estates can have an estimated price tag of 25%. Thus, the "Bowie bonds" approach never became a major factor in the music industry. But in situations where artists (or their heirs) want the money quickly, with little regard to the cost, this approach can be picked.

What is the impact of securitization financing on content? It favors established artists and firms with a track record of regular income streams, as our examples show. It disfavors new, risky, and innovative content or technologies whose income streams are unpredictable.

64 Kane, Sean F. "Securitization May Work Beyond Music Royalty Income Stream." *Entertainment Law & Finance* 19, no. 5 (August 7, 2003): 1-3.

65 Chance, Don M., Eric T. Hillebrand, and Jimmy E. Hilliard. "Pricing an Option on a Non-Decreasing Asset Value: An Application to Movie Revenue." Working Paper. Louisiana State University. December 16, 2005. Last accessed May 17, 2017. ► https://www.fdic.gov/bank/analytical/cfr/2006/apr/chh_movies_021.pdf.

66 Willams, Thomas. "Italian first points to bright future for telecoms securitization." *International Financial Law Review* 20, no. 8 (Aug. 2001): 22.

67 Dong, Yan. *Analysis on Cost of Securitization and Its Implication on Asset Quality Deterioration in Banks with Empirical Evidence*. Ph.D. dissertation, University of Essex, UK, and Southwestern University of Finance and Economics, China, 2007.

6.6.2.2 Case Discussion

Securitization

TWIT
TWIT itself does not have assets that generate the predictable cash flow needed to support a securitization. Time Warner, on the other hand, has cash generating assets with stable revenues that could be securitized, but this funding source can be complicated and costly.

We assume that the company decides to securitize receivables from payments for its cable channels. Basically, it loses the income from the assets set aside for the securitization. The interest rate that it would have to pay is dependent on several variables. We assume that the securitization would be rated BB, a few notches below the company's corporate credit rating of BBB. A securitization with this rating has an interest rate of about 10.25%.

The company is unlikely to want to spin off too many assets to generate the cash flow necessary to cover the securitization of a $1 billion program. Transferring cash generating assets of that magnitude to the SPV would directly affect its future earnings required for dividends. As before, we therefore assume that the ceiling amount for such a form of securitization would be the capital value of not more than one quarterly dividend.

SNIT
Owing to its lack of cash generating assets or proven history of revenue generation, SNIT could not employ securitization to finance itself.

6.6.3 Vendor and Buyer Financing

6.6.3.1 Factors for Vendor Financing

Quite frequently one of the partners in a transaction grants credit to the other in order to conclude a deal. It is usually the seller who extends such financing to the buyers. For example, a computer maker may entice an animation production company to select its computers for its render farm. In other cases, it is the buyer who lends money to the producer; such as when a film studio or a TV network provides financing for a film which they will later distribute.

Short-term trade credit is quite common, where a seller gives a buyer a few months to pay. But such trade credit can be expensive to the buyer (the borrower). A typical arrangement requires full payment in 30 days. There is often a 2% discount if payment is made within the first ten days. The implicit interest rate is therefore 2% for 10 days, or a stiff 72% a year.

Ordinarily, a strong dependence on trade credit implies that a firm has a relatively weak access to bank credit, However, in certain situations a firm's good trade credit record with its vendors may provide a positive information to banks and actually increase the chances of the firm's obtaining a bank credit. The company's creditworthiness is particularly important if the business has yet to be developed or show any profits.

More interesting is long-term vendor credit. Often this is used as a sales tool and can then be cheap, with sellers extending a long-term credit or other favorable terms to clinch a sale. They often have advantages over financial institutions in extending such credit because they have better private information about the business and the buyer. They may also be able to use leverage in terms of withholding future supplies, and they may be better positioned to repossess or resell collateral.[68]

Long-term vendor financing has been actively used by new entrants in the telecommunications industry. These new entrants approached large hardware vendors such as Nortel and Lucent to finance equipment purchases for their telecom networks. Such suppliers charged them interest rates of around 3% per year. This rate was very low relative to the risk involved and to the economic and technical depreciation of the hardware. Such vendor financing shifted much of the business risk to the hardware vendors. When the telecom market collapsed the vendors were left with lots of claims against bankrupt companies. They could repossess the equipment, but what could they do with two- or three-year-old used hardware at a time when a major overexpansion bubble burst? Neither Nortel nor Lucent, once the darlings of Wall Street when their sales (partly financed by themselves) ballooned, survived for long.

Vendor financing (or its sibling buyer financing) has existed for film and theater for a long time, under various names. In film production, vendor/buyer financing includes funding (or loan guarantees) from studio distributors, theatrical distributors, and others. The quid pro quo of a presale financing deal is usually the licensing of the film's rights to a media distributor within a specific territory or technical platform, or both. Photo laboratories, too, used to provide credit in order to enable the production of a film that would generate a big print order later.

68 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6-8 (1998): 613-673.

One reason for vendor financing in film is to alleviate the problem that economists call the "moral hazard." The director and other creatives are driven to gain a professional reputation, but in the process they may increase the overall cost and risk of a particular project. Banks tend to be too far removed from the production project to monitor this. That is why financing is mostly done by firms close to the film industry. These firms know the industry and the major players. They have repeat business with the producer, director, and artists,[69] which discourages the creatives from spending irresponsibly. Talent agencies, too, can be considered vendors. They are "selling" their clients to the producers to place them in a desirable film. They often also arrange for the financing of such a film through various vehicles.

The classic film financing deal is a studio PFD deal (production–finance–distribution). The distributor (the studio) as the buyer agrees to lend to the producer part of the cost of production, that is, to finance it (the F). Production (the P) will often use the studio's facilities, for which the production budget will be charged, and repaid when box-office revenues start rolling in. Here, the studio is the "seller" of production services. The studio also manages the distribution (the D) to services exhibition channels. These expenses are charged to and paid for by the film's budget, with interest for the loan.[70]

One alternative to such vendor (distributor) financing is a straight purchase contract. As we discussed, this is known in the film business as a negative pick-up deal, in which the distributor pays for a completed film rather than by funding the production process itself. ("negative" refers to the photographic negative, not to a quality assessment). A negative pick-up letter is a commitment to purchase or license film distribution rights post-production. The independent producer/borrower uses the letter as collateral, to borrow production funds from a bank. The producer gets more independence in creating the film, without having to worry about distribution while making the movie. The studio distributor, on its part, does not have financial exposure if the producer fails to finish the film or if it runs over budget.

Table 6.4 summarizes main forms of film financing methods by a studio distributor. The first row is a studio development deal, in which the studio, in effect, self-produces and

Table 6.4 Financing methods for film production

Type of finance	Description
Studio development deal	Distributor participation in earliest stage before all elements in place. Producer is possibly the employee of the studio
Studio-based independent production company	Independent company has headquarters at studio. Studio totally finances the company's productions.
Studio financing/distribution deal	Producer comes to studio with a fully developed package. Studio finances production
Negative pick-up deal	Studio agrees to pay for the movie once it is finished in production. Producer uses guarantee from studio as collateral for a bank loan. Studio retains ancillary rights
Co-financing	Studio pays for part of the cost. Producer finds financing for the rest. Studio does not retain all rights to film. Producer usually owns negative
Overseas presale	Producer sells overseas and/or video rights to film. Uses advances to finance film without obtaining a domestic distributor
Long-term independent finance	A producer arranges financing for a whole slate of films through an independent production company he/she runs
Single film independent investor finance	A producer arranges independent investor financing, such as a limited partnership, just for one film.
Self-finance	Producer finances through personal savings, credit cards, and/or family; primarily limited to small independently distributed films

Fee, Edward. "The costs of outside equity control: Evidence from motion picture financing decisions." *Journal of Business* 75, no. 4 (2002): 681–711

69 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.

70 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.

self-finances. The second row is a semi-independent studio-backed independent production company. Each subsequent row has a greater arm's-length distance between distributor and producer.

6.6.3.2 The Impact of Vendor Financing on Content

Arranging advance financing favors established producers with experience, contracts, and a proven track record. The selective availability of financing by distributors give these distributors significant influence over content, with the advantage going to established projects over truly independent producers. It is important to note the difference between being independently financed and being independently distributed. Independently financed films are sometimes studio distributed, but not the other way around. Independently financed films may get enough funding to be produced but then lack distribution. In the UK, several hundred films a year are made but not distributed. The major studio distributors are likely to push harder in the marketing for films in which they have a financial stake, which gives such films a greater visibility. Distributors generally retain final cut rights—control over editing—for most films they finance. This allows them an opportunity for drastic changes to a film in order to make the film more commercially successful, which typically means happy endings, less ambiguity, and less controversy. Studio financing can also come with strict procedures. Sometimes studios demand cast approvals, script change approvals, and daily screenings. With studio financing, the studio usually owns the negative and can exploit the film's future in new media. With independently financed films, film-makers tend to retain ownership.

Financing contracts with major studios usually requires a producer to moderate the content in terms of sex and violence to obtain a rating of NC-17 or lower. X-rated films will fail such a test. Financing contracts also specify minimum technical quality standards such as audio and video quality. A financing contract will specify a budget and a deadline, and require insurance against deaths, lawsuits, and damage.

■ Examples of Studio Intervention

The film *Mr. Jones* (starring Richard Gere), was a dark drama on the relationship between a manic-depressive man and his doctor. It tested poorly with audiences. The TriStar studio which financed the film demanded the recut of the movie to deemphasize Gere's depressive aspects. When writer/director Mike Figgis refused, TriStar exercised its control and replaced him.[71]

In the movie *Rain Man*, a scene showed Dustin Hoffman's character shouting airline crash statistics. The studio (United Artists) was pressured by the airline industry to cut the scene since the statistics were damaging but also inaccurate. The director Barry Levinson argued that the scene was crucial to the film, but the studio had contractual rights and edited out the offending scene for the version shown on these airline flights.

There is another side to stories like this. Directors can be profligate with other people's money in order to enhance their artistic reputation. For example, Michael Cimino's *Heaven's Gate* overran its budget by three times and bankrupted United Artists Studio, which had been founded 60 years earlier by film legends Charlie Chaplin, Mary Pickford, Douglas Fairbanks, and D.W. Griffith.

Another example is director John McTiernan, who had the final cut privilege on *Last Action Hero*. The film had a high budget yet did poorly at the box office, and its soundtrack actually netted more income than the film itself. It was such a disaster that McTiernan was still hiring and firing editors just three weeks before the film was due in the theaters.[72]

Similarly, an advantage to presale financing by TV channels or foreign distributors is that such lenders usually do not require creative control beyond general ones such as the film rating.

Studio agreement to finance a film leads to a contract that includes a "development deal memo" that outlines the various next steps.[73] The studio pays incrementally as each step is completed. At certain steps, the studio has the right to stop its funding and financial exposure. In effect, its commitment is not unconditional but for the next step, with an option for subsequent steps.

Vendor financing of media and digital activities is most developed in the film sector, perhaps because its funding requirements are largest among content media. It is also used, to some extent, for video games, music, and book publishing (when printing companies extend credit to small publishers. In the tech sector it is used for hardware. A computer firm, for example, can finance the developer of an advanced semiconductor chip in return for an early delivery of this technology.

Such deals are less common for software, though similar arrangements are quite possible and likely as the scale of independent software production rises and with it the funding requirements. More generally, as the entire value chain of design-development-production-distribution decomposes from in-house centralization to a decentralized network system, the financing by partners of each other will increase.

71 Fee, Edward. "The costs of outside equity control: Evidence from Motion Picture financing decisions." *Journal of Business* 75, no. 4 (2002): 681-711.

72 Griffin, Nancy. *Hit and Run.* New York: Touchstone, 1996.

73 DiGregorio, Jr., Robert, C. "How to Finance Your Film: Part 2." *New England Film*, November 1, 1998. Last accessed May 17, 2017. ► https://newenglandfilm.com/magazine/1998/11/how-to-finance-your-film-part-2.

6.6.3.3 Case Discussion

Vendor Financing

TWIT
For TWIT's tech, hardware vendors could contribute financing in order to boost sales for their firms. An established company could expect vendor financing at an interest rate of about 7.0%.[74] But TWIT's vendor financing would be limited for hardware upgrades to its network infrastructure, budgeted at $300 million. Of this amount $250 million would be available as vendor finance with $50 million expected to be covered by the buyer as a down payment. TWIT itself has the potential to presell its content to interested distribution platforms such as cable TV and telecom broadband operators, and online video sites such as Netflix, YouTube, or Hulu. It will be hard to presell TWIT's interactive video content because the product is new and unproven for buyers.

SNIT
SNIT would have some access to vendor financing for its hardware purchases. Beyond the 30-day vendor credit, vendors would typically charge start-ups such as SNIT 10–15% interest. SNIT's initial hardware acquisitions are estimated to be $30 million. Hardware vendors might finance half of this amount ($15 million).

6

6.6.4 Lease Finance

6.6.4.1 Factors in Lease Financing

Using leaseback arrangements as a source of financing has become a popular vehicle. This is typically done when a company, instead of purchasing an asset, enters into a long-term lease with the seller. Such leasing frees cash for other purposes. It reduces the debt on a company's balance sheet and enables the firm to take on debt for other purposes. On the consumer level, such a lease arrangement is popular for automobiles. And, of course, anyone who rents an apartment rather than buying it is involved in a lease transaction. In the USA equipment under lease accounts for nearly one-third of the annual overall new equipment investment.[75]

For the seller, leases can be used as a tool to improve sales. They can also serve as an arbitrage of the credit risk. A seller may have a better credit standing than the potential buyer/lessee and thus pay a lower interest rate. Participants can transfer risk to the corporations that can better handle that risk and handle it inexpensively. These deals can also transfer tax benefits among companies, from the highly tax-burdened to the lightly taxed. Other advantages are:

- Payments are fixed and predictable.
- There is a match-up of payment outflow with the productive life of the asset.
- The equipment may be maintained, managed, and replaced by the owners, and this is convenient.
- There is flexibility in the amount of the hardware used, according to the user's needs.
- There is often no down payment requirement.

Lease contracts can be securitized, with the lender financing the leasing company to obtain financing while receiving the revenue stream of their leases. These securities can be bought by financial institutions. Leasing thus enables financing by sophisticated financial instruments.

Organizations that offer equipment leasing are most often subsidiaries of manufacturers but also financial institutions such as banks and insurance companies. An equipment maker can align itself with a leasing company to increase its sales and also obtain buyer financing. The leasing company then basically becomes the vendor's "in-house" major finance company.

As an example, the Boeing company, best known for its aircraft but for a while also producing digital film projection equipment, offered it to movie theaters on a lease basis as a sales tool to boost sales and make it the industry standard.[76]

In telecoms, the leasing of network equipment has been popular with new entrants and internet service providers. Established firms have also used leasing. For example, Time Warner Cable upgraded its UK network facilities through various leases of network equipment.[77]

A variant form of a lease is a sale and leaseback. Here it is the party that wants to keep using the asset that makes the sale to the lessor. In a sale and leaseback deal, Company A sells its asset to Company B. But A wants to keep using the asset. B then leases the asset back to A. It is like an owner of a house selling it to someone else, but staying in the house as a tenant of the buyer. This type of transaction enhances cash flow for the lessee (the tenant), because she receives an up-front payment for the asset. Leaseback deals are also used for tax shelter purposes for the user because each lease payment is considered an operating expense and is therefore tax deductible. Sale and lease-back transactions help firms to utilize the asset without tying up large amounts of capital.

For example, in 2007, XM Satellite Radio, the world's largest satellite radio operator, entered into a sale-and-leaseback agreement with Satellite Leasing LLC. XM sold its XM-4 satellite transponders for $288.5 million for a period of nine years, with a buy-out option in year five and at the end of the term. Satellite Leasing LLC then leased the XM-4 back

74 Nevitt, Peter K. and Frank J. Fabozzi. *Equipment Leasing*, Fourth Edition. New Hope, PA: Frank J. Fabozzi Associates, 2000; Mitcham Industries, Inc., Form 10-K, April 6, 2011. Last accessed May 17, 2017. ► http://www.faqs.org/sec-filings/110406/MITCHAM-INDUSTRIES-INC_10-K/.

75 Sharpe, Steven A. and Hien H. Nguyen. 1995. "Capital Market Imperfections and the Incentive to Lease." *Journal of Financial Economics* 39, no. 2-3 (1995): 271-294.

76 Matthews, Anna and Bruce Orwall. "Bit Players: major studios discuss plans to equip theaters to show digital films." *Wall Street Journal*. May 17, 2001. Last accessed May 17, 2017. ► http://proquest.umi.com/pqdweb?did=73072636&sid=10&Fmt=3&clientId=15403&RQT=309&VName=PQD.

77 Time Warner. 2005 Annual Report. April 4, 2006. Last accessed May 17, 2017. ► http://www.wikinvest.com/stock/Time_Warner_(TWX)/Filing/DEF_14A/2006/F1298357#toc94223_3.

to XM. This allowed XM to benefit from a large injection of cash to help with its money-losing operations. The sale-and-leaseback deal also offered XM Satellite Radio tax benefits since lease payments are considered tax-deductible operating expenses. XM retained the advantage of using the XM-4 satellite and it maintained full operational control over the transponders.[78]

In the film business, sale to outside investors and leaseback deals are used to mitigate risk and lower tax burdens. These deals often involve an entity such as a limited partnership buying the ownership of a film from its producer, then leasing it back at a prearranged payment schedule, thus creating a fixed stream of revenue for the lessor's investment. Just as important, the film's initial purchase, at a time when there is no income flowing back, creates a major loss—for tax purposes—for the partnership, and this can considerably reduce the taxable income of high-income investors.[79]

6.6.4.2 Case Discussion

Lease Finance

Both Time Warner and SNIT could lease the equipment needed for TWIT's operation. The monthly lease payments are a tax-deductible business expense. TWIT's budgeted upgrades to its network infrastructure are $300 million, and we assume that half of this can be leased. The lease, we assume, is available at a cost that translates to an interest rate of 7.5%.

SNIT

SNIT, too, could use lease financing. SNIT's estimated hardware budget is $30 million of which half is of the kind that can be leased. SNIT thus has $7.5 million dollars available to it at the cost equivalent to 15% interest.

6.6.5 Government Financing

6.6.5.1 Methods of Government Support

Governments around the world are important sources for the financing of media and information technology. This help is typically extended through direct grants, tax benefits, and loan guarantees. Indirect financing support can be given through protectionism and favorable regulatory policies that make a project more profitable by enabling a company to charge higher prices.

Film is particularly favored as a recipient of cultural subsidies. (This was discussed in ► Chap. 3.) The European Union's Commission supports films to the tune of €1.6 billion per year. In France, the Centre Nationale de la Cinematographie (CNC) spends over $100 million per year financing films. France also offers tax incentives for the film industry and its investors.[80]

In the UK, too, wealthy investors can benefit from tax breaks for financing films. There are at least two tax-saving ways to invest in films. The Section 48 scheme allows investors to write off their investment against their income tax bill in a single year, and this defers the tax payment. Another way is an Enterprise Investment Scheme (EIS). An EIS shields the investment from income tax, offers inheritance tax relief, and can defer capital gains tax from a previous investment.[81] In 2006 the UK introduced another tax incentive for film production, available to producers rather than pure financiers. For smaller films (production costs below £20 million) the tax deduction is equal to 100% of total qualifying UK expenditure, and for other qualifying films up to 80% of total qualifying UK expenditure.[82] In the next two years, the UK Treasury provided around £100 million a year-worth of tax credit to British films, supporting more than 100 productions.

In addition to the tax incentives, The UK Film Council uses profits from the National Lottery to directly fund films. The British government also used an All Industry Fund supported by contributions of 0.5% of revenues from all film companies, exhibitors, distributors, video companies, and broadcasters. A Skills Investment Fund was created through contributions from all films in production. If a film or its production crew is established in the UK they must contribute about 0.5% of total budget production. While contributions were voluntary, receipt of other public-sector funding was conditional on contributing.

In Australia, government money makes up around 37% of overall film investment.[83] In Canada, the government subsidizes film production directly through the National Film Board. Canada also has rules in place that require that 60% of scheduled content on television must be Canadian, the definition of which has led to an elaborate point system. Canada provides an 18% refundable tax credit on labor costs, with no cap. The provinces of Ontario and British Columbia add another 18%. Manitoba even offers a 45% credit for labor costs.

In Germany, until 2006, tax laws permitted the immediate tax deduction from taxable income of the cost of creating "intangible" assets.[84] Investors could thus immediately

78 XM Satellite Radio Holdings. Form 8-K. Filed February 13, 2007. Last accessed May 17, 2017. ► http://www.secinfo.com/d14D5a.uT7j.htm.

79 Richards, Matthew. "Lights, camera - and action for small investors." *Financial Times*. December 2, 2006. Last accessed May 17, 2017. ► http://www.ft.com/cms/s/0/a5e45982-81a9-11db-864e-0000779e2340.html.

80 These tax shelters allow investors to write-off 40% or more of their investments against their taxes; subject to the upper limit of 25% of taxable income, and subsequently capped at €18,000. If such an entity, known as a SOFICA, uses 10% of its investment capital to acquire shares of production companies, then this deduction increases to 43%. Production companies may immediately write off 50% of the amount invested. Another major support mechanism is the quasi-monopoly status of the pay-TV provider Canal Plus, whose high consumer prices generate revenues that must be partly used for domestic film support.

81 Richards, Matthew. "Lights, camera - and action for small investors." *Financial Times*. December 2, 2006. Last accessed May 17, 2017. ► http://www.ft.com/cms/s/0/a5e45982-81a9-11db-864e-0000779e2340.html.

82 HMSO. "Finance Act 2006." *Legislation.gov.uk*. Last accessed May 17, 2017. ► http://www.legislation.gov.uk/ukpga/2006/25/contents.

83 Hancock, David. "Global Film Production." Working Document for Venice Conference held by EURO-MEI on August 29-30, 1998.

84 Epstein, Edward J. "How to Finance a Hollywood Blockbuster: Start with a German Tax Shelter." *Slate*. April 5, 2005. Last accessed July 20, 2012. ► http://www.slate.com/id/2117309/

write off the entire cost of producing a film. Only later, when income came in, was it taxed. Such tax deferral is highly lucrative. This was very different from other tax systems, such as in the USA, which require the cost of creating a film to be amortized over a number of years or as a percentage of revenues received. On a "leveraged" deal, with high debt on top of actual investment, if the debt-to-equity ratio is over 1:1 the German tax law made it possible for the investors to immediately get back more in tax savings than the amount of the backers' actual cash investment.

The German law also did not require that the film be shot locally or employ locals in order to reap the tax benefits. The film just needed to be owned by a German company that shared in the film's profits. These loopholes made it possible for a Hollywood studio to benefit by the establishment of a German subsidiary. A sale-leaseback model was typically used. The Hollywood studio would sell the film rights to a German company/fund, which financed the film's production budget by borrowing funds from investors, that were supplied/guaranteed by the Hollywood studio. In other words, the film was conceived, organized, managed, produced, and partly financed by the Hollywood studio. The German film fund company that had bought the film then leased the film rights back to the studio in return for fixed payments over time. The Hollywood studio slightly circumvented the full cost of the repayment by depositing an upfront fixed amount with a bank. This amount deposited in the bank was less than the amount invested by the German film fund. The resulting take for the Hollywood studio was, in many cases, 10% of the film's budget without any financial risk whatsoever. If the film surpassed certain box office benchmarks, the Hollywood studio had to pay back a percentage of the profits to the German fund.

German tax shelters were used to finance New Line Cinema's *Lord of the Rings* (which also benefited from subsidies from New Zealand). When Paramount wanted to make *Lara Croft: Tomb Raider* it sold the film rights to a group of German investors for $94 million through the Tele München Gruppe. It entered into another agreement with Lombard Bank in Britain to raise $12 million using incentives set up by the UK government.[85] It also raised $65 million from presales in Europe and $7 million from pay-TV presales in the USA. *Tomb Raider's* substantial budget came to over $115 million, but very little if any came from Paramount's own financial resources.

As mentioned earlier in this chapter, for the film *Laws of Attraction* the $45 million budget was raised with 15% from a German tax shelter fund, 8% from Irish tax incentives, and a 15% UK sale leaseback deal based on a tax shelter. These three government incentive programs thus added up to 38% of the film's budget. The remainder came from a US distributor (New Line, 20%) and 32% from non-US presales. Only 10% had to come from the production group itself.

In 2006 the Berlin government set some restrictions on this tax shelter largesse financed by the German taxpayers. It required that the tax law only apply to native German filmmakers and production companies operating and spending money within Germany.

Government funding may also be available for video games. This is important because game development budgets can exceed $20 million. The French government, in particular, views video games as important for culture and technology.[86] In 2003, France created the École Nationale du Jeu Video et des Média Interactifs to train programmers and managers. It also created a subsidy fund and instituted a tax credit. All major candidates in the 2007 presidential election promised to back the gaming industry. The winner, Nicolas Sarkozy, instituted a variety of support activities and pressured the European Commission to accept such otherwise banned economic subsidies.

In the USA, too, there is a well-established system of government finance of media and high tech. When it comes to taxes, on the federal level this is done through a variety of agencies and programs:

- The Small Business Administration (SBA) may issue direct loans and loan guarantees to small companies (fewer than 100 employees and average annual sales for the preceding three years of less than $5 million).
- The National Telecommunications & Information Administration offers grants to public and non-profit organizations. Its Technology Opportunities Program offers grants equivalent to $20 million. (Billions of dollars more were temporarily made available at the time of the 2008 downturn as part of a more general stimulus package.)
- The Rural Utility Services uses $100 million in low-cost Treasury rate loans to finance the construction of broadband telecommunication services in rural areas.
- The National Endowment for the Arts supports art creation, performance, and education, such as for dance, theater, opera, visual arts, and so on. In 2011, its budget was $154 million. The money supports direct grants, and about 40% is channeled to state and local arts agencies.
- The Corporation for Public Broadcasting is technically a private not-for-profit organization created in 1967 to funnel government money to public TV and radio. Though small by European, Japanese, or Korean standards, it is public broadcasting's largest single source of funds, and it supports over 1000 local public radio and television stations.[87]
- At the Federal level, the tax reform of 1986 eliminated the most advantageous tax shelters, including for film.
- Tax benefits are frequently offered by state and local governments. Louisiana gives 15% in state tax credits that

85 Epstein, Edward J. "How to Finance a Hollywood Blockbuster: Start with a German Tax Shelter." *Slate*. April 5, 2005. Last accessed July 20, 2012. ► http://www.slate.com/id/2117309/.

86 Crampton, Thomas. "For France, Video Games are as Artful as Cinema." *New York Times*. November 6, 2006. Last accessed May 17, 2017. ► http://www.nytimes.com/2006/11/06/business/worldbusiness/06game.html.

87 Corporation for Public Broadcasting. "About CPB." Last accessed July 18, 2012. ► http://www.cpb.org/aboutcpb.

are transferable (i.e. with the ability to sell to third parties), plus a 20% tax credit on wages paid to Louisiana residents. By 2005 the amount spent on production in Louisiana had increased to $425 million, with the state providing $65 million in tax credits.

- Ohio provides film tax-credits of 25% non-resident wages and Ohio production expenditures, and 35% of Ohio resident wage production expenditures. $10–$30 million in credits are available annually. New York has various local incentives. There is a 10% tax credit or refund on a film project's spending if it takes place in New York State, and an extra 5% if the production takes place in New York City.[88]
- In California, Governor Arnold Schwarzenegger, himself a Hollywood figure, signed legislation creating tax credits for film and television productions. The California Film Commission has the authority to allocate $100 million of tax credits each year. $10 million of the tax credits is specifically for independent productions.[89] The tax credit program covers 20% of "below the line" expenses for productions of up to $75 million. This can be augmented to 25% of expenses for independent productions of up to $10 million. To be eligible film and television productions must shoot at least 75% of their total days in California. The program aimed to prevent TV series from moving out of California. It was nicknamed the *Ugly Betty* tax credit, after a popular TV show that relocated to New York to take advantage of tax credits offered there.[90]

Film is not the only industry favored. Generally, entrepreneurial high tech is desirable as a clean and knowledge intensive sector with a high multiplier. Many states and countries have support programs.

6.6.5.2 Impact of Government Financing on Media and Tech Firms

The aim of governmental support programs is partly economic, partly cultural. Where the private sector funding for media content underserves significant groups or tastes, the public sector may generate additional money to create such content.

Where financing comes from governmental organizations, it will often come with strings attached. A Portugal-financed film might require scenes in that country, which might have a clumsy fit. In other cases, a country's heritage must be treated with respect. For assisting with the film *Gandhi,* the Indian government mandated script changes and other modifications.[91]

When it comes to tax advantages, given the various approvals and greenlights from agencies across multiple countries that need to be assembled, it would be difficult for a small artsy film to create complex funding packages. A German investor tax shelter consortium, for example, would probably not be interested in a low-budget film. The high transaction and legal costs of such highly involved deals would consume the profits and tax advantages from a leaseback agreement.[92]

6.6.5.3 Case Discussion

Government Financing

TWIT
Government funding is an option even for a large company. Time Warner Media could receive state and local support in the form of subsidies for loans with an interest cost of around 2% below the prime rate for equipment and in-state software development. There will also often be tax credits against its state and local taxes. The government programs typically have a ceiling, often $10 million, and a subsidized interest rate of 2% below market rate. With prime rate averaging 5.45%, the subsidized rate comes to 3.45%. The funding often comes with locational requirements, which may raise some of TWIT's operational costs.

SNIT
SNIT too, could secure state and local grant subsidies of about 10% of the costs for tech equipment and infrastructure costs, in the form of low-interest loans.

Another alternative is for SNIT to apply for a Small Business Administration (SBA) loan guarantee. But for a start-up with an unproven track record, such a guarantee will be difficult to secure.

6.6.6 Private Grant Financing

In some countries, in particular in the USA, direct government spending on cultural activities has been relatively low, but tax laws provide incentives for private grants and contributions. In the USA, 57% of the income of public broadcasting comes from private sources including foundations and donations. Corporate and individual funding to the arts exceed US federal funding considerably, and about 40%

88 Halbfinger, David M. "California Considers Tax Breaks for Filmin." *New York Times*. August 18, 2005. Last accessed July 20, 2012. ► http://www.nytimes.com/2005/08/18/movies/18runa.html?pagewanted=all.

89 California Film Commission. "California Film & Television Tax Credit Program." *State of California Business, Transportation, & Housing Agency*. June 2010. Last accessed October 31, 2011. ► http://www.film.ca.gov/res/docs/pdf/Tax-Credit-Guidelines.pdf.

90 Goldsmith, Ben. "California Approves Tax Breaks for Hollywood, Other States Change Tactics." *I Screen Studies*. February 2, 2009. Last accessed July 20, 2012. ► http://www.aftrsmedia.com/iscreenstudies/?p=189.

91 Grenier, Richard. *The Gandhi Nobody Knows*. Nashville: Thomas Nelson Publishers, 1983.

92 Epstein, Edward J. "How to Finance a Hollywood Blockbuster: Start with a German Tax Shelter." *Slate*. April 5, 2005. Last accessed July 20, 2012. ► http://www.slate.com/id/2117309/.

of private individual giving is paid for indirectly by the tax savings; that is, it is a "tax expenditure."[93]

However, corporate and private donations are not a stable source of financing since they decline in a business downturn. Moreover, corporations tend to use their funding as a way to enhance their national and local image and visibility, and as a way to network more effectively with high-level personalities. These underlying objectives make the contributions less likely to be a force for major cultural innovation.[94] Other factors that affect corporate giving are a company's relationship to the community, the culture of philanthropy prevailing in an entire industry, and the benefits to employee loyalty by matching their contributions to their favored causes.

Corporate giving is often based on industry structure and life-cycle. In their early growth phase companies have little money to give out. Thus, young internet dot-coms have been quite tight-fisted with donations. But once large fortunes have been made, philanthropy accelerates. An example is Bill Gates and his giving—meager in the growth phase and generous later. When the traditional three commercial TV networks ruled the US airwaves and were highly profitable as well as dependent on a favorable regulatory climate, they were lavish supporters of the arts. Similar generosity emanated from AT&T, Polaroid, and Xerox when they dominated their industries.

6.6.7 The Impact of Debt Financing on Content

In conclusion, debt financing reduces the risk-taking and innovation by companies relative to those prevailing with financing by equity. Lenders do not usually require profit maximization, only financial soundness—a high upside is not expected as long as the downside is low.

There is also an impact of short-term versus long-term debt. A company that must seek frequent refinancing is under greater performance pressure to do well in the short term. Such companies need to be non-risky, and non-controversial in their content, technology, and labor relations. In contrast, long-term debt allows for a greater time horizon for managers to create and innovate.

The public good characteristics of media, networks, and technology generate a major funding involvement by government in the finance of these activities. Such financing, too, tends to be supportive of non-controversial, relatively low-risk projects.

6.7 Risk Reduction Strategies

To gain access to funding or to lower its cost, one of the most important tasks for media and tech firms is to reduce the risk involved in their projects. There are several approaches.

6.7.1 Risk Reduction Strategy #1: Insurance

Insurance is the typical way in which individuals and companies lower their exposure to low probability, high impact losses.

- First, there is general insurance that protects against losses from unexpected calamities such as fire, weather, accidents, and so on. For a film production, such insurance costs usually run to about 1.5% of a film's budget.
- Directors and officers liability insurance covers alleged wrongful acts of an individual in the function of an officer or director of a company.
- Key person insurance can be important in start-up situations that are based on a central and irreplaceable person who might suddenly fall ill or worse.[95]

Completion bonds commit the guarantor to finance the completion of a project if it runs out of money. The policy usually kicks in if a project has run over a specific stated amount or date. For film completion, guarantors typically charge 6% of a production budget, with 2–3% rebated if the guarantee is not invoked. The guarantor rarely steps in, but it ensures financial prudence. As mentioned in Chapter 3 Production Management in Media and Information, one instance where the guarantor was called in to complete the funding of a film was *Brainstorm*, after the drowning death of its star, Natalie Wood. The budget had to be raised by $15 million, which was covered by the insurance. Completion bonds enhance the credit quality of a production loan and are often required by the lender.

- Media perils insurance policies protect publishers against IP and libel claims and lawsuits.
- Errors and omissions liability insurance protects against lawsuits based on mistakes and negligence.
- Networks and service providers use cyber/network liability insurance to cover the legal cost and parts of damages caused by negligence claims against a company for data leaks or crashed networks.[96]

6.7.2 Risk Reduction Strategy #2: Shifting Risk

A firm will try to shift financial risk to other parties, such as outside investors, as well as to partners, employees, contractors, distributors, vendors, lenders, and so on. To that purpose, deals are often structured so that the outsiders receive payments only after the company's own share has been taken care of. Risk is shifted to them by pushing their recovery to the later stages of revenues, which may never be reached.

93 Americans for the Arts. "Average Source of Revenue for Nonprofit Arts Organizations (Estimated)." Last accessed July 20, 2012. ► http://artsusa.org/pdf/get_involved/advocacy/research/2008/revsources08.pdf.

94 LeClair, Mark S. and Kelly Gordon. "Corporate Support for Artistic and Cultural Activities: What Determines the Distribution of Corporate Giving?" *Journal of Cultural Economics* 24, no. 3 (August 2000): 225-241.

95 Beever, Jennifer. "A Tech Startup's Guide to Navigating Insurance." *Startup Specialists Network.* April 29, 2013. Last accessed May 17, 2017. ► http://www.startupspecialistnetwork.com/a-tech-startups-guide-to-navigating-insurance.

96 Beever, Jennifer. "A Tech Startup's Guide to Navigating Insurance." *Startup Specialists Network.* April 29, 2013. Last accessed May 17, 2017. ► http://www.startupspecialistnetwork.com/a-tech-startups-guide-to-navigating-insurance.

Thus, it may be true as a general statement that 80% of films are not profitable, but the risk is much lower for the studios/distributors. While a film as a whole might lose money, the studio might still come out ahead financially because it gets the "first dollars" of revenues.

6.7.3 Risk Reduction Strategy #3: Diversification

Companies may internally pool multiple risky projects, making their aggregate cash flow safer. Similarly, a venture capital (VC) fund will bundle numerous projects for investment, and thereby reduce the overall risk through diversification.[97] For media firms, being active in a variety of films, music recordings, book titles, games, software programs, TV shows, content genres, and budget levels attracts a wide range of audiences and reduces a media firm's vulnerability to a flop in any one of them. Firms will thus spread their risk by operating in different media projects and industries.[98] Product diversity also generates information on developing market trends, and gives the company a better chance of hitting a moving target.

A second factor for portfolios goes beyond the averaging of risk. It is the assembly of a portfolio of assets whose performances are not independent of each other but are negatively correlated. This was discussed in ▶ Chap. 3, Production Management in Media and Information. The goal of diversification then is to reduce the risk of the portfolio as a whole, for a given return. Risk is defined as the statistical variance: a measure of the dispersion of the observations from the average (i.e., expected) value. The higher that dispersion, the greater the probability of ending up way above or way below the average; that is, the greater the volatility of outcomes and therefore the greater the risk. (A similar measure for risk is the "standard deviation," which is the square root of the variance. It is commonly depicted by the symbol σ.) Now suppose that if Event 1 happens, Project A goes down but Project B goes up. But if Event 2 happens, it is the reverse. Both of the projects, seen individually, are risky. But taken together their joint portfolio has a very low riskiness. Whatever happens out there, one of the assets will counter-balance the other's downturn.[99] The measure of how much two variables move together and counter to each other is their "covariance."[100] Its values range between 1 and −1. Values of −1 indicate perfect negative correlation. A value of 0 means that the returns on the two assets vary independently, and a +1 indicates a perfect positive correlation, which would make for a poor portfolio match. A strong positive correlation means that when one investment goes down, the other investment also declines. To diversify, an investor does not want this; for risk reduction it is preferable to have a negative correlation. The incremental risk of an asset depends on whether its returns tend to vary with or against the returns of other assets held. If it varies against them, it reduces the overall variability of a portfolio's returns, in other words its risk.

Thus a product with a substantial risk might still be feasible if it moves in a different direction from other films in the same slate of production. The popular mood two years from now is uncertain. For example, a pacifist movie might be economically risky if a major terrorist activity occurs at the time of release. But if paired with a war movie, the two films together will be less risky: one of them will probably catch the spirit of the time when released. A similar consideration applies, more generally, to people's selection of films. The probability of their going out to see a film on a Saturday night might be fairly predictable. What is uncertain is their choice of films. This means that the films are negatively correlated: if audiences watch Film A they will not watch Film B and vice versa, at least not that weekend. A portfolio approach can therefore be applied to such non-financial assets. Analyses show that, for the years 1930–1960, studio success correlated with product variety: economically successful studios consistently produced a wider variety of films.[101]

The analysis of optimal portfolios, including an empirical example, is developed in ▶ Chap. 3, Production Management in Media and Information.

6.7.4 Risk Reduction Strategy #4: Hedging

One major way to reduce risk is to hedge it by "selling" it to another person who is willing to buy the risk, in the same way that people buy insurance. This is also discussed in ▶ Chap. 11, Pricing of Media and Information. There are several such instruments to reshape the risk profile, either increasing or decreasing exposure—commodity futures, forward contracts, options, swaps, and so on. Collectively, these are part of what has come to be called derivatives. The term has acquired negative public connotations, but the concept is solidly positive (when applied in a transparent fashion). Derivatives transfer risk from people who do not want to

97 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge, MA: Harvard University Press, 2000.

98 Picard, Robert. *The Economics and Financing of Media Companies*. New York: Fordham University Press, 2002.

99 Chan-Olmsted, Sylvia M. "Diversification Strategy of Global Media Conglomerates: Examining Its Patterns and Determinants." *Journal of Media Economics* 16, no. 4 (2003): 227.

100 In order to estimate the rate at which two assets co-vary, one multiplies the deviation in performance of asset A by the deviation of asset B in each of the N scenarios and then average the products. If A and B are two projects with returns r and probabilities p, then the covariance between the return on A and the return on B is as follows:

$$\mathrm{COV}(r_A, r_B) = \sum_{i=1}^{n} p_i \left[r_{iA} - E(r_A) \right] \left[r_{iB} - E(r_B) \right]$$

The concept of relatedness that the co-variance expresses can also be stated as the *correlation*. The statistical correlation between two variables is the co-variance, "normalized" to lie between +1 and −1. Such normalization is done by dividing the co-variance by the product of the variances of the two variables. For the two projects A and B, the correlation between the return on A and the return on B is as follows:

$$\rho(r_A, r_B) = \frac{\mathrm{cov}(r_A, r_B)}{\sigma(r_A, r_B)}$$

101 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

bear it to others who are willing to accept it. For example, currency derivatives are attractive to a firm affected by foreign exchange fluctuations, because they provide shelter from the worst of swings in the values of the Euro, dollar, ruble, and so on. Such derivatives can be a contractual arrangement between two parties, or they can be traded at an exchange.

A futures contract gives the holder both the right and the obligation to buy or sell. An option gives the buyer only the right, not the obligation, and the option writer (seller) the obligation, but not the right.

A call option is an option to buy an item at a certain price. Printing companies may purchase call options on paper requirements used in production at a certain price. If the market price exceeds that price, they exercise the option. A put option is an option to sell an item at a certain price. For example, an investor may hold a put option to cancel the investment at a future time if it goes sour.

For example, in 2002, KirchMedia, a major German media company, had accumulated almost €10 billion of debt that it had difficulties in meeting. The entrepreneur Leo Kirch had overpaid for sports rights—€1 billion each for rights to the World Cup and German football league, and another €1.6 billion for the rights to Formula One racing—and when subscriptions fell behind the projections of his business plan he had a hard time staying solvent. Kirch sought an urgent injection of capital from a group of investors, including Rupert Murdoch. Murdoch's company, BSkyB, then invested $1.4 billion in KirchPayTV.[102] However, Murdoch also demanded and received a put option to sell back its 22% share to Kirch for an estimated €1.3–1.7 billion. Kirch provided the put option because he believed that the stock price would rise to a higher price and thereby make the option useless. Murdoch, however, had doubts about Kirch's success. The put option provided a way to pull out of the investment. Murdoch was right; the Kirch stock slid. By exercising the put option, Murdoch would be able to sell the shares back to Kirch for significantly more than its depressed market value. Things were more complicated, however, because by that time Kirch was unable to pay Murdoch the required €1.3–1.7 billion, so Murdoch would have to collect his money in bankruptcy court, almost certainly with heavy losses. On the other hand, by leveraging the mere existence of the put option without actually using it, Murdoch could gain control of KirchMedia, as long as it survived. In the end, Murdoch decided to exercise the put option to get at least some of his money back, which put KirchMedia into bankruptcy. By exercising this option, Murdoch was a debt-holder with a higher claim to Kirch's assets during bankruptcy. In contrast, his 22% equity stake would have been worthless.

As mentioned, option arrangements are quite frequent in the media and technology field. A film option is a contractual agreement between a production company on the one side and a writer on the other, in which the producer pays for the right to buy the rights to a screenplay or story from the writer before a certain date and at a certain price. For example, Sony Pictures optioned the Dan Brown book *The Da Vinci Code*. Such an option creates the right to buy the rights to the story but not an obligation. There can be further steps in an options arrangement. The role of an option structure is to give the investing party the right to cancel at several defined steps. This reduces the risk exposure to the buyer. It also creates incentives for the seller to perform.[103]

In telecoms, there exists a "forward trading" in bandwidth. This enables the parties to buy or sell large blocks of excess transmission capacity. Network companies can buy and sell such capacity from each other or to large users. Arranging such trading is done by intermediaries such as Arbinet and InvisibleHand Networks (subsequently acquired by the Spanish giant Telefonica).[104] Arbinet traded and settled wholesale capacity, with over 1000 members who bought and sold, for a volume that amounted to about 2% of the world's international traffic. InvisibleHand provided a software platform in order to price and allocate bandwidth. Bandwidth then became a commodity that could be traded freely. Internet bandwidth was priced via progressive auction, allowing for a dynamic fair-market price.[105]

Why are options important to understand and use? Normally we think in terms of buying and selling an asset. Whoever holds it has the risk associated with it. For example, suppose that Buyer B buys an asset from Seller S at a price of 100 on the basis of an expectation of an aggregate income of 150. If, in actuality, only 50 are received in income, B then bears the loss of 100 minus 150 = –50. In such a transaction, the downside to B is 100 (total loss) and the upside is unlimited but highly uncertain. The Seller S, by selling the asset, has a certain return of 100, with no downside. But he also has no chance at the upside, which might be high but is highly uncertain. The straight sale scenario is thus a binary situation. Either S or B bears the risk, depending on whether there has been a sale of the asset from S to B or not. But suppose that S wants to have a chance to get part of the potential upside, or that B does not want to bear the entire risk associated with a purchase. In other words, they are willing to allocate the risk among themselves in a way that is in between the all or nothing of a straight sales transaction.

Options create a way to do so. For example, suppose that S does not sell the asset to B, but instead offers, in return for

102 Enwing, Jack and Kerry Capell, "A big score for Murdoch?" *BusinessWeek*. April 8, 2002. Last accessed July 18, 2007. ► http://www.businessweek.com/magazine/content/02_14/b3777073.htm.

103 There are also pretense media derivatives as a way for people to have fun. There are "virtual" derivatives on movies traded on a make-believe Hollywood Stock Exchange, based on fictional money. Stocks and options on movies can be purchased and sold. The exchange also offers bonds on actors and actresses in which value is accrued based on revenue generated by their movies.

104 Wall Street Journal. "Arbinet to Telecom Firms." August 17, 2000. Last accessed May 19, 2017. ► http://www.mashinsky.com/press/matchmaker.htm.

105 Daily, Geoff. "Merkato Enables Dynamic, Real-Time Bandwidth Marketplace." *Streaming-Media.com* 30, 2005. Last accessed May 19, 2017. ► http://www.streamingmedia.com/Articles/Editorial/Featured-Articles/Merkato-Enables-Dynamic-Real-Time-Bandwidth-Marketplace-64709.aspx.

$50 from B, an option contract which entitles B to buy the asset for $150 within a year. How does the distribution of risk look now, in comparison to a straight sale? For seller S, the "sure thing" is now only $50, less than the $100 before. But if the asset ends up producing an income of more than $150, B would buy it and pay A an additional $150. Thus, S would share in the upside.

S's risk is that the asset returns less than $150 and will not be picked up by B. Thus, he has a higher risk than before, where he had a sure $100. He has now a higher upside but also a less favorable downside. B, on her part, has now a lesser downside. At worst, she is out of $50 rather than $100. On the other hand, the upside is also lower, since a combined $200 would have to be paid to S when things go well with the asset.

The two parties can calibrate their respective risks by juggling the price of the option, the price at which the option can be exercised, and the duration of the option. For pricing the option, perhaps the most important factor is the relative riskiness of the asset. If, based on past experience with similar assets, reaching $150 and more is a 50:50 proportion, the price of the option would be much higher than if it is a long shot with a 1:10 likelihood.

These various factors have been put together in a complex formula (the Black-Scholes-Merton Model), which is used to calculate the value of such an option in financial markets. For our purposes of media properties, it is not necessary to go quite as far (though it can be done, with restrictive assumptions).[106] More important is to understand the concept, and how it can be applied.

A prevalent use of options in the media field is the options bought by producers on work by writers (e.g. books or screenplays) and by distributors such as TV networks on TV series, pilots, and concepts. It is also applied to a technology venture funding. Here additional payment of funding typically comes in stages, based on options or similar arrangements. These stages are referred to as, for example, "Pre-seed," "seed," "start-up," "second stage," "expansion stage," and "pre-public" or "bridge" stage." In all cases, the same basic concept drives the transaction. The buyer of the option reduces her risk and exposure relative to a straight purchase. In the worst case she can get out of the deal, with the downside being the money paid for the option and lost. And, in contrast to a no-purchase situation, she has a shot at an upside. What is different from an option for a purely financial instrument that is commonly analyzed in the finance literature and applied in traders' computer models is an additional wrinkle: the media option creates incentives on its seller to perform better in order to achieve its exercise. In other words, the probabilities of success are not set but can be improved by the seller's efforts. This would not be the case in a straight sale of the property. By sharing in the upside, the seller has an incentive to create a stronger product.

6.8 Equity Financing

6.8.1 Types of Equity Arrangements

The third major form of financing, after self-financing and debt, is through equity financing.[107] By this we mean funding that includes an element of ownership. Equity financing arrangements include:

- partnerships and limited partnerships;
- venture and angel financing;
- private and public equity.

For an order of magnitude, small businesses in the USA receive about 50% of their financing from equity (including self-financing) and the other half from debt.[108]

Equity financing tends to be an expensive form of financing for a company because investors take on more risk with equity investments than they do with debt investments. In the case of bankruptcy, equity investors are usually wiped out but debt holders are paid off at least partly, especially if they hold collateral. Debt is higher on the pecking order than equity in the case of liquidation and reorganization. Equity may be riskier, but it also offers a great upside; a share in the profits and a gain from an appreciation of the stock. Shareholders also have voting rights and thus affect the control of the firm. "Preferred stocks" are a hybrid in terms of risk since dividends must be paid before they are paid to common stock holders.

A major reason for a firm's use of equity financing is that debt might simply not be available. Start-ups and internet firms, for example, are mostly financed by equity because few banks will provide loans for such high-risk endeavors without a track record or stable cash flows, and with few assets that could be used as collateral. Another advantage of equity is that there is no obligation to pay interest. A firm might have a bright tomorrow, but when current debt comes due today and cannot be paid, the firm becomes insolvent. Other reasons to sell equity include the need of existing owners to increase the liquidity of the company or of themselves, to pay off existing debt, to create funds for new acquisitions, and to facilitate estate planning.

And what are the disadvantages? There is the high cost of return that an equity investor would expect. There are also high transaction costs (underwriting fees) and a dilution of control of the existing owners.[109] To counter such dilution of control, the existing owners at times create a system where there are several classes of stock, each with different voting rights. Class A stock might be held by the entrepreneur, management, or the controlling family. It usually offers additional voting rights over other shares. Class B shares offer fewer voting rights but may offer higher dividend

106 Chance, Don M., Eric T. Hillebrand, and Jimmy E. Hilliard. "Pricing an Option on a Non-Decreasing Asset Value: An Application to Movie Revenue." Working Paper. Louisiana State University. December 16, 2005. Last accessed May 17, 2017. ► https://www.fdic.gov/bank/analytical/cfr/2006/apr/chh_movies_021.pdf.

107 Self-financing is actually, depending on its structure, part equity, part debt.

108 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6-8 (1998): 613-673.

109 Lynch, Richard. *Corporate Strategy*. (Harlow Essex: FT Prentice, 2003), 288.

entitlements or a lower acquisition price. They are usually referred to as common stock. Class A stock tends to be in control even if the minority in terms of investment or overall shares, which is mostly the reason for the arrangement. This may be rationalized as aiming to insulate corporate management from the swings in the stock price and allow a focus on long-term goals. The preferred Class A stock is not available to the public and is usually not traded like common stock. Examples for minority owners holding full control are the following:

- The Murdoch family help 39% of voting shares in the global media firms NewsCorp. and 21st Century Fox, but only about 16% of equity.
- The Roberts family has only 1–2% of outstanding stock of Comcast, the world's largest cable TV operator and owner of NBC Universal, but holds 33% of voting shares.
- The Sulzberger family controls the New York Times Company through its 88% of Class B shares, but holds only 19% of the total equity outstanding.[110]
- The Washington Post Co. used to be 75% controlled by the Graham family through 40% of the outstanding stock.[111]
- Cablevision was controlled by the Dolan family, which owned 20% of equity but 74% of the voting rights.
- In Germany, the Mohn family controls the Bertelsmann company through its domination of the Bertelsmann Foundation, which holds all of the company's stock.

6.8.1.1 Partnerships

The Basics of Partnerships

Equity investments come in many forms. By far the most prevalent in sheer numbers is the individual proprietorship. Usually its owner also runs the business herself, assisted by employees. This form of organization is used most often for small businesses. In the media world, a producer might run a project in that fashion. Individual proprietorships might take the legal form of a small corporation, where the stock is not traded but held by the sole owner. This provides a limited liability and thus protects the personal assets of the owner from creditors in case the business fails.

When a business based on a single proprietorship expands, there is usually a need for outside participation. The most basic one, especially for small firms, is a partnership with others as co-owners and possibly co-managers. Partnerships are formed to pool the skills, resources, and information of several individuals or companies. One major advantage of partnerships, in contrast to incorporated firms, is that in many countries there is no income tax on the profits of that partnership because legally it is not treated as a separate entity from its owners but merely a "pass-through entity" to each of the partners, who report their share of profits or losses as personal income. Therefore, taxes on partnership income must be paid only once by a partner,[112] in contrast to a corporation, which must pay its own corporate income taxes, and then the shareholder must pay again an income tax on the distributed profit of the company, that is, the dividend.[113]

A simple partnership is easy to set up. The law provides a basic structure that defines respective rights (voting, profit participation, etc.) and respective obligations (liability questions, loss participation, etc.). In the USA, partnerships are governed, except for Federal taxes and other nationwide regulations, by state law unless the partners specifically agree to different rules in their partnership agreement. There are two types of partnerships: general and limited. In a general partnership, all partners have a say in the day-to-day management of the firm, and each partner is personally liable for the entirety of any business-related obligation. In other words, if in a film production company Partner A decides to buy the movie rights to a book bestseller, his Partner B must fulfill the payment obligation on behalf of the firm, even if he disagrees with the decision of Partner A and has never approved it. It is therefore prudent to select one's partners carefully since one is financially and legally stuck with responsibility for their actions. This risk exposure is reduced in a limited partnership. Here, at least one general partner is responsible for the day-to-day management of the company and is personally liable for business obligations. Limited partners, on the other hand, contribute capital but have minimal control over business operations. In return, their personal liability is capped at the amount of the initial investment. Limited partnerships are often used in PE and in hedge funds. The logic behind this division of liability is that it enables the limited partners to invest without having to worry about every move of the general partner that could trigger a potentially huge liability.[114]

An example for the fear of liability in a full partnership is Apple Computers. In 1976, Steve Jobs, Steve Wozniak, and Ronald Wayne formed Apple Computers as a real partnership, with 45%, 45%, 10% ownership shares respectively.[115] But Wayne worried about the possibility of holding the bag in case of a bankruptcy, given that Jobs and Wozniak had no personal assets, and he formally withdrew from the partnership just a few days later by filing a notarized statement to that effect. He sold back his 10% ownership stake to his two co-partners for $2300. That stake would have been worth about $94 billion in 2018.

110 The New York Times Company. Notice of 2010 Annual Meeting and Proxy Statement. March 12, 2010. Last accessed May 19, 2017. ► http://s1.q4cdn.com/156149269/files/doc_financials/proxy/2010_Proxy_Statement.pdf.

111 Fox, Justin. "Murdoch vs. Family-Owned Newspapers." *Time*. May 10, 2007. Last accessed May 19, 2017. ► http://www.time.com/time/magazine/article/0,9171,1619562,00.html. The Washington Post Co. was subsequently bought by Jeff Bezos, founder of Amazon.com. Bezos owns "Nash Holdings LLC," a holding company created for the Washington Post deal. Nash Holdings owns 100% of the Washington Post, which was purchased for $250 million.

112 On the other hand, India taxes partnerships twice, once with a flat rate of 30% of total income minus a deduction of interests and remuneration to the partners, and then the partners are also taxed.

113 The double taxation of corporate profits and dividends is one of the arguments made for setting corporate income taxes at a lower rate than individual income tax rates.

114 Bankman, Joseph. "The Structure of Silicon Valley Start-ups." *UCLA Law Review* 41, no. 7 (Sept. 1994): 1737-1768.

115 Isaacson, Walter. *Steve Jobs*. New York: Simon and Schuster, 2011.

It is more difficult to create and run a limited partnership than a full one without professional help since it requires, in terms of registration, the legal contracts between the partners, and tax filings, and compliance with various regulators.

Although there are exceptions, limited partnerships tend to be used more in the early stages of a company or venture rather than in its mature stages, where corporate forms predominate. For investment funds, the limited partnership arrangement is prevalent, in part because of its tax treatment.

Cable TV Partnerships

In cable TV, limited partnerships were especially popular in the US in the 1980s. Jones Intercable, for example, launched about 20–30 cable TV partnerships, each for ~8–10 local cable systems, adding up to a $1.2 billion aggregate operation and produced approximately 15% in annual returns. The advantage for the company and its founder Glenn Jones was the ability to raise money quickly, then buy out the partners when the business generated cash. The investors got a good return and did not have their money tied up for a long time. For a while, there were also strong tax benefits.

Film Partnerships

Partnerships were frequent in film financing. Before the 1976 and 1986 tax reforms in the USA, limited film partnerships were among the most effective tax shelters there. Subsequently, "passive losses" from tax shelters could no longer be used to offset income from wages, salaries, interest, and dividends. Absent the tax angle, few movie partnerships have historically returned better than 10–15% annually and many have in fact lost money to limited investors. Occasionally they generate high profits to investors, of course. Yet from a purely economic standpoint it is usually better to invest directly in the common stocks of the production or distribution companies, especially considering the advantage of greater liquidity (ability to sell quickly.) But film investments have always been driven by considerations beyond pure economic rationale. Investing in film directly via partnerships is often seen as "glamorous," which is a factor for many investors—whether they admit it or not. Overall, it is estimated that in the USA individual investors account for about 10% of the film sector's direct financing. Film limited partnership funds will not usually invest as "first money" but look first at other financing already in place, especially by the principals. The limited partnership investment funds then may provide 10–50% of the budget needs in return for a straight profit participation. They might also get the film rights to certain countries or rights in a sequel.

On top of that consideration, film limited partnerships are popular in many countries where tax shelters continue to exist to encourage investment in film production. As mentioned, investors often get back less than they invested, before the tax benefits. They have an individual average capital loss of about 20%, but tax breaks enable those investors to use those investments as deductions against their capital gains. In Germany, an individual with €100,000 of taxable income could invest €10,000 in a film fund and immediately reduce his taxes.[116] Investing in a film counts as a loss until money is actually received, so the €10,000 is deducted from the tax base and taxable income is thus reduced. At a personal income tax rate of 40% the investor saves €4000 in tax. Furthermore, most of these investments were leveraged, meaning that the film partnership borrowed money based on that €10,000. The investor is considered to be responsible for his share in the loan. Suppose that the leveraged debt is equal to the original investment, then the investor is considered to have "spent" €20,000 as far as tax law is concerned. This gives him €8000 of tax savings today although he only spent €10,000 of cash for the film partnership investment.

As a result of such incentives in Germany, the financial fund company Equity Pictures became one of the biggest film investors in the world. It issued four media funds as limited partnerships to high tax bracket investors. With the money, it financed movies such as *Hostage*, *Lonely Hearts*, and *The Black Dahlia*.

Most tax schemes do not let an investor fully avoid tax but only to defer its payment to later years when income from the film is received. Such a delay of payment is worth money. Furthermore, at that point personal income may be smaller and the tax bracket is therefore lower, possibly offsetting income with a new round of tax losses. Investors have also used such a vehicle to get around inheritance taxes. The film fund buys first, with a value set for tax purposes, a stake in a money loser, while the potential winners are kept further down the road. This reduces the value of the partnership for tax purposes. The share in the fund's limited partnership is then donated to a future heir within the tax-free annual donation amounts, whereas in reality a much higher value has changed hands that will be realized a few years later.

Some of these perfectly lawful tax loopholes existed by chance and were discovered and used by savvy financiers and lawyers until their respective governments closed them down. But on many occasions such tax shelters have been deliberately designed to help rich and influential people lower their taxes while being justified as a support of the generally risky business of film, which in many countries is not profitable without some kind of governmental help.

A well-organized limited partnership seeking investors requires a prospectus that spells out all aspects of the deal and its downsides. It describes the general partners, other managers, the planned projects, the business plan, the tax angles, and so on. The drafting of such a prospectus can cost hundreds of thousands of dollars when it covers a complex scenario. It spells out duties and obligations, which will affect lawsuits if the project is unsuccessful (or highly profitable) and conflicts arise. Creating the legal structure of a limited partnership, important as it is, is only an input toward the goal of finding investors. This will be discussed further below.

116 Richards, Matthew. "Lights, camera - and action for small investors." *Financial Times*. December 2, 2006. Last accessed May 17, 2017. ► http://www.ft.com/cms/s/0/a5e45982-81a9-11db-864e-0000779e2340.html.

Theater Partnerships

Commercial theater is even riskier for investors than film because there is an even lower predictability of success and a much lower financial upside. On the other hand, the amounts involved are smaller. Nevertheless, people invest in theater often for reasons beyond financial maximization but for the love of the medium and its artistic community. Approximately 80% of shows never become profitable and investors lose money.[117] In many instances, theater is supported by a variety of governmental, private, and non-profit sources, and is not really expected to break even.

Commercial theater productions have a similar financing process to commercial films. A producer secures option rights to a literary property. She then raises investment to cover the production costs. Commercial theater productions such as a Broadway show rely on financing by limited partners—investors with a strong personal interest in the theater, known as "angels." Angels in theater love the world of theater more than they follow pure economic incentives, because theater is a poor tax shelter. A major reason is that there are no major depreciable assets for tax purposes. Typically, the aggregate pecuniary returns for such limited partners are below normal. A study of 948 shows produced in the seasons of 1972–1982 showed an aggregate loss of $66.6 million on a total investment of $267.5 million. There were several hits, too,[118] and these provided some incentive for risk-taking investors.

As the costs of producing a Broadway show have grown to over $3 million on average for a play and over $20 million for a major musical, individual angels have been replaced by major entertainment companies as funders. For them, a Broadway hit is a way to create a testing ground and buzz for a film or television adaptation. If the play is successful, the media company has an option to create a movie. In some cases, the direction is reversed, and the Broadway show is an "after-market" for a successful film.

In some cases, the owners of the theater may be equity investors themselves in return for renting the theater to the show (i.e. they provide vendor financing). The major owner-investors of Broadway theater venues are Shubert, Nederlander, and Jujamcyn.[119]

A show will repay the investors first, with the remainder, if any, divided among the investors, the producers, and other profit participants. In reality, just as in the case of film, some of the profits are taken out first by producers, major talent, and theater owners through various charges for expenses, and overhead, above actual cost. This is discussed in ► Chap. 13, Accounting in Media and Information Firms.

Technology Partnerships

In high tech ventures, early funds may also be provided by "angel" investors (the term is borrowed from theater financing), who are typically individuals (or sometimes a firm) specializing in high-risk, "early-stage investments." Angels have a long business history. Some of the biggest companies (e.g. Ford, Amazon, or Apple) have had business angels in their start-up phase.[120] By one count, in 2009 there were 260,000 such angels in the USA, many of them actively sought out by entrepreneurs for investment. In 2008, in the midst of a major recession, over 55,000 ventures were funded in America with over $20 billion from angels, an average investment of $346,500 per deal.[121] In 2015, angels invested $24.6 billion in 70,000 deals for an average of $351,000.[122] In contrast, venture capitalists are far more selective, and often only after the angels have invested their money and taken greater risks. In 2015 venture capitalists invested $59.7 billion in 4,497 deals, with an average deal size of $13.3 million.[123]

While venture capital (VC) funds mostly invest other people's money, angels put their own personal funds at risk. The angel investors can also be advisors, mentors, and facilitators. They are often successful businessmen and women with entrepreneurial experience and expertise in the chosen investment field, and attracted by the potential for getting into a promising technology venture early. For them, a non-financial reason to invest in a venture is active involvement. An angel should not be treated as a "moneybag" but as a business partner.[124]

Angels prefer a low profile to limit the number of unsolicited deals that may come their way. How then to find them? There are several possibilities, but the best choice is to use one's personal network—contacts from college, university, friends, family, and so on.

Industry gatherings and forums are public and accessible, through often for a hefty fee, but often less productive. Law firms specializing in media and technology, or tax accountants, may have information. There are also online platforms, such as the Angel Capital Network or the website Active

117 Vogel, Harold L. *Entertainment Industry Economics: A Guide for Financial Analysis*. 7th edition. (New York: Cambridge University Press, June 2011), 489.

118 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

119 Vogel, Harold L. *Entertainment Industry Economics: A Guide for Financial Analysis*, 7th ed. (New York: Cambridge University Press, June 2011), 489.

120 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

121 Bowers, Brent. "In Pitching to Angel Investors, Preparation Tops Zeal". *New York Times*. June 10, 2009. Last accessed May 19, 2017. ► http://www.nytimes.com/2009/06/11/business/smallbusiness/11hunt.html.

122 Angel Capital Association. "2017 Angel Capital Association Summit: Angel Investors Drive the Success of American Startups and Economic Growth." *PR Newswire.* April 12, 2017. ► http://www.prnewswire.com/news-releases/2017-angel-capital-association-summit-angel-investors-drive-the-success-of-american-startups-and-economic-growth-300438845.html.

123 PricewaterhouseCoopers. MoneyTree™ Report, Q1 2016. April 2016. Last accessed May 19, 2017. ► https://www.pwc.com/us/en/technology/assets/national-moneytree-report-summary-q1-2016.pdf

124 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

Capital.[125] Pitch fests or business plan competitions from business schools, magazines or consulting firms are also a way to gain practice, and can lead to prize money and contact with potential angels. Industry trade magazines and web pages, and even end credits of films, may show funds that have supported films in the past. But it is usually personal contacts that will provide leads and introductions. Trusted referrals are the best openers of doors.[126]

The look-over must be in both directions. An entrepreneur should check out an investor carefully. Meetings with prospective investors must be well-prepared, with a business plan and presentation. Investors size up people as much as at business plans. They will check out the entrepreneur and team and consider their experience, track record, and reputation. Passion by the entrepreneur to the idea is important in a pitch, but a good business plan, credibility, and realism carry more weight. A demonstration that the entrepreneurs themselves have invested in their venture is important.

Angels will also look for a profitable exit strategy, with specific potential merger partners or acquirers. Passion and commitment by the entrepreneur are important in a pitch, but strong preparation, a good business plan, credibility, and realism carry more weight.[127] A demonstration that the entrepreneurs themselves have invested in their venture is important.

In general the angel investor will expect a high rate of return, probably at least 30%. Most ventures fail, and those that make it must compensate for the others' losses. Usually the angel investor will require a stake in the company whose value represents the expected return. Since normal valuation methods such as discounted cash flows and so on do not work because they require figures on profits, revenues, and expenses, one must arrive at some implicit value of the company. This requires judgment as much as calculation. If the parties agree that the company's value is $1 million, the investor should then expect for a $100,000 investment a 10% stake in the company.

Impact of Partnership Financing on Content or Innovation

Content production or technology direction are not influenced directly by the limited investors owing to their legally restricted role as a "limited" partner. But to the extent that such investors may flock to certain types of prospectuses and not to others will affect company choices. In the technology field these kinds of investors tend to go for high-risk, high potential return projects with a high innovation potential. On the other hand, for film and theater limited partnerships, the incentive is based more on participation. Hence, high visibility rather than avant-garde projects will be preferred.

Case Discussion

Limited Partnerships

TWIT
Limited partners could be, in concept, a viable funding source for TWIT: the parent company could remain in control as the general partner and would bear most of the financial risk beyond the limited partner's direct investment. It could set up the limited partnership by selling partnership shares in TWIT. The company has run its projections and expects the IRR on the project to be 16.34%. If it sells a stake in TWIT to limited partners it will be giving up a proportional amount of expected future profits with such an expected return of 16.34%, to which are added transaction costs. Even this high rate of return may not be enough, since limited partnership investors often require at least 20% return - though in this case, they may take less. This translates into a cost of the prime rate of 5.45% plus 10.89%. The general partner typically contributes 20% of the investment, in order to assure the outside investors that it, too, has "skin in the game." Without such assurances limited partners will require higher return on their investment. On the whole, forming a limited partnership to fund TWIT would be unattractive to the company since it has cheaper and more efficient forms of financing available.

SNIT
For SNIT, on the other hand, a limited partnership is a more feasible option. SNIT was started by entrepreneurs with significant experience in this field. These individuals have a combination of technical knowledge and entrepreneurial spirit. SNIT'S initial list of potential limited partners draws from family and friends. The cost of limited partnership funding is based on projections of SNIT's IRR. The limited partners will also share in the losses if the company does not do well. If SNIT is successful, then these limited partners could be bought out in the future.

125 In other countries there are intermediaries such as the British Venture Capital Association (BVCA) ► http://www.bvca.co.uk/home, the Canadian organization of angel investors Mindfirst ► http://mindfirst.com/, and the European Trade Association for Business Angel Network (EBAN) ► http://www.eban.org/.

126 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

127 Bowers, Brent. "In Pitching to Angel Investors, Preparation Tops Zeal". *New York Times*. June 10, 2009. Last accessed May 19, 2017. ► http://www.nytimes.com/2009/06/11/business/smallbusiness/11hunt.html.

6.8.1.2 Private Equity

Private Equity—An Overview

The term private equity is used in different ways. Almost all equity is private in the sense of being owned by private parties rather than government. But equity is differentiated according to its trading status: *public equity* is stock traded on a stock exchange and accessible to the general investing public. Publicly offered securities are subject to securities laws and must adhere to strict legal standards. For example, financial documents such as the company's balance sheet, income statement, and other information have to be disclosed periodically. In contrast, firms whose stock is held privately (not traded on a stock exchange) subject to much looser financial reporting.[128] This allows, for example, top executives to take home high compensation without public or investor scrutiny. Public equity's target audience is the mass-market of investors, and it is therefore highly regulated to protect, in particular, small mom-and-pop investors with limited financial sophistication.

In most countries, public equity placements must be structured to comply with state and federal securities laws. In the USA, these laws, dating back to the 1930s, say that a stock offering must be registered with or approved by a government agency, unless it meets a specific exemption. A sale of securities that is conducted privately, without a public offering, will generally be exempt, on condition that the offering is made only to sophisticated and wealthy investors. The frequently used "Regulation D" stock offerings include a number of exemptions from registration requirements, depending on the size of the issuer, the number of investors, and the manner in which the offering is conducted. An "accredited investor" includes, for example:

- an individual with a net worth (together with her spouse) exceeding $1 million;
- an individual with income above $200,000 (or $300,000 jointly with her spouse);
- any trust or organization with total assets over $5 million;
- any entity in which all of the equity owners are accredited investors.

PE is an important source of funds for a variety of situations:

- start-up firms;
- financially distressed firms;
- private mid-market firms;
- public firms in need of buyout capital;
- firms seeking to become a target for acquisition by reducing their exposure to the regulation of public corporations;
- large shareholders who want to gain full control over their target firm;
- small companies with untraded stock;
- start-ups on the way to going public;
- large companies withdrawing from public trading.

Private Equity funds draw money for their investments either from individuals (who need to be wealthy enough to be legally admitted to invest) or from organizations that invest professionally. PE money tends to come from astute investors with deep pockets, including: rich people, insurance companies, pension and mutual funds, endowments, and sovereign funds.[129] In 2015 PE firms raised $629 billion and in 2016, $589 billion.[130]

Major PE firms are:

- JPMorgan Partners Fund
- Blackstone
- Thomas H. Lee Equity Funds
- Kohlberg Kravis Roberts & Co.
- TPG (formerly Texas Pacific Group)
- Donaldson, Lufkin & Jenrette
- Warburg Pincus
- Goldman Sachs
- Apollo Management
- Bain Capital
- CVC Capital Partners
- First Reserve Corporation
- Hellman & Friedman
- Apax Partners
- Cerberus Capital Management.

In general, there is no legal minimum investment requirement for investments in PE funds. But the funds, in order to avoid unsophisticated investors who could present legal and public relations risks, set a high minimum investment amount per investor, often in the million-dollar range.

PE in the Media and Media Technology Industry

Media and technology companies have been particularly interesting to PE investors, because there is a possibility of bigger returns owing to the volatile and risky nature of the business, which favors aggressive investors. In addition, PE funds believed that the frequent lack of financial and managerial sophistication in newer media and digital companies provides an opportunity.

- $11.6 billion was paid for the Dutch information publishers, VNU by PE firms Kohlberg Kravis Roberts, Blackstone, Thomas E. Lee, and Alpinex and Carlyle. In 2007 the company was renamed The Nielsen Company.

128 The Economist. "Public v Private Equity: The Business of Making Money." July 5, 2007. Last accessed May 19, 2017. ► http://www.economist.com/node/9440821.

129 The year 2010 was a slow one, with 1300 deals totaling $105 billion completed in the USA. PE limited partnerships worldwide invested $686 billion and raised around $500 billion in that year. ► http://vcexperts.com/vce/library/encyclopedia/documents_view.asp?document_id=1330#_ft3; In 2013, there were 2013 deals with an announced value of $249.5 billion. PE firms fundraised $401.1 billion. EY. "Regaining equilibrium: Global private equity watch 2014." 2014. Last accessed May 19, 2017.

130 Drean, Antoine. "Private Equity Fundraising Is Set To Break Records, But The Plenty Holds Danger." *Forbes*. December 8, 2015. Last accessed May 19, 2017. ► http://www.forbes.com/sites/antoinedrean/2015/12/08/private-equity-fundraising-is-set-to-break-records-but-the-plenty-holds-danger/#495744d751ac; MacArthur, Hugh, Graham Elton, Daniel Haas and Suvir Varma. "As Good As It Gets For Private Equity Fund-Raising." *Forbes*. March 10, 2017. Last accessed May 19, 2017. ► https://www.forbes.com/sites/baininsights/2017/03/10/as-good-as-it-gets-for-private-equity-fund-raising/#7b92398771d4.

- The world's largest radio company, Clear Channel, was acquired by Thomas H. Lee Partners and Bain Capital for $18.7 billion plus assumption of $8 billion net debt. The deal had trouble closing and the valuation came down subsequently. To pay for the deal, the partners sold Clear Channel's 56 TV stations and 161 of its radio stations. Renamed iHeartMedia, Inc., and carrying a debt load of $20 billion, the company filed for bankruptcy.
- Kohlberg Kravis Roberts and Permira bought SBS, the satellite broadcaster headquartered in Luxembourg, for $2.5 billion in 2005.
- KKR and Permira bought the largest private German TV broadcaster, ProSiebenSat.1, for $7.6 billion.
- The media company Journal Register Company became America's 22nd largest newspaper chain. It was formed in 1990 by Warburg, Pincus, & Co. through multiple acquisitions via debt financing. Warburg Pincus eventually converted the conglomerate to a public company in 1997.
- In 2007, a consortium of billionaire Haim Saban and the PE companies Providence Equity Partners, Madison Dearborn Partners, Thomas H. Lee Partners and Texas Pacific Group took control of the Spanish-language TV network Univision for $13.7 billion. This acquisition left the company at a huge debt level equal to 12 times its annual cash flow.
- In 2006, Bertelsmann acquired, for $5.8 billion, a 25.1% stake of its own stock held by Group Bruxelles Lambert. This took Bertelsmann fully private and it freed Bertelsmann from the prospect of an initial public offering (IPO) for the stake.
- Time Warner divested itself in 2004 of its music company Warner Music Group. It sold the company to Edgar Bronfman Jr., Providence, Bain Capital, and Thomas H. Lee for a total of $2.6 billion.[131] The new owners slashed staff and cut costs; Warner Music Group went public in 2006 (i.e. the PE group sold its shares to other investors) and soon had a market cap of $3.6 billion. But then the Warner Music Group share in the global music business price dropped considerably.[132] Though its market share had been steady at around 15% since 2009 and it remained the third largest record company, its revenue dropped from $3506 million in 2008 to $2311 million in 2011 (a decrease of 34%). In 2011, Warner Music Group became private again, when Access Industries (privately held by Len Blavatnik) bought it for $3.3 billion. Share prices had dropped 78% since 2007.
- Cablevision's founding Dolan family tried several times to purchase the remaining shares of the cable TV and media company and take it private. In 2007 this finally worked through a leveraged buy-out financed by $2.1 billion family resources and a debt package of $15.5 billion from Merrill Lynch, Bear Stearns, and Bank of America.
- The film studio MGM was bought in 2004 by PE firms TPG and Providence, and by Comcast and Sony. They paid about $5 billion in debt and equity to buy MGM (then-publicly traded) from its majority owner, billionaire Kirk Kerkorian.
- In 2005, the PE firm Kohlberg Kravis & Roberts (KKR) made a friendly but unsuccessful takeover bid for Vivendi, a media giant with a market cap of $40 billion.
- In 2005 financier Carl Icahn's hedge fund and some allies (Franklin Mutual Advisors, JANA Partners, and SAC Capital) tried to take control of Time Warner.
- In 2004, Cox Enterprises bought the remaining 38% of Cox Communications shares it did not yet own for about $ 7.9 billion, at a 16% premium over the traded share price.
- In 2012, Spotify raised $100 million from PE firms to enter the US market.
- In 2013, Silverlake and Michael Dell took the Dell Computer Company private, in a transaction worth $24 billion.
- In 2015, Dell acquired the data storage company EMC, backed by Silver Lake Capital, for $67 billion.
- In 2015 Veritas (a software firm) was bought by the Carlyle Group for $8 billion.
- In 2005, the PE firms Silver Lake Partners, Bain Capital, Blackstone, Providence, TPG, and KKR acquired SunGard Data Systems (SDS) for $11.3 Billion in cash and assumed the debt. SunGard is a software vendor and applications provider for financial services, higher education, and the public sector. The structure of the acquisition consisted of:
  - $2 billion in "junk" bonds (high interest debt);
  - $4 billion term loan (bank debt);
  - $1 billion revolving facility (bank debt);
  - $3 billion in investment-grade bonds;
  - $1.3 billion in equity from the consortium.
- The SunGard deal translates into a transaction that was 90% debt financed, based on the assets and cash flow of the acquired company. It operates with a debt to equity ratio of almost 8:1. Such a high ratio increases the risk of the deal: if the venture is profitable, the high leverage increases the already positive ROI. But in a downturn the loss is amplified.

Major Telecom Private Equity Deals

PE firms are also interested in established telecom companies. The attraction is not a high upside earnings potential but rather the steady cash flow and the vast assets of a utility, in addition to strong market power with captive customers.

In 2005, a PE consortium including Blackstone, Kohlberg Kravis Roberts, Apax, and Permira purchased Denmark's largest telecommunications company, TDC (13 million customers throughout Europe, especially in Denmark and Switzerland)

131 Wikipedia. "Warner Music Group." Last updated July 15, 2012. Last accessed July 20, 2012. ► http://en.wikipedia.org/wiki/Warner_Music_Group.

132 Goldsmith, Jill. "Hollywood edgy about Stealth Wealth." *Variety.* December 17, 2006. Last accessed July 20, 2012. ► http://www.variety.com/article/VR1117955885.html?categoryid=18&cs=1.

for $15.3 billion. Of this, $12 billion was paid in cash. The deal, at the time the largest PE deal in Europe, was set at a 40% premium over the company's traded share price.[133]

In 2006, the Australian PE firm Babcock & Brown acquired the Irish National Phone Company Eircom, as mentioned, by using debt secured by Eircom's own assets. The €4 billion Eircom debt financing package included €3.5 billion in senior debt provided by Credit Suisse, Deutsche Bank, and JPMorgan. Babcock & Brown's high debt required it to make big interest payments. Eircom was operating in the black. However, the debt required the raising of telecom prices in Ireland, resulting in some of the highest phone rates in the world. Even so, Babcock & Brown's debt level became unsustainable, and the company went bankrupt.

Impact of PE Acquisitions on Content

With much investment money in the hands of PE fund managers, what has been the impact on media content or technology innovation? PE deals often lead to a break-up of large firms such as media conglomerates to reduce debt that paid for the acquisition. Clear Channel used to be the largest radio company in the world, but the PE owners, once they got control, sold off almost half of its 1100 radio stations.[134] Second, PE partners will be generally less interested in investing in quality or innovation that will pay out only in the longer run. Resulting long-term economic damage to the company will only become apparent after the PE firm has sold its stake. Unlike start-up VC, this kind of PE is short-term oriented in its search for cash flows to meet debt payments and position the company for resale.

Traditional institutional investors such as Fidelity, and other mutual funds, rarely exert their influence over the management of companies they invest in. In contrast, PE funds control the acquired media company fully and often install new management with tough performance mandates. With so much capital at risk as well as the immediate need to make debt service payments to pay back loans, the PE funds play a hands-on operational role beyond the merely financial. PE ventures are often financed by leveraged buy-out debt on the acquired company itself. The PE firms typically only put up a percentage of the capital required to buy the target corporation. The majority of the financing comes from a variety of external sources. There are no filing requirements with national financial securities regulatory agencies such as the SEC, information is not available to the press, and securities analysts stop following the stock. The new owners frequently have a low profile. In 2009, Thomas H. Lee Partners– a $20 billion Boston PE firm that acquired singly or in partnerships the major media firms Clear Channel, Univision, VNU, Houghton Mifflin, and Warner Music – did not even maintain a website.

Case Discussion

Private Equity

PE financing can be used by a young corporation lacking access to public debt and equity markets. TWIT, by itself, meets that category, but its parent company Time Warner is an established company with much cheaper funding options.

In contrast, companies such as SNIT that cannot raise financing from debt or public equity markets are candidates for the issuance of PE to get early stage financing from private investors with faith in the project and its entrepreneur. The cost of such equity will be similar to that of venture financing, discussed below. It is easily a whopping 40% or more.

6.8.1.3 Venture Capital

VC Financing

VC firms finance new and rapidly growing companies. VC funds are pools of capital, typically organized as limited partnerships, that invest in companies and industries that represent opportunities of a high rate of return. In return for financially backing a start-up they receive equity securities. Usually they also assist in the development of new products or services. They are designed for institutional and deep-pocket investors. VCs have a long-term orientation, take high risks, and expect high rewards. They are often hi-tech focused, with less involvement in content media. VC firms invest in a start-up company and take a percentage of ownership. Typically, they will look for a 35% to 40% ROI on a single venture, knowing that many of their investments will never return a profit. It is claimed that 20% of VC deals are failures, 60% are disappointing, and the remaining 20% are winners.[135]

The main goal of a VC is a profitable exit: to see the portfolio firm go public (IPO), be acquired, or be merged as soon as possible to make a sizeable profit. Once the stock is freely tradable after an IPO, VC firms distribute shares or cash to the limited partner investors.

The process of funding is structured in a benchmark system. Similar to the option arrangement discussed earlier. Financing is provided to the portfolio companies in several stages called pre-seed, seed, first round (early stage), second round (expansion). To this may be added a bridge stage prior to an IPO and a public expectations stage, and possibly others. Funds for a next stage are provided only if the performance objectives are met for the previous one. At every stage, the level of financing is very different owing to a varying level of risk and the expected return for that phase of the project. Some rules of thumb for expected rates of return for each stage of the company are[136]:

- seed stage: 80%+;
- start-up stage: 50–70%;

133 Bloomberg News. "Takeover firms will pay $15.3b to buy Danish phone giant TDC." *The Boston Globe.* December 1, 2005. ► http://archive.boston.com/business/technology/articles/2005/12/01/takeover_firms_will_pay_153b_to_buy_danish_phone_giant_tdc/.

134 This was not enough to cover the debt. In 2018 the company filed for Chapter 11 bankruptcy.

135 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

136 Junee, Ryan. "Startup Valuation-The VC Method." September 20, 2006. Last accessed July 20, 2012. ► http://006/09/startup-valuation-the-vc-method/.

- first-stage: 40–60%;
- second-stage: 30–50%;
- bridge/mezzanine stage: 20–35%;
- public expectations stage: 15–25%.

Skype, the voice-over-IP telecom company, is a good example of a successful VC investment: It was founded in 2003 by Niklas Zennstrom and Janus Friis with help from investors who initially put in €2 million. Two years later Skype was bought by eBay for €2.1 billion.[137] In 2009, eBay sold 65% of Skype to a group of investors led by PE firm Silver Lake, including a major Canadian state pension fund, for $1.9 billion in cash and $125 million in short-term debt. Silver Lake intended to launch a $1 billion IPO for Skype in 2011.[138] Instead, Microsoft bought Skype in 2011 from Silver Lake and its partners, as well as from eBay, for $8.5 billion.

In the early days of VCs—in the 1950s and 1960s—typical venture investors were rich individuals. Only later did VCs emerge as major investment vehicles managing other people's money. Prior to the 1980s, US pension funds were effectively barred from any economically significant investment in VCs because of the "prudent man rules" that required financiers to be cautious with money they managed. However, in 1979 the US Labor Department reinterpreted the law retirement protection to permit pension fund investment in VC if it did not endanger the entire portfolio. These and other regulatory changes led to a large increase in the flow of investments into venture funds. In 2004, sources of VC funds included public pension funds (42%), commercial banks and life insurance companies (25%), and endowments and foundations (21%).[139] Individuals and families accounted for only 10% of VC sources of funds.

For most PE funds (of which VC is a sub-category) the managers of the fund takes a fee of "2 and 20"; 2% of asset value as annual management fee and up to 20% of any profits made by their funds. Usually there is a minimum so-called "watermark" (in the vicinity of 8%, depending on several factors) that must be exceeded in order for the 20% profit participation to kick in. If one year is loss-making and the following years are profitable, the watermark will prevent any profits being reaped by the VC fund until the sum of profits and losses exceeds the watermark.

The limited partners typically put up 98% or more of the funds necessary and receive 80% of the partnership's profits. The general partner provides only a fraction of the investment but contributes the ideas, the entrepreneurship, and the management effort. VCs are usually actively involved in the management of each of the portfolio companies. They often spend more than 100 hours per year on a portfolio firm and visit each a dozen times per year.

VCs are highly selective in the project they pick. According to one VC, only 2–3% of deals presented to a VC get funded. If the business plan is submitted "cold" (without referral by a trusted intermediary), the odds are practically zero.[140]

A corporate VC is set up by large companies with deep pockets seeking to find investment opportunities and encourages its own talented people. Corporate VCs allow them to introduce a more entrepreneurial spirit into the culture of the corporation so that they can create halfway houses for internal entrepreneurs. Intel's corporate VC portfolio counts 200 companies worth $2.5 billion. Another example of a corporate media VC is Bertelsmann's BDMI.

The major drawback for VC funding, from the startup's perspective is that it is an expensive form of financing, with the founder giving up a big chunk of the firm and thereby reducing control and upside potential.

From the investors' perspective, venture capital is a cyclical, risky, and unpredictable business. MovieBeam, a company that transmitted movies over analog lines to a viewer's home, found VC funding of $48.5 million, together with Disney, Cisco, and Intel. But the venture failed. Another internet-TV start-up was Joost, which received $45 million in 2007, VC money coming from Sequoia Capital, Index Venture, CBS, Viacom, and billionaire Li Kashing. Joost's founders were famous, having started Skype and Kazaa, and the company received a lot of hype. But Joost failed by 2009.[141] On the other hand, in 2006, the video sharing company YouTube raised $11.5 million from VC. Google soon bought it for $1.65 billion,[142] with the VCs cashing in big time.

Case Discussion

Venture Capital TWIT Versus SNIT

VC is an expensive form of start-up financing, at a cost of at least 25% (prime plus 20%) interest. It is too costly in deep pocket situations when a new prospect such as TWIT has Time Warner's corporate backing. It would also dilute control of TWIT since VCs require a major stake in the venture in return for financing. The benefit of using VC to provide business guidance is also less important to TWIT since its corporate parent has knowledge, resources, and experience.

For SNIT, on the other hand, venture finance is much more helpful. Not only could VC provide much-needed capital but it would also deliver business management advice, contacts, and credibility. SNIT is a good candidate for VC as it is too small and young to raise capital in the public markets or secure a bank loan. Yet obtaining VC is difficult. Given its first-stage status of development, SNIT should expect financing at an implicit cost of 40–45%, and might get $5 million at that point.

137 The Economist. "Giving Ideas Wings." September 14, 2006. Last accessed May 19, 2017. ► http://www.economist.com/business/displaystory.cfm?story_id=7905466.

138 MacMillan, Douglas. "EBay's Skype Sale Looks Like a Win-Win." *Business Week*. September 1, 2009. Last accessed July 20, 2012. ► http://www.businessweek.com/technology/content/sep2009/tc2009091_371847.htm,

139 Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, no. 6-8 (1998): 613-673.

140 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

141 Carlson, Nicholas. "Why Joost Failed." *Business Insider*. July 1, 2009. Last accessed July 20, 2012. ► http://www.businessinsider.com/why-joost-failed-2009-7.

142 Associated Press. "Google buys YouTube for $1.65 billion." *NBC News*. October 10, 2006. Last accessed May 19, 2017. ► http://www.msnbc.msn.com/id/15196982/ns/business-us_business/t/google-buys-youtube-billion/.

6.8.1.4 Initial Public Offerings (IPOs)

An Overview on IPOs

"Public equity" is supplied by capital markets that are regulated by strict rules (securities laws) and agencies (e.g. the SEC). A company can access the public equity markets by issuing shares. (They are public in the sense of "generally accessible to investors" rather than in the sense of "governmental" or "state owned.")

Why would a company issue public equity?

- Present owners are not able or willing to increase their capital contribution.
- Present stockholders need cash, and cannot easily sell their shares unless they are publicly traded.
- Greater credibility of a company as a result of the publicity generated by issuing stock and being followed by security analysts and the business press.[143]
- A wider universe of investors and pool of investment capital is accessible.
- Ability to attract and retain managers if the firm offers stock options and other incentives.[144]
- Founders and shareholders are interested in cashing in their holdings in the company they helped to start up.

For example, Sycamore Networks, a Boston optical networking company, was established by Desh Deshpande and Dan Smith in 1998.[145] It went public 18 months later at the top of the dot-com bubble. Sycamore had never posted a profit but received a capitalization of $1.5 billion based on an offering price of $18–20 per share. On the first day of trading, the opening share price was $270, which valued the company at $20 billion for a business that had started less than two years earlier and had never made money. In March 2000, its market value was $45 billion, over $600 per original share. Implicitly, investors valued this firm more than companies such as Nike, BMW, or Seagram. But in 2004, the stock had tumbled below $20 per share. In 2013, the share price had dropped to mere pennies. With a market value of $66 million, the shareholders voted to dissolve the company.

There are also drawbacks to being a public company.

- There is much less confidentiality for a public company; for example, the salaries for top managers are disclosed. Extensive disclosure of company financial information is required, especially when it is unfavorable.
- Even small IPOs can easily cost hundreds of thousands of dollars.
- The cost of regular compliance with regulation is costly. There are reporting requirements, and they require extensive and expensive legal, accounting, and investment banking services.
- Owing to their increased exposure, public companies are an easier target for pressure groups such as environmental, child protection, and morality groups, and may face various boycott campaigns.[146]
- The control and vision of the founding managers are diluted by the addition of the new shareholders.
- Share fluctuations can be costly and, in some circumstances, place a public corporation in serious peril.
- Managers fixate on the short-term price of the stock, and could potentially be ignoring future risks, opportunities, and long-term growth.

When a company wants to finance through public markets (whether debt or through equity) most often it will need to rely on the services of investment banks. In the banking world, one distinguishes between retail banks (for personal financing needs such as a checking account, a mortgage, etc.), commercial banks (dealing with businesses about deposits, loans, etc.), and investment banks. The latter are specialty institutions that function mainly like advisors for big companies with respect to financing needs. There are only a few sizeable investment banks in the world and in a country (such as Goldman Sachs or JPMorgan in the USA). The services of an investment bank consist of four major functions:

- Providing advice on issuance, purchase, and sale of securities, and on other financial matters.
- Providing capital for corporations and local governments by "underwriting" and distributing new issues of securities. "Underwriting" is the process of purchasing all new securities from a corporation at one price and selling the issues in smaller units to the investing public, usually with a markup. The investment bank is running the risk of not being able to place all shares and being stuck with unsold securities. Sales make up the core of an investment bank. Salespeople are "retail brokers," institutional salespeople, and private client service representatives. Sometimes, in a so-called "private placement," corporate issuers sell entire issues of securities directly to one or more institutional buyers, such as insurance companies, without registering the issue for public sale.
- Maintaining markets in securities by trading and executing orders in secondary market transactions. Aftermarket trading begins after the new issue has been sold to buyers, at an issuing price.[147]
- Providing a "stamp of approval," that is by adding their credibility to investors who must decide whether to commit their funds.[148]

143 Investopedia. "What are the advantages and disadvantages for a company going public?" November 12, 2010. Last accessed July 20, 2012. ► http://www.investopedia.com/ask/answers/06/ipoadvantagedisadvantage.asp.

144 Inc. "Weighing the Benefits of Hitting the IPO Road." November 1, 1999. Last accessed May 19, 2017. ► http://www.inc.com/articles/1999/11/15714.html.

145 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

146 The Economist. "The Business of Making Money." July 5, 2007. Last accessed July 5, 2007. ► http://www.economist.com/displaystory.cfm?story_id=9440821.

147 Investopedia. "A Look At Primary And Secondary Markets." November 20, 2010. Last accessed July 20, 2012. ► http://www.investopedia.com/articles/02/101102.asp#axzz1Qg8yNJve.

148 Callard, Abbey. "Banks, Firms, and Houses: Deciphering The Terms in the Financial Crisis Coverage." *Slate*. September 18, 2008. Last accessed July 20, 2012. ► http://www.slate.com/id/2200410/.

Examples for IPOs in the information and communications technology (ICT) sector are:

- 2011: Demand Media, Groupon ($750 million), Zynga, and Carbonite;
- 2012: Facebook, Living Social, Dropbox, Spotify, Yelp, and Kayak;
- 2013: Twitter, Tableau Software, and MakerBot Industries;
- 2014: Alibaba, Coupons.com, GrubHub (Seamless), GoPro, and King Digital Entertainment (Candy Crush);
- 2015: Box, GoDaddy, Match Group (Online Dating),
- Shopify, and Square.
- 2016: Trevago, Ichor, Acacia, Apptio, Black Line, Carbon Black, Coitvit Holdings, Coup Software, Everspin.
- 2017: Roku, Stitch Fix, Blue Apron, Snap, Forescout, Yext, Alteryx.
- 2018: DocuSign, Smartsheet, Spotify, Dropbox.

Traditional IPOs are cumbersome and expensive. There have therefore always been efforts to make it easier and less bureaucratic for small companies and start-ups to enter capital markets and reach potential investors. In 1976, the option of direct public offerings (DPOs) was established in the USA. More recently, there have also been moves to use new technology and use online platforms so that small companies can reach small investors. US securities laws have several DPO provisions.

- SCOR offerings (Small Company Offering Registrations): available since 1982. A company can raise up to $1 million per year with relatively low requirements, and with exemption from state ("blue sky") securities laws. Stock trading is referred to as an "over-the-counter" sale of securities, since the SCOR stock may not be sold in the regular stock exchanges.
- Regulation D stock offerings: this is for a limited "private" offering of stock to selected individuals rather than to the public at large. A company can raise up to $5 million in a 12-month period. The company can have an unlimited number of investors but these must be "accredited," basically rich individuals or institutions and thus aware of the risks or able to absorb them. The shares must be held for at least six months before they can be resold.[149]
- Regulation A+ offerings (known also as "mini-IPOs"): in force since 2015.

Once a small company qualifies to issue stock, it can use a variety of ways to offer and sell these securities to investors. Technical progress has improved the ways they can reach the public.

DPOs over the internet have risen in popularity. A full registration is still necessary but a company can raise capital directly from small investors in small amounts, without an intermediary investment bank or broker-dealer. This route may be used by small firms that cannot find an investment bank interested in handling their business. It is then marketed via the internet directly.

How is this done? A relatively new method of financing productions is microfunding, also called crowdfunding, where small investments are provided by a large number of enthusiasts for the technology or the creation. Here, "equity crowdfunding" that involves small direct investments in a company must be distinguished from the provision by users of money that is more in the nature of a reward, donation, or loan.[150] In "rewards crowdfunding," the contributor receives a product or service once the company is operating. It is, in effect, a pre-sale of products such as software, a film download, technology devices. PebbleWatch raised $10 million in a single month with the promise to deliver the connected watches once they were being produced. In contrast, "donation crowdfunding" involves a voluntary contribution by a fan to a creator, without an expectation of a benefit in return. Such projects include independent films, plays, music, journalism stories, video games, technology projects, even scientific research. For example, small-scale independent music might be funded by "fan-angels" in this way, utilizing microfunding donation-oriented websites such as Kickstarter, ArtistShare, or IndieGoGo. An artist pitches her project, sets a monetary goal and a deadline, and hopes that fans will become patrons of the project.[151] The average contribution is about $25. Kickstarter received about $2 billion in pledges from almost 10 million backers for over 250,000 creative projects. Donation platforms might also be purely charitable, such as DonorsChoose.

There is also crowdlending, in which people lend small amounts to projects they consider promising or worthy. Platforms for such peer-to-peer lending include Lending Club, Zopa, Kiva, LendInvest, Seedrs, and Prosper Market Place.

Equity crowdfunding platforms include Seedrs, EquityNet, AngelList, Crowdfunders, and CrowdCube. To the start-up company seeking funds, crowdsourcing provides an access to a wide pool of potential funders. Beyond the money raised, advantages are the creation of word-of-mouth publicity as contributors pass the word to others. Investors provide feedback and engagement with the venture. The extent of public response is also a gauge for the market potential of a new product.

Equity crowdfunding is treated as a form of public offering of securities. Government concern with internet-based IPOs is that they invite fraud and manipulation because the internet provides an anonymous environment to inveigle money out of gullible investors. Securities laws in the USA therefore put conditions on equity crowdfunding.

149 Under Rule 505 of Regulation D, the company cannot have more than 35 "non-accredited" investors. The shares may not be sold via a general solicitation or advisement. Under Rule 506 of Regulation D, the shares can be advertised and generally solicited if it can be shown that the targeted investors are all "accredited" investors and the company took reasonable steps to verify this.

150 Fundable. "Types of Crowdfunding." ▶ https://www.fundable.com/crowdfunding101/types-of-crowdfunding.

151 Billboard. "Rethink Music's 'Financing Creativity' Panel Explores Concept of Fans as Patrons, Not Consumers." April 26, 2011. Last accessed May 19, 2017. ▶ http://www.billboard.biz/bbbiz/industry/indies/rethink-music-s-financing-creativity-panel-1005154602.story.

In the USA, the Jumpstart Our Business Start-ups (JOBS) Act was passed into law in 2012.[152] It included rules on crowdsourcing. More detailed regulations became effective in 2016. These rules made crowdfunding easier but also established regulations and self-regulation. A company is limited to raising a maximum of $1 million across all crowdfunding platforms in any given year. There are fairly extensive disclosure requirements, many of which involve competitively sensitive and/or confidential details. The detailed financials must be certified by the executives if it raises less than $500,000, and reviewed by an external auditor if the raise is more than $500. Management must discuss the financial condition of the company, its business, its plans, and the anticipated use of proceeds; there must also be details on the officers, directors and 20% shareholders; and disclosure of related-party transactions.

Where an investor earns or owns less than $100,000, his annual investment in crowdfunded securities is capped at $2000 or 5% of annual income or net worth, whichever is higher. Each crowdsourcing offering must be exclusively conducted through one online platform, and that platform must be registered and approved. The intermediary operating the platform must be a broker-dealer or a funding portal that is registered with the regulators SEC and FINRA.[153] Examples are MicroVentures, Circle Up, and Second Market. If crowdfunded securities are sold through such qualified intermediaries, they are exempt from a number of stricter regulatory requirements.

A company must file annual reports and continuously update its crowdfunding disclosures for so long as any crowdfunding shareholders remain. A company must become a "public" reporting company if it has 500 or more investors.[154]

Investors can receive income in a variety of ways: through dividends, revenue-sharing, or stock appreciation. However, one restriction is that shares bought through equity crowdfunding are not liquid. Like shares sold through private placements, the stock acquired in equity crowdfunding cannot usually be sold for at least one year. There is no marketplace or exchange for these shares, and there may never be one as long as the company does not register with the SEC as a public company.[155]

Certain companies are not eligible to use the relaxed rules on crowdfunding. These include non-US companies, for example.[156]

The crowdsourcing concept and rules received much media coverage over the opening of opportunities for small entrepreneurs. There was almost no questioning of the cost of capital raised in such a way. Yet the transaction costs are still formidable. Assuming a $100,000 funding amount, these are some of the estimated costs[157]: preoffering disclosure costs $5000, portal cost $7500; NPV of annual disclosure requirements of $10,000 over five years: $35,500; transfer agent $100 per month over five years; extra insurance for directors and officers over five years $13,000. This adds up to extra costs of $67,000 for a $100,000 financing, a hefty cost of capital of 67% even before any dividend payments. For a company seeking a larger financing, $1 million, these costs get distributed over a larger amount raised and the cost of capital declines to 25%. And that is not all. There is also the opportunity cost of management time to prepare disclosures, valued at $15,000 per year, for an NPV of $53,200. If that is taken into account for the smaller company, the amount of money brought in is actually less than the cost it took to raise it. Why are these cost numbers so high? It is true that for crowdfunding regulatory requirements have been somewhat relaxed over traditional methods. But enough of these requirements remain, while the amount of money that can be raised is capped, resulting in a fairly substantial cost per dollar raised.

And even that is not all. The other cost element for the company issuing shares by way of equity crowdfunding—as it is for every IPO—is the giving up the gain of a future appreciation of the stock, as well as dilution of control. Such gain is speculative, of course. In the case of a start-up with prospects that are uncertain enough to deter more conventional investment banks, an investor might expect, in return for the risk, a substantial appreciation of the stock over time. If we assume a tripling of the stock over five years, this would be an appreciation at a compounded rate of 25% per year. That would be added to the cost of capital.[158] Taken together, the cost of financing, not including the opportunity cost of management time, is 92%.

Impact of IPOs on Media Content and Conduct

When a project is funded by public equity, its managers are held responsible by shareholders. Public corporations therefore need to show more caution, which makes them move more slowly. They also follow a purer profit orientation to satisfy shareholders. There is less willingness to produce educational or socially beneficial content unless this, too, helps profits. They take fewer risks and pursue safer content or technology projects. They also have a greater short-term earnings orientation. In short, they are, all other things being equal, more risk averse, and less innovative.

152 Goodwin Procter. "The JOBS Act: The Emerging Possibilities for Crowdfunding." April 25, 2012. Last accessed October 22, 2012. ► http://www.goodwinprocter.com/Publications/Newsletters/Client-Alert/2012/0424_JOBS-Act-The-Emerging-Possibilities-for-Crowdfunding.aspx.

153 United States Securities and Exchange Commission. "Regulation Crowdfunding: A Small Entity Compliance Guide for Issuers." May 13, 2016. Last accessed May 19, 2017. ► https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm.

154 Mirabile, Christopher. "2016 Crowdfunding Rules: How the Restrictions Work and Why it Matters to You." *Inc.* April 11, 2016. Last accessed May 19, 2017. ► http://www.inc.com/christopher-mirabile/2016-crowdfunding-rules-how-the-restrictions-work-and-why-it-matters.html.

155 Almerico, Kendall. "What the New Equity Crowdfunding Rules Mean for Entrepreneurs." *Entrepreneur.* November 2, 2015. Last accessed May 19, 2017. ► https://www.entrepreneur.com/article/252315.

156 United States Securities and Exchange Commission. "Regulation Crowdfunding: A Small Entity Compliance Guide for Issuers." May 13, 2016. Last accessed May 19, 2017. ► https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm.

157 SeedInvest. "Title III Crowdfunding Cost Model." Last accessed May 19, 2017. ► https://docs.google.com/spreadsheets/d/1g2ZOtUy5jd6s4-j0cNaSFoYMZcpJqKXQhVEfNOBRei4/edit#gid=0.

158 All calculations assume that the company succeeds over a five-year period.

Case Discussion

Initial Public Offering

A TWIT IPO, in which TWIT issues its own standalone shares, is difficult to arrange and comes with high cost relative to other financing options. TWIT on its own would have complications with a listing on a major stock exchange, as it does not meet requirements in terms of track record and so on. But it could probably have its stock listed on a smaller exchange. A TWIT IPO would also dilute the parent company's control over TWIT as it would have to share ownership with other investors. TWIT would need to comply with government regulations which can be intrusive and costly. But as an alternative, the parent company could just issue more of its own stock to finance this venture, as a secondary public offerings (SPO).

SNIT would not be able to undertake an IPO. It has no operating history. Even smaller stock exchanges require that a company have several years of pretax earnings, profitability or cash flow and a minimum market capitalization. However, after several years with a combination of a proven financial track record, VC funding, and VC guidance SNIT could aim for an IPO. Taking SNIT public at a good share price could make several categories of people rich: the founders, the financial backers, and those employees who had been partly compensated by shares. Financially, this is the goal of many start-ups. For example, suppose each of the founders had invested $100,000 and has 20% ownership, with 1 million shares outstanding, and that the company issues 10 million additional shares at a price of $20. Then each of the founders now holds a value of $4 million, 40 times the original investment. If the share price rises, as IPO stock often does, their stake would rise correspondingly still further.

Should SNIT use crowdfunding? For once, ironically, SNIT may be too large a project. It is seeking $100 million in financing. Barely over ten crowdsourcing projects have been funded for more than $10 million, most of them video games or "rewards crowdsourcing" projects that were, in effect, presells of products. SNIT could not expect a huge surge in small equity investor interest, and preselling of subscriptions does not seem to have major prospects. Thus, the expected money that could be raised for equity is likely to be modest in size. And at what cost? The various cost of raising and maintaining equity crowdfunded capital for $1 million is 25%,[159] plus the foregone capital gains, estimated at 25% for a tripling of the stock price over five years. There are also significant opportunity costs for the management time required to prepare the periodically required disclosure statements, foregone dividends if those get distributed, and a dilution of control. Altogether this does not seem to be an attractive funding option for SNIT: a limited amount of money that can be raised, yet at a high cost and with many headaches of regulatory requirements.

6.8.1.5 Secondary Public Stock Offerings

Factors for SPOs

An SPO is the issuance of new stock for public sale from a company that has already made its IPO in the past. It is a way for a company to increase its outside funding. SPOs are usually easier than IPOs because the company is already known and market valuations are available. SPOs usually have an abbreviated marketing period of one to three weeks. New shares will always be priced below the stock market price to attract buyers, and because prices on the existing shares tend to dip owing to the dilution. Confidentiality is therefore important in an SPO because advance knowledge about a firm's impending sale of shares would lead to a decline in its share price prior to the SPO. In some cases, existing shareholders are invited to buy the new stock, usually at a discount to market price.[160] In most European countries, shareholders must be given a first shot at purchasing any secondary stock, so that their stake will not be diluted.[161]

An SPO can also be a "sucker round," in which a company issues additional stock if it thinks the stock price is overvalued. This sometimes also answers the question why a company with a good financial performance would not raise debt instead of issuing additional shares, since debt is cheaper than equity. In 2005, Google raised some $4 billion through an SPO. The reason for this offering, it was speculated by some, might have been that Google believed its stock price was very high (the IPO stock price in 2004 was $85, and a year later, at the SPO, $295), and that it wanted to "cash in" and raise money while the stock was overpriced. If so, the company underestimated and thus miscalculated. In 2016, its shares traded for $770. Google's owners thus gave up a lot of value for issuing the SPO at the much lower price rather than taking on debt.

One type of SPO is the depositary receipt (DR). This is a method for foreign company to raise money in another country and have its shares traded on that country's exchanges.

Case Discussion

Secondary Stock Offerings for TWIT Versus SNIT

Secondary Offering TWIT

Time Warner could readily have a secondary stock offering to fund TWIT's required $1 billion. However, it would be diluting its share price and reduce of earnings on a per share basis, at least in the short run. The cost of equity is expensive at an estimated 18% interest. Moreover, if the share price is low and expected to rise in the future, this would be an even more expensive way to finance TWIT.

SNIT is unable to offer an IPO, and thus cannot put out a secondary offering.

159 SeedInvest. "Title III Crowdfunding Cost Model." Last accessed May 19, 2017. ► https://docs.google.com/spreadsheets/d/1g2ZOtUy5jd6s4-j0cNaSFoYMZcpJqKXQhVEfNOBRei4/edit#gid=0.

160 Financial Times. "Definition of Rights Issue/Offering." November 12, 2010. Last accessed July 20, 2012. ► http://lexicon.ft.com/term.asp?t=rights-issue-%2F-offering.

161 QFinance. "Raising Capital by Issuing Shares." November 12, 2010. Last accessed July 20, 2012. ► http://www.qfinance.com/financing-checklists/raising-capital-by-issuing-shares Raising Capital by issuing shares.

6.9 The Ownership of Media and Communications Companies

"Equity financing" means, in plain language, "ownership." We will now look at such ownership.

6.9.1 Individual and Family Ownership of Media

The media, communications, and ICT field has been a source of great wealth. In 2000, 99 (almost one-quarter) of Forbes 400 richest individuals in America had earned their prosperity in the media and communication fields. The 2011 Forbes 400 list includes 119 individuals whose wealth derives from the media, IT, and telecoms industry.[162] This does not include the many financiers who made fortunes in the media field, such as Warren Buffett or Ron Perelman.

Individual ownership varies by industry. Top telecom networks companies rarely have major individual owners. The main exception is America Movil in Latin America, with Carlos Slim of Mexico holding 52%. Several other large platform firms with high individual ownership stakes originated as a media or internet company and added a presence in platforms. They are 21st Century Fox (and its Sky TV platform), controlled by the Murdoch family; Softbank in Japan, owned by Masayoshi Son; and Comcast, owned by the Roberts family. Most of these companies have a dual stock structure to allow the individual owners to maintain control while accessing outside capital. The other major platform companies are majority owned by large institutional investors or governments, and have no dual stock structure.

In contrast, content-oriented media firms around the world tend to be privately owned. Most of the top content companies have major individual or family owners—Globo Group (Marinho family, Brazil); Largardère (Lagardère family, France); Bertelsmann (Mohn family, Germany); Fininvest (former Prime Minister Berlusconi, Italy); Softbank (Masayoshi Son, Japan); Fuji Television (Shikanai family, Japan); TF1 (Bouygues family, France); Fox/News Corp. (Murdoch family); Google (Larry Page and Sergey Brin); Comcast (Roberts family); Liberty/Charter (John Malone); CBS/Viacom (Redstone family); Baidu (Robin Lee, China); Yomiuri (Shoriki family, Japan); Vivendi (Bolloré family, France); Disney (Steve Jobs family with 7.8%).

Many companies are controlled by their founders/entrepreneurs, or later by their top managers who also own significant stakes in the company. Newspapers, in particular among media companies, have traditionally been owned by individuals and families. Even where they are publicly traded companies, the decision-making power is usually exercised through special voting stock that is untraded. In other cases, control can be exercised through a family-controlled foundation. In Europe, the media companies WAZ, Bonnier, and Holtzbrinck are 100% family owned. Springer (60%) and Mediaset (48%) are heavily family dominated.

A study of media ownerships around the world shows[163]:

- In 2013, there were 56 media billionaires as individuals or families in 30 major countries surveyed.[164]
- Among traditional media, significant wealth is encountered in TV (19), newspapers (11), magazines (8), film (6), and even books (3).
- Of the billionaires, two-thirds substantially created their media properties themselves (37) rather than inheriting established firms (19).
- The "new media billionaires" were mostly active in internet (12), mobile telecoms (11), and information services (2).
- A significant share of the 56 billionaires are US citizens (22); 4 each from Japan and France; 3 from India; 2 each from Germany, Canada, Turkey, and China; 5 from Latin America; and 2 from Africa.
- Of the 17 media billionaires in developing countries and the so-called BRICS (Brazil, Russia, India, China, and South Africa), half originated in "new" media—mobile telecoms (7) and the internet (2). The other half is based in the classic old media of TV (7) and publishing (1), run by very established families.
- The top ten individual owners hold, in aggregate, $225 billion worth of media companies. The top 20 individual owners hold $313 billion. The top 50 had $422 billion.

"Insider ownership" includes the founders and their families but also unrelated managers and directors if they hold some ownership stakes and have knowledge of valuable non-public information.

IT firms typically start out with a high insider ownership but this declines over the years because of the growth cycle of companies from founder-controlled start-up to a giant established corporation. Microsoft, for example, was owned 66% by the insider-founders in 1988, but that share declined to 23.6% in 2005 and 11.6% in 2011.[165]

6.9.2 Institutional Investors

For many companies, the largest owners are institutional investors such as State Street, Vanguard, or Fidelity. The main categories of institutional investors are:[166]

- mutual funds
- pension funds
- hedge funds

162 Kroll, Luisa. "The Forbes 400 – The Richest People in America." *Forbes.* September 21, 2011. Last accessed October 4, 2011. ► http://www.forbes.com/forbes-400/list/.

163 Noam, Eli. *Who Owns the World's Media? Media Concentration and Ownership Around the World.* New York: Oxford University Press, 2016.

164 There were other billionaires who own media properties but at a level below $1 billion in media.

165 Fidelity. "MSFT Ownership and Insiders." Last accessed November 15, 2010. ► http://eresearch.fidelity.com/eresearch/evaluate/fundamentals/ownership.jhtml?stockspage=ownership&symbols=MSFT.

166 The term "institutional investors" formally applies only to entities that hold themselves out as primarily engaged in investing, reinvesting, or trading securities. Accordingly, actual institutional ownership of media companies may be understated by most data sources. For example, if Company A is partly owned by a Company B, which does not fall into the category of "institutional investor," then B's investment will not be counted in the overall institutional ownership figures for Company A, even though B may be largely owned by institutions. Moreover, the SEC does not require disclosure of institutional investors that own less than 5% of a company. However, many companies list such ownerships anyway.

- insurance companies
- endowments
- trust departments of banks.

Institutional owners control the shares they hold in two ways. First, they own shares outright in their own account, partly to earn a dividend return and often for the potential gain in value. In some cases they might have been part of an investment bank consortium that created and marketed the public shares in an IPO or SPO, and they may have kept shares for gradual sale.

The second was for financial institutions to control share is to hold them as asset managers. They manage other people's money through various forms of investment funds which they run.

Institutional ownership is not a recent phenomenon, but it has increased with the growth of mutual funds and pension funds. Mutual funds are companies that seek and manage the money of investors and invest it in a portfolio of stocks, bonds, and other assets. They attempt to optimize return for a given risk level or category of investment. In some countries, government rules aimed at protecting investors from imprudent risk-taking limit fund investment in any single company to no more than, for example, 5% of assets, and to no more than 10% of any company's outstanding shares.[167] This limits the capacity of any individual fund to exercise much control over a firm.

Aggregate pension fund assets in the USA increased from $260 billion in 1975 to $1.7 trillion in 1990, to $7 trillion by 1998, and $22.1 trillion in 2014. For 16 major OECD countries, institutional pension funds managed $23.3 trillion in 2009 and $36 trillion in 2014.[168]

Generally, the stake of institutional investors is much larger than those of individuals. In 2013, State Street had $65 billion invested in major media and digital companies. Rupert Murdoch, in comparison, had "only" $11.6 billion. Dodge & Cox, with $20 billion, had more money tied up in media than Berlusconi, Malone, Redstone, and Lagardère combined. The largest institutional investor in the top 20 media platform companies was the Vanguard Group, based in the USA. Vanguard owns shares of ten of the top 20 platform companies, with a total value of $47.5 billion, and shares of 12 of the top 20 content companies, valued at $49.8 billion. Vanguard is invested in almost every major media and digital company—in the USA, the five major TV networks and content providers, the three major traded cable TV companies, and two major search engines; in Europe, three major TV companies; in Canada, Singapore, France, and Germany, major telecoms.

More interesting than the components of the portfolio is their magnitude (Table 6.5). Vanguard is hugely invested in Google ($20 billion), Comcast ($11 billion), Disney ($10 billion), Time Warner ($5 billion), and 21st Century Fox ($5 billion), not counting another $3 billion for the TWC spin-off. Its stake in Google was almost as high as those of company founders Brin and Page (though without the voting power). It holds more shares in Comcast than the Roberts family (again, without the votes). It is by far the largest shareholder in Time Warner, Liberty, Disney (except for Steve Jobs's widow), and so on. Thus, on any objective measure it is a huge media investor and owner. And yet hardly anybody has heard of its CEO, F. William McNabb III, or of its headquarters location, Malvern, Pennsylvania.

The total media assets of the top ten institutional owners add up to $332.5 billion; the top 20 have $423.4 billion, and the top 30 have $449 billion. Of overall global media value, estimated as $4.7 trillion excluding state-owned media, the top ten institutional owners hold 6.1%, and the top 30 hold 9.6%.

Of the headquarters of the top 30 asset management companies, most (73%) are based in the USA (22 companies). There are several reasons:

- US-based asset management firms are particularly active and operate in other major financial centers. Overall, North American firms account for 50% of the asset management industry's funds under management. UK firms have about 10% and there are about 5% each for Switzerland, Japan, Germany, and France.[169]
- The old-age pension system in the USA is based on individual investment accounts (such as 401(k) plans) rather than on a tax-based "pay-as-you-go" governmental pension plan as is prevalent in Europe.
- In the USA, there are many huge endowments of private universities, museums, and so on, that are run by asset management firms.
- There exists a greater willingness and ability to invest in pension funds and other forms of savings in equities (stocks) rather than bonds, which are safer in producing income but do not provide ownership rights.

For these and other reasons, the stock investment portfolios of US-based institutional investors are quite large and are spread around the world. Given the size and expertise of the asset management firms, they also attract investment funds to manage from investors around the world, not just the USA.

Institutional investors are usually viewed as primarily concerned with short- or medium-term gain, gauging corporate performance solely according to stock price and earnings. But institutional investors cannot easily liquidate

167 In the USA, institutional investors are required to file disclosure information when they own 5% or more of a publicly traded company. They are limited in their ability to profit on shares held for less than six months once they reach the 10% ownership threshold. If a mutual fund wants to promote itself as "diversified" and gain pass-through tax benefits, then the regulated 75% of the fund cannot own more than 10% of a company in its portfolio. Furthermore, a "diversified" fund cannot have more than 5% of its total assets invested in a single company (Investment Company Act of 1940). Therefore only 25% of a fund, the unregulated portion, can be concentrated in a single stock. Pension funds fall under the Employee Retirement Income Security Act of 1974 (ERISA), which requires each fund to diversify. But under ERISA, pension fund managers are given some leeway to avoid diversification if it is "clearly prudent" not to do so.

168 Towers Watson. "Global: Global Pension Funds Up by 15% in 2009." November 12, 2010. Last accessed July 19, 2012. ► http://www.towerswatson.com/research/1380.

169 Towers Watson. "The World's 500 Largest Asset Managers." November 11, 2013. ► http://www.towerswatson.com/en/Insights/IC-Types/Survey-Research-Results/2013/11/The-Worlds-500-Largest-Asset-Managers-Year-end-2012.

Table 6.5 The media holdings of the Vanguard Group (September 2013)

	Companies owned	Number of shares	% of company owned	% of voting power	Value of shares ($ millions)
The Vanguard Group (USA)	Google (USA) A	23,255,893	6.90	2.70	20,616
	Comcast (USA) A	227,152,526	8.60	7.10	9,981
	Comcast (USA) K	25,104,652	0.95	0	1,006
	Disney (USA)	148,460,516	7.40	8.40	9,612
	Time Warner (USA)	84,839,919	9.10	9.10	5,383
	21st Century Fox (USA) A	152,697,912	6.60	0	4,999
	Time Warner Cable (USA)	26,529,901	8.90	8.90	2,986
	Yahoo (USA)	87,549,068	7.90	7.90	2,649
	CBS (USA) B	46,523,377	7.40	0	2,601
	Liberty Global (Malone) (USA) K	12,282,027	4.80	0	914
	Liberty Global (Malone) (USA) A	11,144,802	4.30	4.58	873
	Liberty Media (Malone) (USA) A	4,461,937	3.70	2.12	652
	China Mobile (China)	29,434,000	1.50	1.46	334
	Singapore Telecommunications (Singapore)	7,802,432	0.05	0.05	179
	Vodafone Group (UK)	50,117,938	1.00	1.03	168
	Rogers Communications (Canada)	1,624,590	0.31	0.31	76
	Telefonica (Spain)	4,180,947	0.09	0.09	64
	Bouygues (France)	1,649,698	0.50	0.56	59
	Lagardère (France)	1,706,578	1.30	1.17	54
	Shaw Communications (Canada)	1,862,797	0.41	0	45
	Deutsche Telekom (Germany)	3,211,193	0.08	0.08	45
	TELUS (Canada)	1,053,142	0.17	0.17	36
	China Telecom (China)	68,850,000	0.09	0.09	36
	Vivendi (France)	1,409,341	0.11	0.11	33
	TDC (Denmark)	3,214,884	0.40	0.40	27
	Sony Corp. (Japan)	1,061,478	0.10	0.10	23
	France Telecom (France)	1,921,686	0.07	0.07	23
	ProSiebenSat.1 (Germany)	505,387	0.23	0.23	21
	Total, including stakes <15 M				63,800

very large stakes and are therefore often in it for the long haul. They have the capability to intervene, and top management knows that. In 1997, institutional investors became dissatisfied with the composition of Walt Disney's board of directors, which *Business Week* had named the "worst board in America." It included individuals with close ties to CEO Michael Eisner, such as his personal attorney and his architect. Eisner was forced to make changes in response to the institutional investor criticism, but his troubles with institutional and pension funds continued, and they led, eventually, to his ousting.

In 2003, US mutual fund Tweedy Browne, which held 18% of the shares of newspaper holding firm Hollinger International, initiated an investigation that uncovered misspending at the newspaper chain (*Chicago Sun-Times*, *Daily Telegraph*, and several other papers). The discovery led to the resignation of Lord Conrad Black from his position as CEO, the sale of the company, and to Black's criminal conviction.

In 2006, several institutional shareholders, led by Carl Icahn, challenged Time Warner's conglomerate structure, advocating a breakup of the company. They argued that the sum of the parts was more valuable than the whole. Time Warner's management opposed the shareholder resolution and prevailed in a formal sense. But within a few years it sold or spun off these parts of the company: Warner Music Group, Time Warner Cable, AOL, TW Telecom, Time Books, and Time Inc. magazines. By 2014, Time Warner itself was a target of acquisition, with AT&T making the deal in 2017.

Institutional investors' challenges increased in the 2010s through the emergence of "activist" hedge funds. For example, Daniel Loeb's hedge fund, Third Point, challenged Sony, and Carl Icahn went after Apple and eBay. At issue in these fights are dividends, buy-backs of shares, "poison-pills," board voting procedures designed to entrench management, divestiture of assets and divisions, reduction in research and development (R&D) investments, employment, and management compensation.

Have institutional investors had an impact on content? The actual ownership of each institutional investment firm in each company and sector may be small and fragmented. No single investor firm owns a majority or could establish control. However, in the aggregate institutional owners can influence company decisions through their buy and sell decisions, affecting the value of the stock and sending signals of support or skepticism to management.

In theory, fund managers might be tempted to oppose content that would negatively affect other holdings of their portfolio.[170] If Fidelity holds large ownership positions in tobacco companies and in Disney, it is possible that Disney's ABC TV network management might pull its punches in producing programs about the harms of nicotine. Since direct intervention by institutional owners would rarely remain confidential and then backfire, such interventions are either rare or they are implicit and require no direct communication. In contrast, for individual ownership there is ample evidence for direct intervention by the major individual owners into content matters, including on just that tobacco issue.

Generally, institutional investors will prefer safe mainstream content rather than controversial material that may make some of their investors unhappy. Similar incentives for safe mainstream content exist also for corporate media management and for individual owners, unless their personal politics and commercial interests are intermingled. Institutional ownership might affect content quality through greater pressures for short-term profitability. Yet it may also shield managers from control by erratic principal owners.

6.9.3 Governmental Ownership

In many countries, there are public service television organizations that are either directly controlled by the state or indirectly through politically appointed boards that may reflect the government in power or a more pluralistic makeup. These broadcasting organizations are quite often the largest and/or most influential media organization in their country.

Around the world, many of the large incumbent telecom network companies, even after their privatizations (fully or partly) in the 1980s, also have major majority ownership stakes held by their governments. This includes NTT in Japan (33% state ownership), Deutsche Telekom in Germany (32%), Orange in France (27%), China Telecom, China Unicom and China Mobile (100%), Svyazinvest in Russia (53%), and Telkom in South Africa (50.7%). These governmental ownership stakes are particularly high in companies with fragmented private stock holdings.

Other ownership models are those by employees (e.g. *Der Spiegel*), non-profit organizations such as the Bertelsmann Foundation, churches or universities, or by community groups. (e.g. Ohmynews in South Korea).

6.9.4 The Impact of Ownership on Content

Ben Bagdikian, Pulitzer Prize winner and Dean of the Berkley Journalism School, writes: "The fifty men and woman who head these corporations would fit in a large room. They constitute a new private ministry of information and culture."

Lawrence Lessig, an influential law professor, expands on this theme: "This narrowing has an effect on what is produced. The product of such large and concentrated networks is increasingly homogenous. Increasingly safe. Increasingly sterile."

Is this true? Factually, media ownership concentration has been rising, but nowhere close to Bagdikian's domination of all media by five companies and Lessig's fear of three. Analytically, it is not clear why corporate size would increase a profit-orientation. Commercial firms, whether large or small, will operate in a profit-maximizing fashion, which generally includes cost-cutting and audience maximization. Is a $10 billion company more interested in profits than a $1 million firm because it is run by distant managers? Or is it less interested because these salaried managers care less about the bottom line? Or is it all the same and differences are random? One could argue this three ways.

Some of the most socially benign firms in terms of generosity to community welfare in the USA were those with a near monopoly market position, and consequent high profits and lower cost pressures. Examples are AT&T, Xerox, Polaroid, and IBM in their peak years; or CBS, NBC, and ABC when they accounted for most of the TV audience; or local newspapers with near monopolies before the internet began to erode their revenues.

If individual owners are in control (whether Rupert Murdoch, Silvio Berlusconi, William Paley, Henry Luce, William Randolph Hearst, or Axel Springer) their personal power and empire-building tendencies may become a problem. Furthermore, their heirs may not be well suited for the responsibility, power, and management challenge of the job.

170 Soloski, John, and Robert Picard. "The New Media Lords: Why Institutional Investors Call the Shots." *Columbia Journalism Review* (September/October, 1996): 11.

The argument is often advanced that institutional investors are more performance oriented than individual shareholders of the past. The pressures of fund managers on media managers for profits are often said to be a major factor in changing the nature of media behavior and quality. It forces cost-cutting that lowers quality; panders to sensationalism to gain audiences; and is subservient to advertisers, which reduces courage.

But the causality is not clear at all. It requires us to believe that individual owners, especially large ones with a big stake, care less about a firm's financial return than the relatively small beneficiaries or managers of a mutual fund, in which a media firm is only a small component, or the managers of such a fund. The investor in such a fund seeks diversification, and reasonably assumes that some shares will perform better than others. Some fund managers will quickly sell a poorly performing stock. But other funds are in for the long haul. Still others invest in risky firms, for the upside potential. Still others prefer "pure plays" of specialized firms over conglomerates, and will exert direct or indirect pressures for such firms to streamline themselves rather than grow.

With insider-financing, owners are in clear control, which can result in a reflection of their own opinions and aesthetics, with both positive and negative implications.

In contrast, outside financing results in a lower autonomy of the managers to diverge from profit maximization. In a public stock company, financial fiduciary obligation to shareholders is supposed to guide management behavior. Shareholders often hold diverse views and object to their money being used for politics or aesthetics they do not support.

When it comes to debt, lenders do not usually require profit maximization, only financial soundness, and will therefore give management more autonomy, up to a point.

6.10 Capital Structure

We have looked in the previous sections at various funding options and ownerships. We now address the questions of what mixture, if any, is the best for a firm. This is usually described as the optimization of the "capital structure"—the mix of debt and equity capital of a firm. Some firms or some industries depend more on debt, others more on equity. Within each funding category there are sub-sets, such as short-term and long-term debt or public and private equity. The overall mix is the capital structure. This composition tends to change over time, depending on interest rates, share prices, and the growth cycle of companies and industries.

The simplest measure of how much debt and equity a firm is using is the proportion of debt to total financing sources.

Debt-to-Capital Ratio = Debt/(Debt + Equity).[171]

For example, the capital structure for incumbent US telecom firms is made up of about 60% debt,[172] and 40% equity. Their debt-to-capital ratio = 60%.

Other terms for the same concept are capital gearing, leverage, or debt-to-equity ratio. The abovementioned debt-to-capital ratio of 60% (or 0.6) translates into a debt-to-equity ratio of $\frac{60\%}{40\%} = 1.5$.

Firms with no debt on their balance sheet are called unlevered companies. After the issuance of debt, the firm becomes levered or geared. Start-ups usually have no access to debt and by necessity favor equity. Their debt/equity ratios are therefore lower than those of established companies such as telecom operators. The median "new economy" firm in the 1990s in the UK even had *negative* net debt/equity ratios; that is, deposits of cash exceeded gross debt, making net debt negative.[173]

6.10.1 Optimal Capital Structure

Where firms have access to various financing, is there an optimal mix between debt and equity?[174] As mentioned at the beginning of this chapter, the Modigliani–Miller Capital Structure Theorem (MM), a mainstay of finance theory, postulates that the capital structure is irrelevant to the firm's value and operations. Such value depends only on the asset side of the balance sheet and the PV of the firm's cash flow stream and not on how the assets have been financed, which therefore makes no difference.

The MM theorem assumes that markets operate efficiently and that there is no asymmetric information, no taxes, no transaction, and no bankruptcy costs. This is a simplified textbook view of reality, adopted for analytical purposes. In practice, companies need to organize their funding priorities according to several operational principles.

6.10.1.1 The Pecking Order Approach to Determining the Capital Structure

The pecking order (or ladder) approach is not a theoretically well-defined model but a practical method based on the reality of availability.[175] Basically, a firm would use the cheapest method of financing first, up to the available limit, and then move to the next available funding option by ascending order of cost. According to one survey, seven out of ten CFOs prefer the pecking order method as a way to proceed.[176]

171 Damodaran, Aswath. "Finding the Right Financing Mix: The Capital Structure Decision." New York University Stern School of Business. July 1, 2004. ► http://pages.stern.nyu.edu/~adamodar/pdfiles/cfovhds/capstr.pdf.

172 West, Rob. "Competing for Capital: The Diffusion of Bilateral Investment Treaties, 1960-2000." Working Paper, University of Illinois. February 28, 2000.

173 Brierley, P.G., and A. Kearns. "The Financing Patterns of New and Old Economy Firms in UK." *Bank of England.* June 22, 2001. Last accessed May 19, 2017. ► https://www.bis.org/publ/cgfs19boe1.pdf.

174 Lewellen, Katherina. "Capital Structure, cont." *MIT*. July 1, 2004. Last accessed July 19, 2012. ► http://ocw.mit.edu/NR/rdonlyres/Sloan-School-of-Management/15-402Finance-Theory-IISpring2003/LectureNotes.

175 Shyam-Sunder, Lakshmi and Stewart C. Myers. "Testing static tradeoff against pecking order models of capital structure." *Journal of Financial Economics* 51 (1999): 219-244.

176 Asaf, Samir. *Executive Corporate Finance*. (Harlow Essex: FT Prentice Hall, 2004), 50-70.

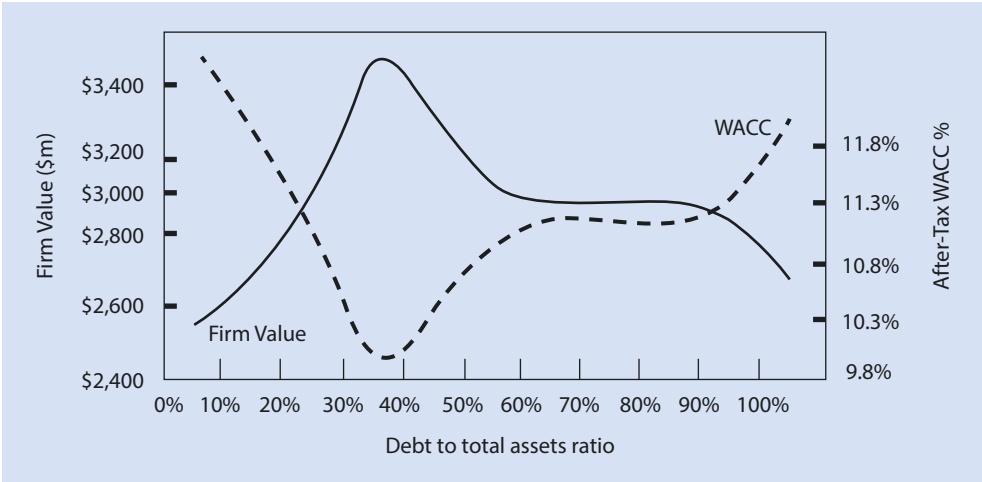

Fig. 6.2 The optimal leverage ratio

The pecking order of financing is typically as follows, by rank of priority:

- internal funding (retained earnings)
- debt
- equity.

Within each of these three classes, there would be an ordering of sub-categories—many of them discussed above—based on their after-tax cost and their availability. The pecking-order approach is practical. Furthermore, it can be used within a desired debt–capital ratio by applying two pecking orders, one for debt and one for equity, within their respective optimal allocations. The shortcomings are several. A debt option might be cheap but still requires liquidity for repayment, otherwise it could put the company into insolvency. Or the expectation of dropping interest rates and/or rising stock market prices might favor short term debt as a placeholder. Therefore, by picking the equity option, a company might imply that it believes its shares are overvalued, or that it has maxed out on its ability to borrow. As a result of these signals, stock prices then might then drop, which is an added cost to equity financing.[177]

6.10.1.2 Optimizing Company Value

Perhaps the major problem with the MM analysis and of the pecking order approach is that if a company issues more debt the equity gets riskier, and thus requires a higher risk-adjusted rate of return. Beyond some point more debt will reduce the value of the firm.[178] Therefore, when a corporation uses financial leverage (i.e. debt) properly, it can increase its overall market value. Introducing financial leverage into an unleveraged corporate capital structure will initially raise the market value (and then lower it) owing to the change in overall returns to debt and equity holders. The company has a sweet spot of leverage to lower its cost of capital while simultaneously increasing its market value and share value. If the company increases leverage beyond this sweet spot it will increase risk and force investors and lenders to compensate by raising the interest they charge the company, and raise its capital cost, lowering its share value and thus the firm's value.[179, 180]

In Fig. 6.2 we can see how a firm's optimal debt leverage is a tradeoff between the costs and benefits of borrowing.[181] We can see how the firm's overall value, represented by the curved solid line, begins at the level of the value of an unlevered firm. This is the firm's value when it is using only equity to finance itself. As the graph curves upward, we can see the benefits from the lower cost of debt relative to equity and from the interest tax deductibility. This tax benefit is a by-product of using debt (whose interest cost is deductible), and it increases with additional leverage. These factors initially raise the firm's value because they lower the firm's overall cost of capital. But if a company were to keep ramping up leverage (debt) too much, it would eventually suffer value erosion. As risk increases, the interest rate it must pay rises. The overall cost of capital rises, the firm's value declines, and share prices fall. At the top of the curve firm value is maximized. That point identifies the optimal leverage.[182] In the graph, the optimal financial leverage ratio is 34%. If the firm operated at this ratio it would be maximizing the total benefit from its current overall value.

By this approach, the firm should stay at (or at least near) the optimal point in terms of capital structure. It should issue equity or cut back debt when leverage rises above the target level. It should buy back stock or issue debt when leverage falls below the target capital structure level.[183]

177 Shyam-Sunder, Lakshmi and Stewart C. Myers. "Testing static tradeoff against pecking order models of capital structure." *Journal of Financial Economics* 51 (1999): 219-244.

178 Smith, Dr. J Herbert. "Analysis of Financial Statements." *University of New Brunswick*. Last accessed July 19, 2012. ► http://www.unb.ca/web/jhsc/TME_courses/tme3013/ratios/index.htm.

179 Asaf, Samir. *Executive Corporate Finance*. Harlow Essex: FT Prentice Hall, 2004.

180 Brealey, Richard A., and Stewart C. Myers. *Principles of Corporate Finance*. New York: The McGraw-Hill Companies, Inc., 2003

181 Myers, Stewart C. "The Capital Structure Puzzle." *The Journal of Finance* 39, no. 3 (July, 1984): 575-592.

182 Shyam-Sunder, Lakshmi and Stewart C. Myers. "Testing static tradeoff against pecking order models of capital structure." *Journal of Financial Economics* 51 (1999): 219-244.

183 Lewellen, Katherina. "Capital Structure, cont." *MIT*. July 1, 2004. Last accessed July 19, 2012. ► http://ocw.mit.edu/NR/rdonlyres/Sloan-School-of-Management/15-402Finance-Theory-IISpring2003/LectureNotes.

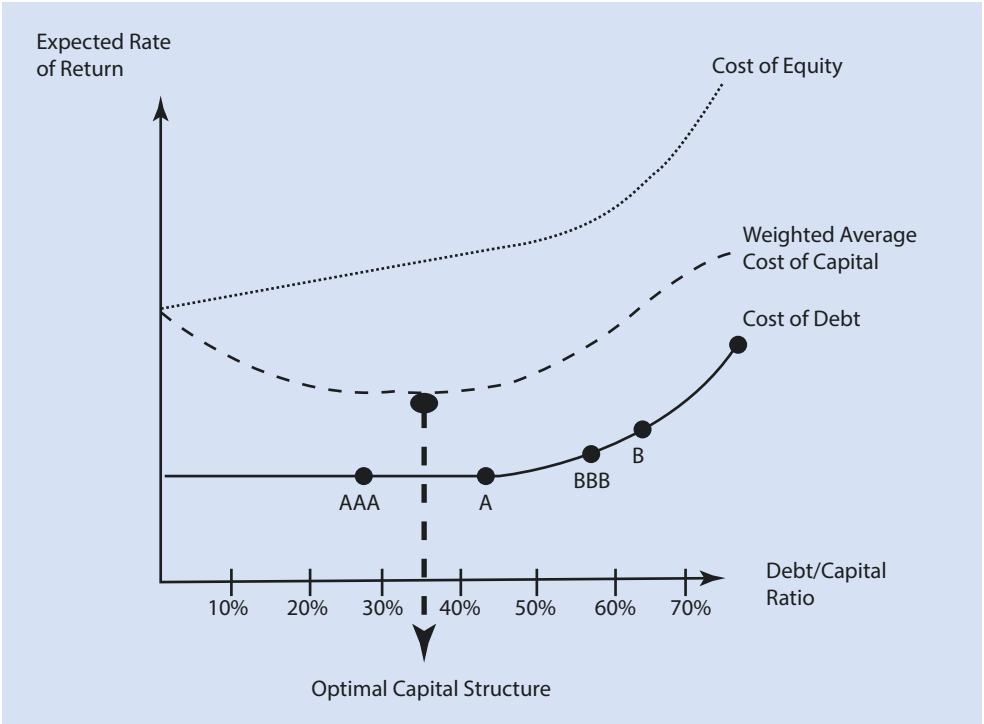

Fig. 6.3 Cost of capital and optimal capital structure

There are various ways to find the sweet spot. One method is to minimize the cost of capital. A firm would seek to operate at the lowest cost of capital across its several financial sources—the firm's weighted average cost of capital (WACC).[184] The WACC is a calculation of a company's cost of capital where each source of capital is weighted in proportion to the amount of capital that it supplies to a company. A low WACC indicates that a corporation obtains capital inexpensively. Businesses will discount their cash flows at the WACC rate to determine the NPV of a project or of the firm.

$$\text{NPV} = \text{PV of cash flows, discounted at WACC}$$

A company's WACC as a function of two primary components: (1) the cost of the equity capital (K_e)and debt capital (K_d) that a firm employs as well as (2) the mix of equity capital and debt capital used to finance a firm's operations. The cost of debt (K_d) is given as the cost after tax deductions are made on the debt interest payments.

$$\text{WACC} = \left(W_e \times K_e\right) + \left(W_d \times K_d\right)\left(1 - t\right)$$

W_e and W_d are the proportions of equity and debt capital, respectively used to fund the firm's operations; t is the tax rate. As an example of the application, assume a company with \$100 million debt, \$50 million market value of equity, 10% cost of debt, 20% cost of capital, 35% tax. This information yields:

$$\text{Debt to Capital Ratio} = \$100 / \$150 = 66\%$$

$$\text{Equity to Capital Ratio} = \$50 / \$150 = 33\%$$

and

$$\text{WACC} = \left(.33 \times .20\right) + \left(.66 \times .10\left[1 - .35\right]\right) = 11\%$$

The relationship between the amount of leverage (debt to capital) and the expected rate of return by investors and lenders is represented in Fig. 6.3.[185] The top line represents the cost of equity and the bottom curved line represents the cost of debt. The middle line is the weighted blend of both these financing costs, the WACC. During the initial leverage (debt/capital) ramping up the expected rate of return on debt stays constant, the expected rate of return on equity increases very slightly, and the WACC falls because of the tax advantages of debt offset the slight increase in expected return on equity. But as the leverage (debt/capital) increases (past 36% on the graph) things change. Both investors in debt and equity begin to demand higher returns for each incremental increase in leverage, because the firm and its debt become riskier. The WACC begins to rise accordingly. Thus, as a firm increases debt relative to equity, the average cost of capital initially decreases because debt is cheaper. However, rising debt will eventually lead to higher interest rates charged and to a lower stock price. The lowest WACC is at a 0.36 debt

184 Fairchild, Richard. "An Investigation of the Determinants of BT's Debt Levels from 1998-2002: What does it tell us about the Optimal Capital Structure?" Working Paper, University of Bath School of Management, February 2003. Last accessed May 19, 2017. ► http://www.bath.ac.uk/management/research/pdf/2003-03.pdf.

185 Based on Morris, Matthew R. "Creating Shareholder Value Through Capital Structure Optimization." *Value Incorporated*, 2001.

to capital ratio. Since the firm value is the firm's income stream discounted by the WACC, with identical income streams the firm's value is highest when the discounting by the WACC is lowest.

An optimal debt structure is not the only factor that determines a corporation's value, but it does influence it greatly, within equal performance. An example is British Telecom (BT). As mentioned before, through 1998 and 2001, BT increased its debt level rapidly from £4.8 billion to £31 billion, primarily to finance acquisitions. As a result of this sixtupling of debt, BT's credit rating was downgraded from AA+ to A, a drop of four notches. This caused a drastic decrease of 65% in BT's share price. Analysts and investors then pressured BT to reduce its debt in 2002 from £31 billion to £18.4 billion.[186]

6.10.1.3 Case Conclusion

The Optimal Capital Structure: TWIT Versus SNIT

We are now able to put together the various funding options that were previously discussed (▪ Table 6.6).

TWIT Funding

We begin with the pecking order approach, and then integrate it into the approach of maximizing company value.

In ▪ Fig. 6.4, the horizontal bars show the types and amounts of debt funding available to TWIT, as we have found in our analyses, together with their interest costs after-tax deductibility of 30%.[187] The horizontal bars start on the bottom left with the least expensive after-tax option (CP at 2.24% after-tax for $300 million) to the top right, the most expensive option (securitization $235 million at 10.5%).[188] A pecking-order financing based solely on debt would then start with the lowest cost debt instrument and add to it sequentially until the target funding—$1000 million, the dotted line, —is reached. This happens in the horizontal mid-point range, with part of the funding by corporate bonds (at 4.83%) and the rest by the cheaper debt options.

The weighted average interest cost for TWIT at each debt funding level is shown by the broken line on ▪ Fig. 6.4. For example, for debt of $500 million we multiply the after-tax interest rates associated with $300 million of CP, $10 million of government financing, and $190 million of LOC financing by their proportions in the total and then add them all together.

$$(300/500\times 2.24)+(10/500\times 2.42)+(190/500\times 3.50)=2.72$$

However, this average interest rate, the broken line in ▪ Fig. 6.4, does not take into account the added default risk that occurs with each additional dollar of debt outstanding. As additional debt is substituted for equity and the risk of default increases, a company's debt rating drops, and the debt load premium rises. This premium[189] is based on the associated rating category[190] for that debt ratio.

The real weighted average interest cost (debt load premium added) is represented by the top (solid) line in ▪ Fig. 6.4, which adds debt load premiums to the baseline unlevered weighted average interest rates. The difference between both lines is not great because, as mentioned, it is the parent company Time Warner that would issue the debt securities, and its capital structure can handle the additional debt with a minimal change in default risk profile.[191]

The same depiction, this time for equity, is provided in ▪ Fig. 6.5. It shows the available types, costs and amounts of equity funding available to TWIT.[192] The least expensive equity source is at the bottom left and the most expensive at the top. Internal funding can be combined with other equity sources, but most other options have traditionally been mutually exclusive, such as limited partnership or secondary stock offering, and these alternative options are therefore stacked on top of each other in ▪ Fig. 6.5.

We observe in ▪ Fig. 6.5 that if the entire $1 billion were financed by equity, it would be composed of $235 million in internal funding (at 8.9%) and the remainder in secondary public equity (at $13.32%).

We also observe that debt is cheaper than equity, which would suggest that TWIT should be financed entirely by debt. This, however, would ignore the debt-to-capital ratio. As Times Warner adds debt, this increased leverage raises riskiness and thus the cost of debt, and it reduces share price. An additional component to consider therefore is the debt-to-capital ratio. Before funding TWIT, Time Warner had a baseline debt-to-capital (debt/debt + equity) percentage of 33.3% ($16.5 billion in debt and $33 billion in equity, for $49.5 billion in total capital.[193]) A lower debt-to-capital percentage usually leads to lower debt service (interest and principal payments on debt) amount and thus to better company default risk ratings.

If the entire $1 billion were raised by equity, the debt-to-capital percentage would be 32.7%. Conversely, if TWIT's entire $1 billion were raised by debt, Time Warner's debt-to-capital percentage would rise only slightly, to 34.7%.

A higher debt load therefore requires a risk premium. The unbroken (upper) line in ▪ Fig. 6.5 displays the real cost of equity issued through Time Warner with the debt load premium included. As with debt in ▪ Fig. 6.4, the difference between both plotted lines in ▪ Fig. 6.5 is not large because Time Warner's size and financial flexibility allows it to manage the additional debt and equity burden with little change in the company's default risk profile.

The next graph, ▪ Fig. 6.6, combines both TWIT's real (levered) debt cost and

186 Fairchild, Richard. "An Investigation of the Determinants of BT's Debt Levels from 1998-2002: What does it tell us about the Optimal Capital Structure?" Working Paper, University of Bath School of Management, February 2003. Last accessed May 19, 2017. ► http://www.bath.ac.uk/management/research/pdf/2003-03.pdf.

187 They are the cost to the parent company Time Warner that assumes the debt for the subsidiary TWIT.

188 In the order of after-tax expense, the options are:
- commercial paper, ($300 million at 2.24%);
- governmental grants ($10 million at 2.42%);
- line of credit ($250 million at 3.5%);
- convertible debt ($333 million at 4.13%);
- corporate bonds ($333 million at 4.83%);
- vendor financial ($250 million at 4.9%);
- vendor lease ($150 million at 5.6%);
- securitization ($236 million at 10.5%).

189 Asaf, Samir. *Executive Corporate Finance*. (Harlow Essex: FT Prentice Hall, 2004), 50-70.

190 Damodaran, Aswath. *Applied Corporate Finance*. Hoboken, NJ: John Wiley & Sons, 2011.

191 The company is able to add $1 billion in debt without much changing its default risk profile. The BBB rating is maintained on the horizontal axis throughout the TWIT analysis of Chart A.

192 All equity is issued through the parent Time Warner, except the IPO financing option, which would be used only if TWIT were to be spun off from the parent.

193 Thomson One Banker. "Time Warner Inc." September 23, 2011.

real (levered) equity cost to calculate the overall WACC for each funding mix of debt and capital.

The top line in Fig. 6.6 shows the real cost of equity and the bottom line plots the real cost of debt (these lines are taken from the prior Figs. 6.4 and 6.5). The third line (middle line) is the combined WACC for TWIT, calculated from the weighted cost of each debt and equity share. For example, for a capital structure made up of 50% debt and 50% equity we would use the following calculation:

$$(0.5 \times 11.6\%) + (0.5 \times 2.93\%) = 7.27\%$$

As noted, the size of Time Warner's balance sheet allows it to borrow the full $1 billion in any debt-to-capital composition and not raise its debt risk by much. The WACC in Fig. 6.6 keeps dropping as the proportion of debt increases, because TWIT's debt, at this stage, is much cheaper than equity (this would change if TWIT would require, say, $20 billion in funding). The lowest weighted average cost of capital (Overall WACC) is 3.72%, and this occurs when TWIT is financed using 100% debt and 0% equity. This would raise its debt-to-capital ratio slightly to 34.7%, roughly similar to the current 33.3% level. If Time Warner decides that it cannot compromise on its 33.3% debt-to-capital percentage, because otherwise its entire cost of debt would rise, it must select a capital structure for the new funding with 33.3% debt and 66.6% equity. It would raise $333 from debt, and would determine, from Figs. 6.4 and 6.5, that debt composition should be $300 million in CP, $10 million in a government-subsidized grant, and the remainder, $33 million, in a bank-provided LOC. Equity would cover the other $666 million, with internal funding accounting for $235 million and secondary public stock offering the other $431 million.

SNIT Funding

We can conduct a similar analysis for SNIT. These are SNIT's options, as we have determined them in our preceding analyses.

Table 6.7 shows the available types, costs and amounts of debt funding available to SNIT. It has a stepped tiering starting on the bottom left from least expensive to the top right most expensive. All debt interest costs are post-tax.

SNIT's options are much more limited. Basically, it cannot obtain its entire $100 million target by debt. At most, it can reach using the "pecking order" steps, to about $33.5 million. The rest would be conceivably reachable by the placement of highly speculative junk bonds at 21%, and even this is unlikely.

Figure 6.7 shows SNIT's available debt funding options. The lines show the average interest costs, unlevered without the debt load premium (shown as the bottom broken line) and real debt interest cost with debt load premium included (top unbroken line). The real interest cost (top line) is calculated in by adding an estimated debt load premium for a company's credit rating as it changes from a BB to CC rating. With each rating downgrade a higher premium is added to the interest cost. As the debt-to-capital ratio increases, the relative spread between the two lines increases, reflecting the additional risk of taking on additional debt.

Similarly, Fig. 6.8 shows the available types, costs, and amounts of equity funding available to SNIT. Basically, it is internal (self-) funding at 15.02%, supplemented by limited partnership funds at 16.34%. VC might be an alternative. Here, too, the overall capital structure needs to be considered.

The plotted equity cost lines in the next figure do not show a large difference between the unlevered interest cost (lower line) and real interest rate (top line) is not large until the 50% debt-to-capital ratio is reached, and the two lines begin to deviate from each other at an increasing rate.

Figure 6.9 shows SNIT's real (risk premium included) cost for both debt and equity from the debt and equity graphs above, and combines them to find an overall WACC.

The overall WACC is plotted as the middle line in the Fig. 6.9. We can see that the lowest WACC occurs at the 30% SNIT debt-to-capital percentage interval, at 15.19%. This is SNIT's optimal capital structure, 30% debt, and 70% equity.

The Financial Funding Mix: TWIT

The cheapest method of financing TWIT is to fund itself entirely using the corporate parent's (Time Warner Media) debt. To fund itself in this manner, TWIT would use the available debt funding options summarized in Fig. 6.4. TWIT would choose the least expensive composition to fund itself. Based on the case discussion throughout this chapter, this funding would include, in ascending order of cost:

- $300 million in CP at 2.24% after-tax;
- $10 million in government loans at 2.42% after-tax;
- $250 million through its LOC (i.e. bank debt) at 3.50% after-tax;
- $333 million in convertible debt (i.e. bonds that convert into stock shares) at 4.13% after-tax;
- $107 million in corporate long-term debt at 4.83% after-tax.

The WACC for the funding would be 3.81%.

The Financial Funding Mix: SNIT

We found SNIT's optimal capital structure to be at the 30% debt to capital ratio. SNIT's funding would be composed of:

- $10 million in government loans, at 2.42% after-taxes;
- $15 million in vendor financing, at 8.75% after-taxes;
- $5 million in lease financing, at 10.50% after-taxes;
- $3 million of internal funding at 15.02%;
- $67 million limited partnership financing, at 16.34%.

SNIT would have a 13.25% cost of capital to raise $100 million. In comparison, TWIT has a 9.27% cost of capital to raise $1 billion, a cost advantage of 43% over SNIT. Much lower funding cost and its higher available volume provide significant advantage to TWIT. This kind of advantage can only be overcome by SNIT through much greater innovation and lower operating costs.

6.10.2 The Life-Cycle of Capital Structure

Each firm must decide its optimal capital structure based on its specific needs and the needs of its industry. These needs and availabilities change and depend on the stage of the firm's life cycle. A capital structure must be analyzed regularly and adapted for specific scenarios that the company finds itself in. It may also need to be tailored to the expectations of investors.

The financial needs of a firm are affected by cycles of the macro-economy, of the industry, and of the firm itself. The general business cycle affects investment needs, riskiness, costs, availability of funding, interest rates, and share prices.

The industry cycle is based on technology trends and market demand for new categories of services. Mobile telecommunications, smartphones, and apps are an example. The telecom company Verizon invested a very substantial

Table 6.6 TWIT funding options (summary)

Financing	Interest cost %	After tax cost (t = 30%)	Max funding ($ millions)	Assumed constraint
Internal funding (Time Warner retained earnings)	Prime + 3.45% ≈ 8.90%	≈ 8.90%	235	Limited to one quarterly dividend
Line of credit (LOC)	Prime – 0.50% ≈ 5.01%	≈ 3.50%	250	LOC allocated for other projects and operations, 10% available for TWIT
Commercial paper (short-term debt)	Prime – 2.25% ≈ 3.20%	≈ 2.24%	300	Must be backed by Time Warner; must match short-term needs
Long-term debt (corporate bonds)	Prime + 3.45% ≈ 6.90%	≈ 4.83%	333	Limited to 33.3% of borrowing owing to debt/cap
Convertible debt (hybrid debt)	Prime + 0.45% ≈ 5.90%	≈ 4.13%	333	Limited to 33.3% of borrowing owing to debt/cap
Securitization	Prime + 1.25% ≈ 15.00%	≈ 10.50%	235	Cost limit of one quarterly dividend
Vendor financing	Prime + 1.55% ≈ 7.00%	≈ 4.90%	250	Only for equipment, hardware and upgrades
Lease financing	Prime + 2.55% ≈ 8.00%	≈ 5.60%	150	Only for equipment, hardware, and upgrades
Government financing	Prime – 2.0% ≈ 3.45%	≈ 2.42%	10	Ceiling limit of $10 million
Limited partnership	Prime + 10.89% ≈ 16.34%	≈ 16.34%	800	Limited to 80% of funding
PE (private placement)	Prime + 11.55% ≈ 17.00%	≈ 17.00%	666	Limited to 33.3% of borrowing owing to debt/cap
Venture capital	Prime + 15.55% ≈ 20.00%	≈ 20.00%	100	VC deal ceiling of $100 million
Public equity (IPO)	Prime + 10.57% ≈ 16.02%	≈ 16.02%	1,000	Full $1 billion limit
Public equity (SEO)	Prime + 7.87% ≈ 13.32%	≈ 13.32%	1,000	Full $1 billion limit

"Prime" = five-year average of the prime rate (5.45%)

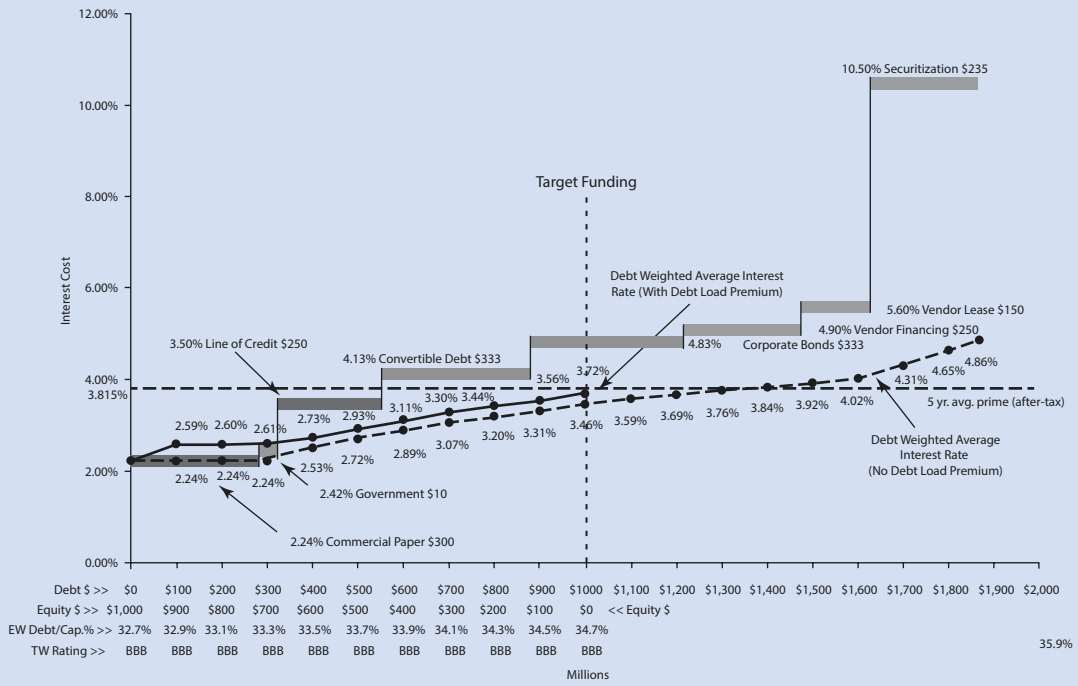

Fig. 6.4 TWIT debt funding options

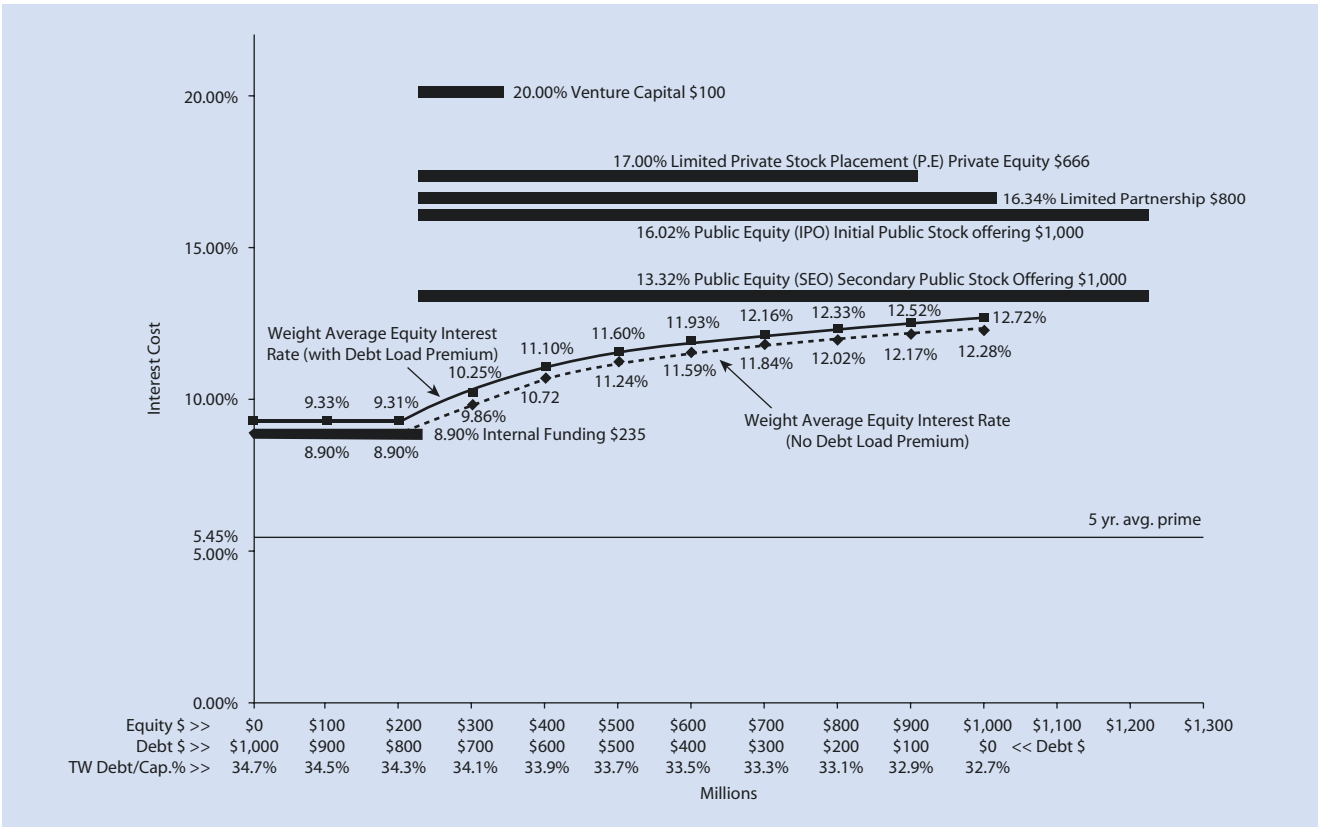

Fig. 6.5 TWIT equity funding options

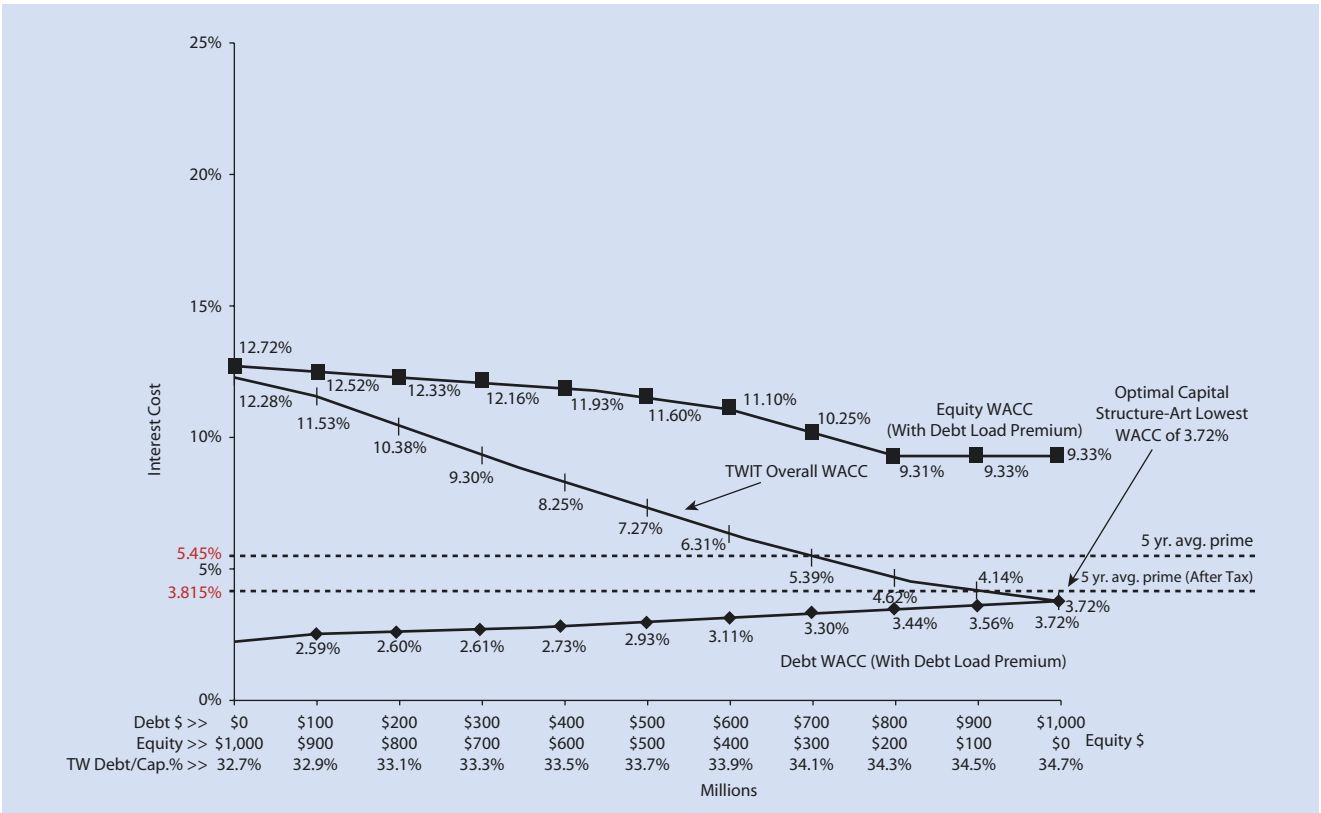

Fig. 6.6 All TWIT funding options—debt and equity

Table 6.7 SNIT Funding options (summary)

Financing	Interest cost % (est.)	After-tax cost $t = 30\%$	Max funding ($ millions)	Assumed constraint
Internal funding (founders, family and friends)	Prime + 9.57% ≈ 15.02%	≈ 15.02%	20.0	Amount of capital is limited to investment by founders, family, and friends
Line of credit (LOC)	Prime + 9.55% ≈ 15.00%	≈ 10.50%	1.0	Based on and limited by founder's personal credit
Commercial paper (short-term debt)	N/A			Unavailable, SNIT needs to get a guarantee or sponsor
Long-term debt (private placement non- market debt securities)	Prime + 24.55% ≈ 30.00%	≈ 21.00%	75.0	Private placement—liquidity risk—no secondary market
Convertible debt (hybrid debt)	N/A			Unavailable to SNIT—no credit rating or stock
Securitization	N/A			Unavailable to SNIT—owing to lack of cash-generating assets and revenues
Vendor financing	Prime + 4.55% ≈ 12.50%	≈ 8.75%	15.0	For equipment only
Lease financing	Prime + 11.55% ≈ 15.00%	≈ 10.50%	7.5	For equipment only
Government financing (grant/loan)	Prime – 2.0% ≈ 3.45%	≈ 2.42%	10.0	Ceiling limit of $10 million on government financing
Limited partnership	Prime + 10.89% ≈ 16.34%	≈ 16.34%	80.0	Limited to 80% of funding
Private equity (private placement)	N/A			SNIT is unable to find buyers for its unregistered securities
Venture capital	Prime + 37.55% ≈ 43.00%	≈ 43.00%	5.0	Equity ownership investment
Public equity (IPO)	N/A			Unavailable to SNIT—owing to lack of operating history
Public equity (SEO)	N/A			Unavailable to SNIT—owing to lack of any existing equity

"Prime" = five-year average of the prime rate (5.45%)

$30 billion from 2004 to 2007 in fiber optic lines. After the build-out of the desired fiber footprint, the company's investment needs in fiber infrastructure declined considerably, to less than $1 billion per year in 2015.[194] On the other hand, Verizon's investment in wireless infrastructure, including spectrum license acquisitions, rose from $5.6 billion in 2004 to $11.7 billion in 2015.[195]

The third cycle is the company's own progression. It typically consists of four phases: start up, growth phase, maturity, and decline. During the start-up phase there is little debt. There is plenty of risk, little taxable income to make the tax deductibility useful, and lenders are cautious. But in the growth phase, debt increases in the capital structure. During the maturity phase the company will start to distribute higher dividends to shareholders rather than invest that money, and will rely less on equity funding because debt will be inexpensive since the company is a good credit risk. In the decline phase of the company, internal financing becomes scarcer and equity financing becomes costlier, but the firm's asset base permits an expansion of debt, though under less favorable conditions than before.

194 Brodkin, Jon. "Verizon nears "the end" of FiOS builds." *Ars Technica*. January 23, 2015. Last accessed May 19, 2017. ► http://arstechnica.com/business/2015/01/verizon-nears-the-end-of-fios-builds/.

195 Baburajan, K. "Verizon lowers telecom network Capex to $17.7 bn in 2016." *Telecomlead*. January 21, 2016. Last accessed May 19, 2017. ► http://www.telecomlead.com/4g-lte/verizon-lowers-telecom-network-capex-17-7-bn-2016-66805.

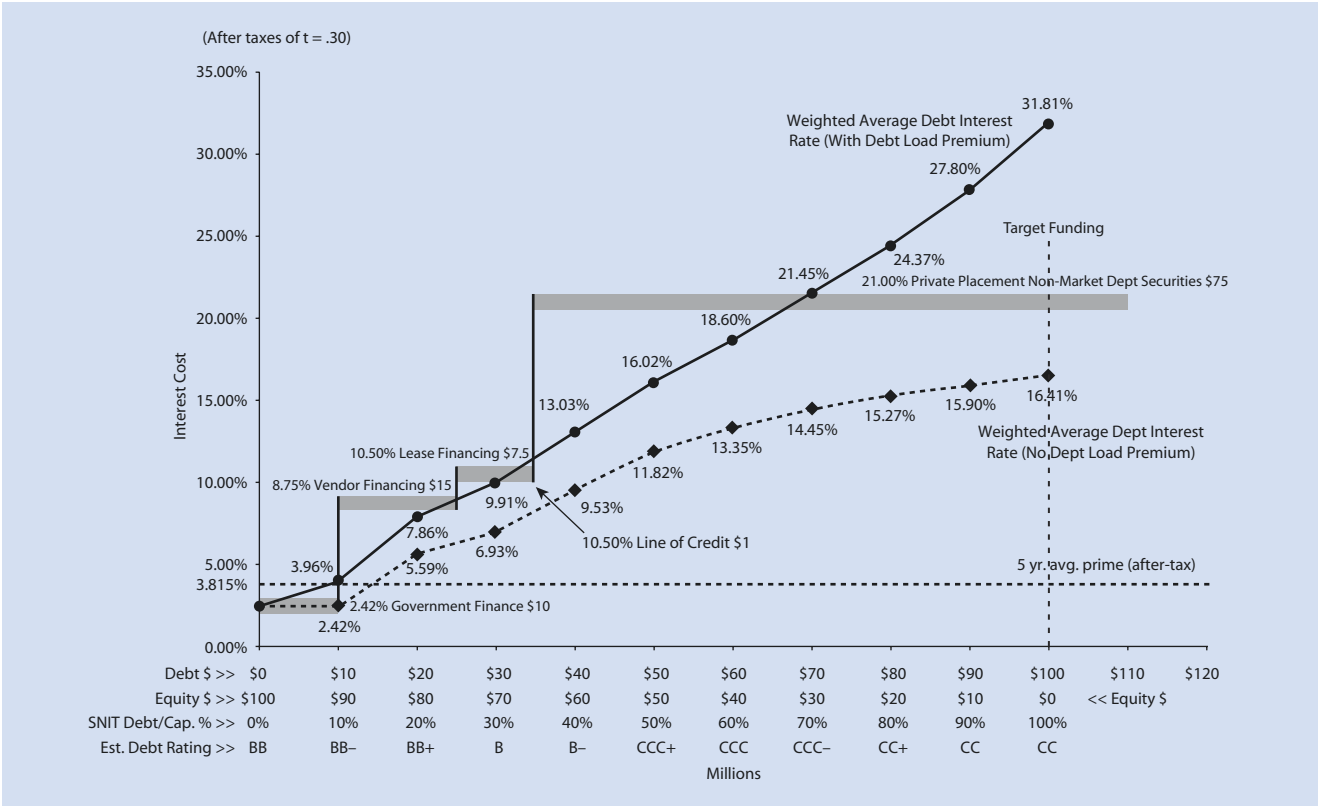

Fig. 6.7 SNIT debt funding options

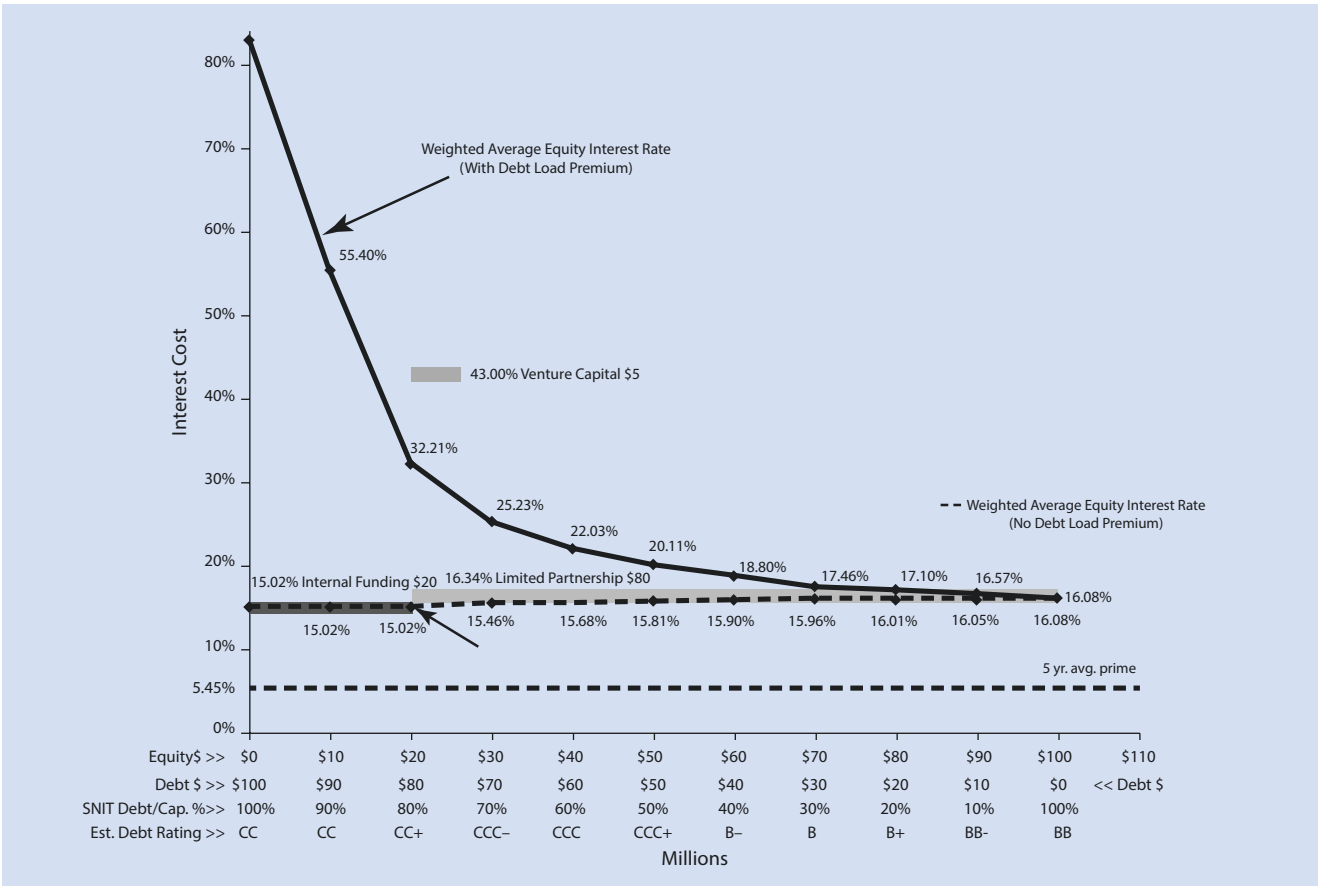

Fig. 6.8 SNIT equity funding options

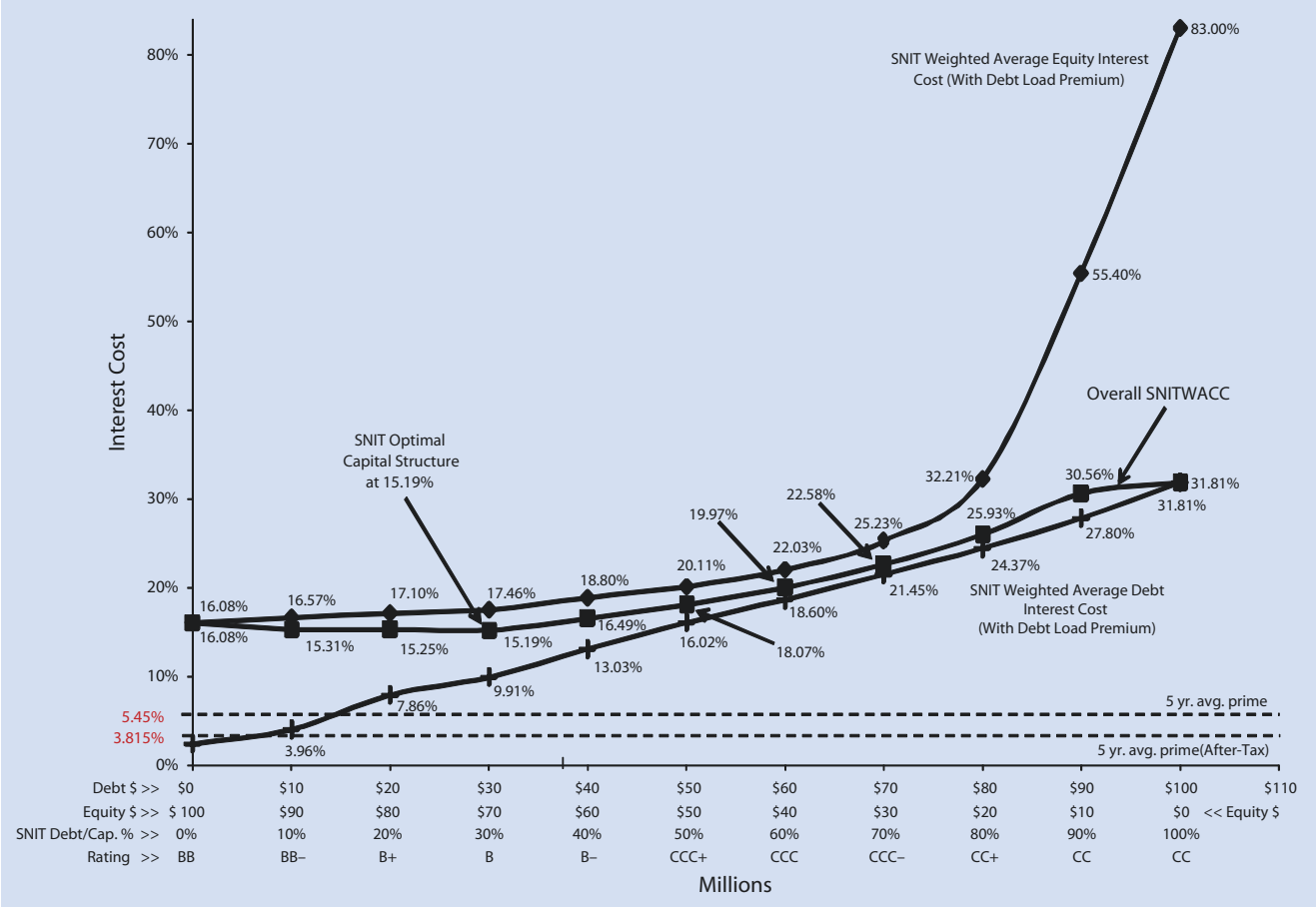

Fig. 6.9 All SNIT funding options—debt and equity

The main sources of capital also follow the pattern of the company's life cycle. In Fig. 6.10,[196] funding sources are plotted horizontally, representing the stage of company maturity. The vertical axis shows the degree of risk an investor faces.[197]

In the initial phases, angel investors and personal acquaintances both take a great deal of risk investing in the business as very little is known about it. When the business slightly matures, venture capitalists may be available. In the growth phase, with a longer and stronger track record, banks and other financial institutions will provide debt financing. These investors also usually have a larger investment capital available. As the business keeps growing, an IPO may be issued that opens up equity funding. Together with higher quality commercial bank debt, these are the mainstays for the mature company. As its revenues grow, the self-financing component rises.[198] In the decline phase, the asset base permits funding through debt backed by collateral, and by a selling off of assets.

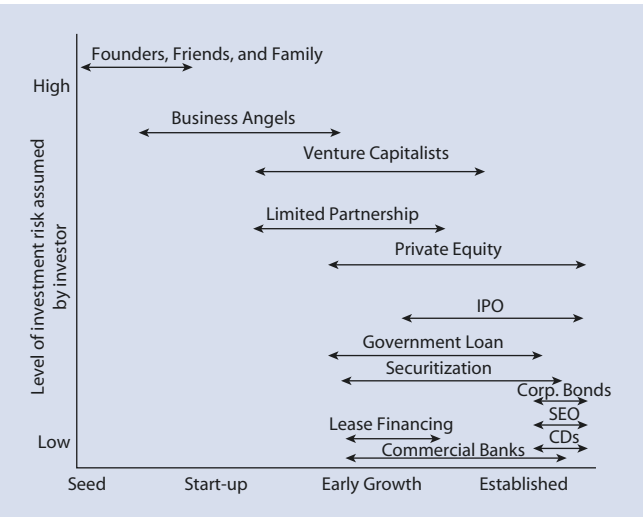

Fig. 6.10 Funding options over the life cycle of a company

6.11 Outlook

As the examples of the Hollywood film industry and of the Silicon Valley technology start-ups demonstrate, financing techniques and practices for traditional and new media and information sector industries are a major factor for their

196 Partly based on Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

197 Using and supplementing Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

198 Kelly, Peter. "Finance and Venture Capital Markets." In *Handbook of Product Service Development Communication and Information Technology*. Eds. Timo Korhonen and Antti Ainamo. (New York: Springer, 2003), 211-234.

health. Good ideas, creative concepts, R&D, and personal energy are important, but they will usually go nowhere without funding. Creativity and innovation require a financial base.

We have seen how these industries show a rising demand for financing. This is due to an increasing production of content, the growing complexity of electronic distribution networks, and greater faster R&D cycles. Such financing is inherently risky.

The financing of media and information activities is therefore becoming an ever more central function. It requires effective financial understanding inside media and technology companies; and it requires financial institutions and business practices to channel funds from investors to firms and projects, and to provide a screening and monitoring of projects.

Navigating financing techniques, flows, and institutions is therefore a major factor for the strength of media activities and tech ventures. With an effective understanding of the system and its opportunities and pitfalls, a financial manager can make an important contribution to innovation and culture.

6.12 Review Materials

Issues Covered

We have covered the following issues in this chapter:

- Why capital investments in media and communications are high.
- What different funding sources are available to established companies and start-ups.
- What the pros and cons of debt financing are.
- What the difference between short- and long-term financing is.
- What different types of debt sources are available.
- What the various bond ratings mean.
- What the impact of vendor financing and PFD deals is.
- How negative pick up deals work.
- Why many projects use lease financing.
- What the impact of government financing is.
- What the impact of debt financing on content is.
- How risk reduction strategies work.
- How PE and VC work.
- How to set up limited partnerships.
- What the requirements for IPOs are.
- What the opportunities and limitations of PE and crowdfunding are.
- What difference individual and institutional ownership makes.
- How a company's optimal capital structure can be determined.
- What the drivers of internal financing are.
- When to use gap financing, mezzanine financing, and securitization.
- Why junk bonds are issued and purchased.
- Why lease financing is often used.
- What the extent and trends of insider ownership are.

Tools Covered

We used these tools to address financing issues:

- The Miller-Modigliani theory of the irrelevance of funding.
- Capital budgeting.
- Cost of internal funding.
- Capital Asset Pricing Management (CAPM).
- Portfolio diversification and hedging.
- Net Present Value (NPV) and discounted cash flow.
- Internal Rate of Return (IRR).
- Duration matching.
- Weighted Average Cost of Capital (WACC).
- Financial funding mix.
- Pecking order approach.
- Debt to capital and equity ratio.
- Life cycle of financing.
- Optimal capital structure.

6.12.1 Questions for Discussion

1. What are the advantages and disadvantages of debt for an internet company?
2. What are the advantages and disadvantages of equity for a media company? When should a firm choose equity over debt, and debt over equity?
3. What role do institutional investors play in media companies? What accounts for an increasing role?
4. How does governmental funding of media vary across the world countries? Discuss the USA, EU, and Asian tigers.
5. What are the advantages and disadvantages of a digital company going public, not only in relation to its management but also its investors? Discuss the impact of IPOs on media content and conduct.
6. How does accessibility to capital vary across the media firm's life cycle?
7. Discuss the pros and cons of financing and distributing a film independently versus through a studio distributor.

8. Discuss the effect of availability of securitization finance, vendor/buyer finance, and lease financing to different types of media firms.

9. Discuss the effects of different kinds of ownership on the way a media company is run. In what ownership model does management have the most autonomy?

10. Discuss the advantages and disadvantages of internal funding?

11. What aspects of finance in the media industry are different from other industries?

6.12.2 Quiz

1. If a movie studio had the option to purchase the rights to make the Calvin & Hobbes comic strip into a movie, in finance terms this would be referred to as:
   A. Call option;
   B. Put option;
   C. Exclusive option;
   D. Distribution option.

2. If a radio station sells its transmitter tower to a finance company and then leases it for its use, this is called a:
   A. Capital lease;
   B. Operating lease;
   C. Lease-back;
   D. Secondary lease.

3. Which is not a characteristic of the media industry that makes financing difficult?
   A. Periods of revenue from products are short;
   B. Period between investment outlay and revenue realization is short;
   C. Intangible nature of product makes it difficult to charge price;
   D. Investments in pioneering technology are uncertain.

4. Which is not a disadvantage of the Payback Period technique?
   A. Ignores time value of money;
   B. Ignores risk;
   C. Says nothing of profitability after payback period;
   D. Is complicated, and often impossible, to calculate.

5. Duration matching is:
   A. Conversion of one long-term capital structure into another as the riskiness of an investment decreases with time;
   B. Aligning the NPV of an investment with the cost of capital to decide on an investment project;
   C. Arbitraging debt as the rate of return on a project increases with time;
   D. Matching amount and timing of debt maturity to the projected dates of positive future cash flows.

6. Which is not a characteristic of a junk bond?
   A. Usually offered by a company that has debt of > 4x EBITDA;
   B. Usually offered by a company that has a quick ratio > 1;
   C. Often issued by "fallen angel" companies;
   D. Has a default rate of 3–4%.

7. Which is not a characteristic of securitization?
   A. Allows borrowing against future royalties, not collateral assets;
   B. Bundles multiple media projects together, hedging risks of individual projects;
   C. Allows owner of firm to keep 100% of assets being financed;
   D. Reduces risk by effectively shortening term of debt.

8. What are the characteristics of a negative pick-up deal?
   A. By making distribution deal before production, gives crew and cast extra incentive to complete movie on time;
   B. Distributor must bear risk of film going over budget;
   C. Favors producers with a proven track record;
   D. Unsuccessful date;
   E. Does not require advanced financing;
   F. Both C and D.

9. Which one of the following is true about leasing as a form of financing?
   A. Reduces company's ability to borrow;
   B. Temporarily increases debt on balance sheet;
   C. Accounts for more than half of all annual investment in equipment;
   D. Allows arbitrage of credit risk.

10. Which is not true of preferred stock?
   A. Carries more voter rights than regular stock;
   B. Gets priority in receiving dividends;
   C. Gets priority in assets in event of liquidation;
   D. Dividends usually paid at fixed rate.

11. The most common and least expensive form of film financing is:
   A. Equity;
   B. Senior term debt;
   C. Subordinated debt;
   D. Revolving LOC.

12. The largest source of equity for small firms is:
   A. Principal owner;
   B. Angel investors;
   C. VC;
   D. Publicly raised equity.

13. What strategy is followed most often in achieving an optimal capital structure?
    A. MM theory;
    B. Target capital structure;
    C. The pecking order of raising capital;
    D. No particular strategy comprises a majority of firms' strategies.

14. How do media companies often alter the pecking order?
    A. Resort to debt before equity;
    B. Rely more heavily on internal financing;
    C. Place equity before debt;
    D. They don't.

15. Which is not a risk reduction strategy for a media product?
    A. Diversify revenue streams;
    B. Lengthen term of debt to attract more investors to the higher interest rate;
    C. Shift risk onto investors with equity offering;
    D. Develop derivative financing options as hedging devices.

16. Mezzanine financing was developed to:
    A. Provide a stage of debt in between the revolving LOC and senior term debt;
    B. Offer a conservative arrangement with significant due diligence on part of the lender;
    C. Create a layer in the capital structure between senior term debt and equity;
    D. Provide an alternative to seed capital.

17. Which of the following simplification does the MM theorem make?
    A. Term of debt is irrelevant;
    B. PV of firm's cash flow is irrelevant;
    C. Value of firm depends only on capital structure;
    D. All the above.

18. What is not a practical reason to conduct a SPO?
    A. To take advantage of inflated share prices;
    B. To get more capital to invest in new technologies;
    C. To dilute firm control and prevent takeovers;
    D. To decrease ROE.

19. At what part of the firm life cycle is a firm most likely to use VC or angel finance?
    A. Start-up;
    B. Growth;
    C. Mature;
    D. Decline.

20. Which of the following is a limit on CP?
    A. Issuers can only offer CP in short terms, with a limit of 270 days;
    B. Issuers can only offer interest up to 5%;
    C. Issuers are required to have a AA+ credit rating;
    D. Issuers are prohibited from offering CP to individuals.

21. Which of the following is not a reason a company would issue public equity?
    A. Equity holders of the company need capital and their shares are not easily tradable in PE;
    B. The firm wants to be able to attract and retain managers that would only be attracted if they receive stock options and other incentives of being a publicly traded company;
    C. It is much cheaper for a company to issue an IPO than to borrow funds from a bank or attract money from venture capitalists;
    D. A wider pool of investors are attracted and the company can raise more money.

22. Which of the following statements about labor unions is incorrect?
    A. Strongly unionized industries experience great labor mobility;
    B. Unionization has a positive effect on compensation;
    C. Unions often upgrade the skills of their members;
    D. The membership of unions has declined as the industrial economy is transitioning to a services-based economy.

23. Why is there often such a strong unionization in media crafts and among media creatives?
    A. Oversupply;
    B. Money;
    C. Political leverage;
    D. Stress;
    E. Declining rate of newcomers;
    F. Need for respect.

24. Which of the following statements about motivation and needs is incorrect?
    A. Motivational attitudes follow a hierarchy of needs;
    B. Motivation depends on circumstance;
    C. Humans are social animals and strongly seek to belong to a community;
    D. Psychological needs precede safety needs.

25. Which of the following elements do not describe the internet culture?
    A. Clear lines of responsibility;
    B. Individualism;
    C. Rapid product cycles;
    D. Uncertainty;
    E. Entrepreneurialism.

Quiz Answers

1. A
2. C
3. B
4. D
5. D
6. B
7. D
8. C
9. D
10. A
11. D
12. A
13. C
14. C
15. B
16. C
17. A
18. D
19. A
20. A
21. C
22. A
23. E
24. D
25. A

Intellectual Asset Management

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7.1 Intellectual Assets

7.1.1 What Is Intellectual Property?

In this chapter, we will cover a key element of media and information management: how to create, protect, and manage Intellectual Assets (IAs). IAs are more commonly referred to as Intellectual Property (IPs) or Intellectual Property Rights (IPRs), terms derived from a legal perspective. For business purposes, we should think of them as assets—items of value that are designed, invested in, produced, improved, valued, priced, sold, licensed, or exchanged.

It is a characteristic of information products that they are expensive to create but easy to duplicate. Technology makes it easier for a producer to create and distribute information, but it also makes it more difficult to protect information from unauthorized copying and distribution by rivals and users. This applies to new content as well as to new technology. Owing to the difficulty in excluding others from use, the ability to collect payments is reduced and with it the incentives to create new information and innovation. These fundamental characteristics have led to the creation of the legal construct of IP.

To discuss intellectual property one must first clarify, more generally, what "property" means. Property is the collection of ownership rights held by someone in an item, which is protected by the state. This "bundle"[1] includes some or all of these rights: to use, consume, destroy, sell, rent, extract, and exclude. "Property" is a central feature of the economic system. Under feudalism, when land was the main resource and real property (i.e. land) was central to law and commerce, defining the social and economic order of the era. In the industrial age, machinery and financial resources became all important and "personal and financial property" became the focus of legal and managerial attention. But in the information age information is the key resource, and intellectual assets are an increasing center of economic activity and hence of management efforts. However, this area has been left primarily to lawyers, and until recently it was underappreciated as a managerial task.

We should start with a broad picture. Individually held property, the notion of private ownership, is an alien concept to some cultures. Most Native American tribes before European colonization, for example, exercised a communal rather than personal ownership of land,[2] though individuals or families personally owned items such as weapons, clothing, and jewelry.

Even in Western cultures, not everything is property—that is, owned by someone. Much of the oceans, which constitute two-thirds of the globe's surface, are not owned by anybody, including by states. Space is another example. Furthermore, many places and things are not owned privately but rather collectively, such as parks, roads, national forests, and military installations. Approximately 40% of the US land area is publicly owned.[3]

As late as the 1950s and 1960s, the expression "intellectual property" was rarely used,[4] and was applied narrowly. Certain creations with potential economic value were left outside the notion of "ownership," such as dance steps, weather predictions, a great scientific idea, or business strategies. But, for each of these examples, the realm of intellectual property has expanded and private ownership is now being claimed.

7.1.2 History

Intellectual Property is not a new concept; it has been around for well over 500 years, at least. In 1469, the Venetian Senate granted John of Speyer (Spiro) the exclusive right to print classic works for a period of five years. This privilege ended soon with his death; freed from exclusivity, Venice printing flourished in subsequent decades and it became Europe's major publishing center. Venice was also the first jurisdiction to grant, after 1450, patents on inventions, particularly in the glass-making area. In Britain, the statute of Anne (1710) created property rights for authors and publishers.[5] In the USA, the drafters of the Constitution of 1787 made special provisions for IP protection in Article I of the document: "Congress shall have the power … to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The rationale, as Abraham Lincoln later wrote succinctly, was that "the patent system added the fuel of interest to the fire of genius."[6] Lincoln himself received a patent for his invention of a device to enable riverboats to cross sandbars.

In contrast, another US president, Thomas Jefferson, himself a world-class mechanical and scientific tinkerer, was concerned with the potential abuse of IPRs in restricting discourse: "If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself in to the possession of everyone, and the receiver cannot dispossess himself of it … that ideas should freely spread from one to another over the globe."[7] These two positions—financial incentive versus free flow—still characterize the debate over IP.

1 Penner, J.E. "The Bundle of Rights Picture of Property." *UCLA Law Review* 43, no. 3 (February 1996): 711–820.

2 Isakson, Hans R. and Shauntreis Sproles. "A Brief History of Native American Land Ownership." In *Indigenous Peoples and Real Estate Valuation*. Eds. Robert A. Simons and Rachel Malmgren. (New York: Springer, 2008), 63–75.

3 Lobowski, Ruben N. et al. *Major Uses of Land in the United States, 2002*. Washington DC: Economic Research Service, United States Department of Agriculture, 2006.

4 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." *Faculty Research Working Papers Series*. Cambridge, MA: Harvard Kennedy School of Government, October 2007.

5 In Germany, Immanuel Kant provided an ethical rationale. Kant believed that an author has an inherent right to protection against unauthorized compulsion to speak, and that unauthorized publishing would violate the individual's personal autonomy. Kant, Immanuel. "Of the Injustice of Counterfeiting Books (Von der Unrechtmassigkeit des Buchernachdrucks)." *Essays and treatises on moral, political, and various philosophical subjects.* London, 1798.

6 Malone, Michael S. "The Smother of Invention." *Forbes*. June 24, 2002. Last accessed May 22, 2017. ► *https://www.forbes.com/asap/2002/0624/032.html*.

7 Lipscomb, Andrew A. and Albert Ellery Bergh, eds. *The Writings of Thomas Jefferson* (3.1). Washington DC: The Thomas Jefferson Memorial Association, 1905.

Some people held both views. No survey of the icons of American political history would be complete without Benjamin Franklin. Franklin never sought patents on his scientific inventions such as the lightning rod, bifocal glasses, heat-efficient stoves, and flexible urinary catheters. He wrote: "as we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by an invention of ours, and this we should do freely and generously." At the same time, Franklin as a publisher and author, was very attentive to copyrights. (Or rather to his rights in America. He was less concerned with the rights of English authors, whom he published freely and profitably without their permission.)

Though IPR create incentives to innovate, they also encourage monopoly pricing. AZT, the first anti-retroviral effective against AIDS, sold initially for $10,000, while incremental production costs were much lower.[8] Many patients—or public health systems—could not afford such expensive drugs. Patents often lead to high medicine prices and may prevent the treatment of patients living in poor countries. On the other hand, without the patent protection the drug might not have been developed in the first place.

It is similar for copyrights, where protection keeps prices way above marginal cost. The incremental cost to produce and ship a CD-ROM copy of the personal computer (PC) operating software Windows is about $2.40, including the disc, packaging, shipping, and so on. For an electronic download version, incremental cost is close to zero, except for minor administrative expenses. But the price charged is $350 for professionals, $200 for residential use, and $120 for students.

Beyond affordability, IPR can also create petty restrictions. For example, in 1996, the American Society of Composers, Authors and Publishers (ASCAP) threatened to sue girl scout organizations for singing campfire songs such as "This Land is Your Land" without obtaining a license and paying for it. Some large restaurant chains did not serenade their patrons with "Happy Birthday" since that ditty was claimed by Warner Music Group to be under copyright until 2030, despite its dubious origins. (Eventually, the copyright claim was invalidated in 2015 in a court challenge.)

Every change in the property system is a change in the ownership of assets and resources, and is hence a fight over wealth and income in society. Therefore, it is not surprising that IP is an area whose growth has been accompanied by increasing controversy, both economic and political. Opponents argue that patents often reward very little innovation, stifle progress, and suppress the free flow of information. Companies use them to block each other. Furthermore, critics state that patents and copyrights rights have become too broad, and give excessive rights to first movers, shutting out competition.

Critics of the current IP system believe that the IP concept should be a balance between the interests of producers and users, but that it has tilted toward restrictions on users and away from the openness that encourages innovation.

One critic, John Perry Barlow, a founder of the Electronic Frontier Foundation and lyricist for the Grateful Dead, argued that information is not static but evolves, as oral narratives do in retelling, and that copyright law seeks to arrest this dynamic by allowing someone to own a creative work and freeze it.[9] Thus, in periods of rapid progress, an abandonment of IP law in favor of "Wild West" frontier ethics is necessary.[10] Historically speaking, however, the Wild West period of American history, where there were often no settled property rights, was brief. Would farms, railroads, and mines have emerged without property rights? And consider what happened to the Native Americans who were without the protection of a property rights system.[11]

Another noted critic of IPRs was Umberto Eco, the noted Italian author of such books as *The Name of the Rose*. Eco advocates the concept of the "open work" and challenges the principle that creators must retain rights to preserve control over their "property."[12] Instead of a rigid form, a work is merely "suggestive." It is a work in continuous change, with an invitation to make the work jointly with the author. But does Eco practice what he preaches when it comes to his own bestselling books? Is anybody free to alter, copy, and resell them? Such inconsistencies aside, Eco's concept of a sprawling and inherently evolutionary work can indeed provide a fertile framework for innovation. The open source movement in software is an example. It is a loose community of volunteer developers who collaboratively develop software ("freeware") such as the Linux operating system, yet may not even know each other. They challenge the notion that people will not invent without the profit incentive of patents and copyrights.

"Droit morale" is another different IPR model, challenging standard IP rights from the other direction. This French-originated arrangement gives to creators inherent and inalienable rights against changes and profits by subsequent owners and outsiders. For example, a film cannot be altered without the permission of the original director, and the original creator receives a benefit every time the work gets resold or relicensed. These moral rights cannot be abrogated, and a media company cannot force employees to give up the rights to their own creative output.[13]

Despite being diametrically opposed, many critics of IP simultaneously favor the "droit morale" and the "open work" concept. In the former, no one except the originator can make changes, and in the latter, everyone can. The common

8 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." Faculty Research Working Papers Series. Cambridge, MA: Harvard Kennedy School of Government, October 2007.

9 Barlow, John Perry. "The Economy of Ideas." *Wired*. March 1, 1994. Last accessed on May 22, 2017. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

10 Barlow, John Perry. "The Economy of Ideas." *Wired*. March 1, 1994. Last accessed on May 22, 2017. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

11 Isakson, Hans R. and Shauntreis Sproles. "A Brief History of Native American Land Ownership." In *Indigenous Peoples and Real Estate Valuation*. Eds. Robert A. Simons and Rachel Malmgren. (New York: Springer, 2008), 63–75.

12 Eco, Umberto. "The Poetics of the Open Work." *The Open Work*. London: Hutchinson Radius, 1989.

13 Roeder, Martin A. "The Doctrine of Moral Right: A Study of the Artists, Authors and Creators." *Harvard Law Review*, no. 53 (1939–1940): 554–579.

denominator is that both are non-traditional, and both are opposed by mainstream media companies. Whatever one thinks of these approaches, they show that IP is neither "natural," nor "obvious," nor "ethical," but a pragmatic arrangement of economic policy preferences and political influence. Its parameters are subject to continuous shifts, and with them the underlying business actions.

In the media and information technology (IT) sector, IAs are the key assets. IAs can drive the market value of a company. One such example is the mobile technology firm Qualcomm. In 2013, Qualcomm's revenue from licensing and royalty fees alone amounted to $7.6 billion, about 30% of its total revenue. In 2017, Qualcomm's revenue from licensing fees was $6.4 billion, about 28.7% of its total revenue. That percentage, applied to its market value, would value its licenses at $30 billion. Another example is WebTV, a television internet company without revenues. Microsoft bought the company for $425 million, largely for what it considered (incorrectly, as it turned out) the value of its patents.[14]

Intellectual assets affect non-profit organizations, too. An example is the licensing income from patents by Columbia University, which was $134 million in 2008, highest among American universities[15,16] according to the American University Technology Managers, and $115 million in 2014.[17,18] This income benefited its students and faculty. But at the same time the same university had a student body that topped a list by the film industry of film piracy at universities in the USA, with 1198 "unauthorized uses of copyrighted material."[19,20] This kind of internal contradiction mirrors the similarly conflicted roles of many individuals: they are consumers of media and information, and yet they are often also producers of content of some value to others—as writers, managers, artists, entrepreneurs. Often they do not mind sharing their ideas and creations, but are not willing to let someone else "rip off" their creations to make money.

Despite the importance of patents and copyrights, most firms have no effective IA strategies. A 1998 survey of 360 US companies found that 71% admitted wasting patents through mismanagement. Another study showed that more than 35% of US patents go unused by their owners, though they are potentially of value to others.[21] The estimated value of wasted patents was $150 billion. The value of underutilized copyrights is vast, although even more difficult to estimate.

The questions for this chapter are: what options exist for a media and information firm to create and protect its innovations? How does a firm optimize the benefits from its IAs? We will use the firm General Electric (GE) as the main example.

7.1.3 Case Discussion

GE and Its Intellectual Assets

In 2012, at its peak, GE was ranked the fourth largest firm in the world in *Forbes* magazine's "Global 2000," based on a set of several metrics. GE was formed in 1892 through the merger of the Edison General Electric Company and the Thomson-Houston Electric Company. It was active in consumer electronics, aviation engines, electronics, appliances, financial services, energy, health, and transport—and was the most successful conglomerate in America.

From 1981 to 2001, legendary CEO Jack Welch led the company. Welch raised GE market value by 4000% to make it the most valuable in the world. In 1999, he was picked by *Fortune* magazine as the "Manager of the Century."[22] GE was the fourth largest company in the world by profits, seventh for management, fifth for global brand, 15th "most admired," and 19th "most innovative." It had 333,000 employees working in 160 countries. By 2018, however, the sprawling company was performing poorly and narrowed its focus by divesting several of its operations.

GE operated with 12 major divisions, each holding substantial autonomy. It acquired the electronics technology firm RCA in 1986, and with it its subsidiary the major media company NBC. It also acquired the Universal Pictures film studio from French video game company Vivendi in 2004. GE then sold control of the combined NBC Universal to the major cable firm Comcast in 2012. NBC Universal is one of the world's leading media and entertainment companies. The NBC Television Group consists of the NBC network with its many in-house-produced shows in entertainment, news, and sports; numerous owned and operated local stations; the Spanish-language channel Telemundo; and many cable channels such as MSNBC, CNBC, E!, Bravo, Syfy, and USA Network. Universal Pictures is a major motion picture company. It also owns Universal Theme Parks & Resorts, a popular entertainment destination, and Dreamworks Animation. Hulu.com is an

14 Grove, Alex. "Safeguarding Intellectual Property." *The Red Herring Magazine*. May 1998.

15 Gordon, Larry. "How the UC system is making patents pay off." *Los Angeles Times*. October 10, 2015. Last accessed May 22, 2017. ► http://www.latimes.com/local/education/la-me-uc-patents-20151011-story.html.

16 National Academy of Inventors. "Top 100 Worldwide Universities Granted U.S. Utility Patents 2015." Last accessed May 22, 2017. ► http://www.academyofinventors.com/pdf/top-100-universities-2015.pdf.

17 Gordon, Larry. "How the UC system is making patents pay off." *Los Angeles Times*. October 10, 2015. Last accessed May 22, 2017. ► http://www.latimes.com/local/education/la-me-uc-patents-20151011-story.html.

18 In 2015 Columbia was the ninth highest recipient of patents (119) among educational institutions in the world. National Academy of Inventors. "Top 100 Worldwide Universities Granted U.S. Utility Patents 2015." Last accessed May 22, 2017. ► http://www.academyofinventors.com/pdf/top-100-universities-2015.pdf.

19 Fisher, Ken. "MPAA Names its Top 25 Movie Piracy Schools." *Law and Disorder*. April 2, 2007. Last accessed June 9, 2010. ► http://arstechnica.com/tech-policy/news/2007/04/mpaa-names-its-top-25-movie-piracy-schools.ars.

20 Columbia University was followed by the University of Pennsylvania with 934, Boston University with 891, University of California – Los Angeles with 889, and Purdue University with 873.

21 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. (Boston: Harvard Business School, 2000), 122.

22 Comstock, Beth. "Best Advice: What I Learned From Jack Welch Hanging Up on Me." *LinkedIn*. February 26, 2013. Last accessed July 16, 2013. ► https://www.linkedin.com/today/post/

online video service offering TV shows, movies, and clips, of which NBC owns 30%.[23]

GE owns valuable trademarks. It holds trade secrets, confidentiality agreements, and business methods for which it owns business process patents. It holds patents for complex technology. GE received 1652 patents in 2016 alone. In 2012, it was the third-largest patent creator in the USA.[24, 25] GE spent $5.5 billion on research and development (R&D) in 2016. In just one year, 2011, it collected 184 "green energy" patents (the highest number of such patents received in the USA).[26] Over the course of its corporate history, GE amassed more than 67,500 patents.[27]

GE was a major content producer when it owned NBC and Universal Pictures, holding a vast collection of valuable copyrights.

There are several questions for discussion:

- How does GE manage these assets?
- How does GE protect and exploit its innovations?
- How does GE deal with others' property rights?

7.1.4 How Companies Organize Their IP Management

With the importance of IAs rising, the question is how companies organize the management of this area. Often the function is delegated to the legal department, which deals with a company's legal and contractual rights and obligations. Other companies assign different types of IP to different departments. For patents, the R&D unit is in charge; for trademarks, the marketing unit;[28] licensing, contracts, and infringements, the Legal Counsel; trade secrets, the HR department;[29] for valuation, the corporate finance group. Whatever the company's organizing structure, it is clear that a collaboration by various departments within a company is essential, often implemented through an IA review team with representatives from all groups.[30, 31]

7.1.4.1 Case Discussion

How GE Organizes Its IA Function

GE's IA function is led by a Chief IP Counsel at the corporate vice-principal (VP) level, an upgrade of the position in rank from what it was before. That person reports to the Corporate General Counsel. All 12 GE business groups have a dedicated IP division.[32] This includes a Head of IP, senior IP managers, a legal counsel, and others.

At the corporate level, GE Licensing is in charge of outbound patents and trademarks. Inbound licensing is handled by the units in need of a license. GE also has a Central IP Group, which supervises trademarks & foreign patent filings.

In the 1990s, GE changed its accounting practices, providing an incentive to its individual units to generate licensing revenue. License fees received were credited from the corporate level back to the business unit that had created the IA.

7.1.5 Outside Counsel

Specialized legal IP work may be outsourced to external law firms; but this can be expensive. In 2016, the cost in the USA for in-house lawyers was approximately $93 per hour for a senior lawyer and $50 per hour for staff attorneys, plus benefits and overhead at about 30%.[33] In contrast, billing rates for top outside lawyers (partners at large law firms) were $650–$875.[34] Rates for associate lawyers ranged from $90 to $250.[35]

The most expensive outside lawyer was reportedly the Los Angeles entertainment lawyer Bertram Fields, at $875 per hour and up. Arrangements for outside counsel are typically based on hourly charges, but can also be based on contingency fees, a flat fee, or equity shares. In other countries, IP lawyers' hourly rates are usually lower but have been rising steadily.

7.2 The Different Types of Intellectual Assets

One can distinguish five basic types of IAs: trade secret protections, contract-created rights, patents, trademarks, and copyrights. The pyramid illustrated in ◘ Fig. 7.1[36] ranks them in terms of frequency and difficulty in creation.

Patents are fairly rare and tough to obtain. Trademarks are easier to get but offer some protection. Copyrights are created frequently and easily but have limited protection. Most abundant are trade secrets. They will now be discussed.

article/20130226113021-19748378-best-advice-what-i-learned-from-jack-welch-hanging-up-on-me.

23 NBCUniversal. "This is NBCUniversal." Last accessed July 15, 2013. ► http://www.nbcuni.com/corporate/about-us/.

24 Anderson, Ash. "IBM, King of the Patents." *SFGate.* January 16, 2013. Last accessed May 22, 2017. ► http://www.sfgate.com/business/fool/article/IBM-King-of-the-Patents-4199052.php.

25 GE. "GE Reports." March 8, 2010. Last accessed June 13, 2013. ► http://www.gereports.com/twenty-thousand-patents-this-decade-and-counting/. GE's list of its patents (over 20,000 in a decade) can be viewed on ► FreshPatents.com.

26 GE. "GE Reports." April 13, 2012. Last accessed June 13, 2013. ► http://www.gereports.com/ge-tops-clean-energy-patent-list/.

27 General Electric. "Fact Sheet." Last accessed May 25, 2017. ► http://www.ge.com/company/factsheets/corporate.html.

28 Tao, John et al. "Developing an Effective Strategy for Managing Intellectual Assets." *Research-Technology Management* 48, no. 1 (Jan/Feb 2005): 50–58.

29 Managing Intellectual Property. "25 ways to be a more effective TM manager." May 1, 2006. Last accessed May 22, 2017. ► http://www.managingip.com/IssueArticle/1254631/Archive/25-ways-to-be-a-more-effective-TM-manager.html.

30 Thomas, Brad. "Intellectual Property Management Tips." *The CPA Journal* 73, no. 8, (August 2003): 10.

31 "Meeting of the Minds." *Risk Management* 49, no. 12, (December 2002): 28.

32 Wild, Joff. "The GE Revolution." *Intellectual Asset Management.* (August/September, 2004): 25–28.

33 Ruiz, David. "Salaries Rise for Early Career In-House Counsel, Report Finds." *Corporate Counsel*. December 5, 2016. Last accessed May 22, 2017. ► http://www.corpcounsel.com/id=1202773934943/Salaries-Rise-for-Early-Career-InHouse-Counsel-Report-Finds?slreturn=20170416165126.

34 Weiss, Debra Cassens. "Top Law Firms Boost Hourly Rates for Equity Partners by 3.9%, leaving Mid-Tier firms $400 behind." *ABA Journal.* June 8, 2016. Last accessed May 22, 2017. ► http://www.abajournal.com/news/article/top_law_firms_boost_hourly_rates_for_equity_partners_by_3.9_leaving_mid_tie.

35 Olson, Elizabeth. "Law Firm Salaries Jump for the First Time in Nearly a Decade." *New York Times*. June 6 2016. Last accessed May 22, 2017. ► https://www.nytimes.com/2016/06/07/business/dealbook/law-firm-salaries-jump-for-the-first-time-in-nearly-a-decade.html.

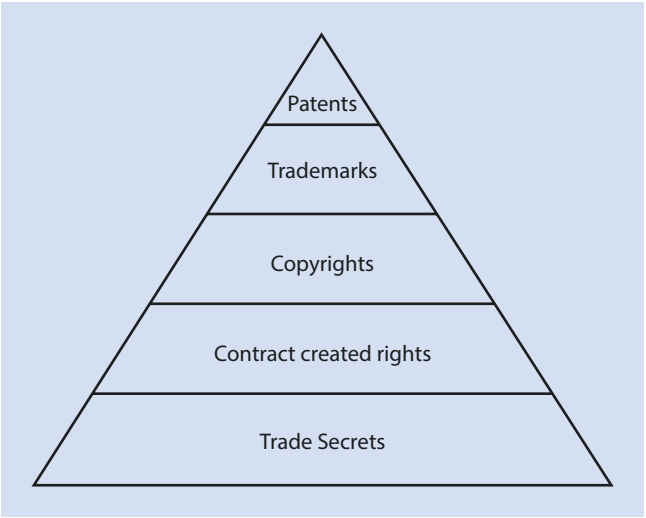

Fig. 7.1 Hierarchy of intellectual property rights by frequency

7.2.1 Trade Secret Protections

By one estimate, 90% of overall commercial value in IA is found in trade secrets.[37] A trade secret is information which is not well known publicly, which benefits a business commercially and which the owner has taken reasonable measures to keep secret. For example, the fast food chain KFC keeps its fried chicken recipes secret. Only a handful of people are told the recipe after signing strict confidentiality agreements. KFC goes so far as to use different companies to blend the spices so that no company has the complete recipe.

Firms may use trade secrets when it is not feasible to obtain a patent. Some creations are not readily patentable, for example, David Copperfield's magic tricks or Coca-Cola's syrup formula. But many patentable inventions have not been submitted for a patent. The reasons are that companies ask themselves whether it is worth trying to get a patent for 20 years, which involves spending much money and time and in the process disclosing the invented technology and risking imitation, particularly from abroad. Or is it better, faster, safer, and cheaper to use trade secrets? This is particularly the question in those areas of technology where innovation is rapid and accelerating, and where patents are less important than a head start, which is helped by adequate measures of trade secret protection.[38] This helps, in particular, where innovation exists in the production process itself. Here, secrecy can be better protected internally than it can be for consumer products that circulate widely and can be reverse engineered.

Keeping innovations as trade secrets avoids the costs of applying for patents and the disclosure of the technology to rivals. But it is not cost free. Theft of trade secrets is estimated to have a value of $5–10 billion annually, just in the USA.[39] The more valuable the trade secret, the more a firm should spend to protect it, by deterring theft and inadvertent disclosure.[40]

There are several approaches to the protection of trade secrets. One is physical security, such as guards, locks, and paper shredders, as well as locked document files. There is electronic security, including password protection and firewalls. Employee background checks and training are part of HR security. There are non-disclosure agreements with employees and business partners (discussed below), as well as internal access and document control.

Obtaining confidential information about a rival's plans and products is not an offense as long as it does not involve a criminal act such as breaking and entering or bribery. In many countries, the theft of trade secrets is a criminal offense and is punishable by substantial penalties. To remedy some trade secret breaches, a firm can use its lawyers to obtain a court order (an injunction) that aims to stop the beneficiary or perpetrators of the breach. To discourage frivolous applications for such an order the firm usually has to post a substantial bond which costs money. Firms whose trade secrets are violated can also sue for damages, including punitive damages. Proving injury for actual damages requires that trade secret owners show:

- that another firm enjoyed "unjust enrichment";
- that the owner suffered "actual loss";
- and/or that the owner is entitled to "reasonable royalty" from the trade secret.

The four managerial principles for protecting trade secrets are

- knowing what to protect;
- identifying where leaks likely occur and how;
- appointing someone to be in charge;
- taking action to protect the secrets.[41]

Factors to consider when deciding whether to maintain a trade secret are the cost of protecting secrecy, the value of the information to the firm, and the difficulty with which the information could be otherwise acquired by rivals.[42]

In the USA, for example, there is a Uniform Trade Secrets Act prohibiting the acquisition of information by competitors through "improper means." Rules like this have been adopted by many states (trade secrets are generally covered in the USA by state rather than federal laws). There is also a Federal Economic Espionage Act of 1996 that makes it a crime to steal or knowingly acquire trade secrets. Violators face a maximum $500,000 fine, and/or up to ten years in prison, and firms can obtain an injunction to stop violations

36 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
37 Anton, James J. "Little Patents and Big Secrets: Managing Intellectual Property." *RAND Journal of Economics* 35, no. 1 (Spring 2004): 1–22.
38 Anton, James J. "Little Patents and Big Secrets: Managing Intellectual Property." *RAND Journal of Economics* 35, no. 1 (Spring 2004): 1–22.
39 H. Garrett, DeYoung. "Thieves Among Us." *Industry Week* (June 1996): 12.
40 Friedman, David D., William M. Landes, and Richard A. Posner. "Some Economics of Trade Law." *Journal of Economic Perspectives* 5, no. 1 (Winter 1991): 61–72.
41 Pooley, James. *Trade Secrets*. Newark: Law Journal Press, 1999.

of their trade secrets. Other countries have similar laws, in some instances (such as Swiss banking) quite draconian.

A major court case in trade secret law is *DuPont v. Christopher* (1970). This involved professional photographers who were hired by a competitor of the chemical company DuPont to fly a small plane over a chemical plant and take pictures that would reveal DuPont methanol manufacturing secrets. The flight itself was legal in aviation terms, but the court found that it was conducted as an "improper means of discovery," and was economic "espionage" in violation of DuPont's right to its trade secrets.[43]

Trade secrets and their laws do not prevent "reverse engineering."[44] This is used to analyze how a competitor's product works, or how it is made, and to develop similar or interoperable products. This is common in software, games, consumer electronics, and microchips. Where no patent exists, the reverse-engineered copycat product is perfectly legal. Even where a patent exists, companies use reverse engineering to help design a competing product that bypasses the patent or interoperates with it.

An example of reverse engineering is RealNetworks' release of music files that worked on Apple iPods and could therefore be bought by iPod users directly from RealNetworks' Rhapsody music service instead of from the Apple iStore, to which they had previously been limited. RealNetworks had to engage in reverse engineering, which is legal, and which challenged Apple's domination of how music could reach its hardware and its huge user base. Apple castigated RealNetworks for "using the tactics and [having] the ethics … of a hacker." It threatened lawsuits and iPod software updates to disable Rhapsody interoperability.[45] RealNetworks and its users brought a lawsuit themselves. Apple eventually gave up and opened the iPod to other music, but made such use more cumbersome.

7.2.1.1 Case Discussion

GE and Its Trade Secrets

GE possesses a wide array of highly confidential information that is important for its business. It includes contract terms for deals, the manufacturing processes for jet engines, primetime TV schedules, business plans, technology in development, story ideas, royalty rates, and much more.

GE employs physical, electronic, and human security. Another line of defense is legal protection. In 1997, GE charged a former employee of using the confidential knowledge he acquired while working for GE in order to start his own company. A Chinese court agreed with GE and imposed a fine, but at only $120,000 it was a small sum relative to the competitive gain and business volume obtained by the Chinese company.[46] In another lawsuit, *General Electric v. Sung* (1994), the company won protection for trade secrets used to manufacture synthetic industrial diamonds.[47] The defendant was a synthetic diamond expert who worked for GE in the 1980s. He pleaded guilty to stealing numerous documents and trade secrets from GE and was sentenced to a lenient six months of house detention together with a fine of $200,000 plus another $120,000 in restitution. The firm which bought the information was a Korean company named Iljin Corp, but no damages were awarded against it.[48] In still another lawsuit in 2007, GE charged the Rotterdam company Feuz Manufacturing for using GE engineering designs to make parts that it sold to GE competitors.[49] But by that time, Feuz had already shut down.

Complaints go both ways. GE has also been the subject of trade secret litigation as a defendant. In 1997, the Dow Chemical Company sued GE for the theft of trade secrets. Dow claimed that GE employed 14 engineers who had previously been working at Dow, and put them to work on similar and competing projects.[50] Dow's former head of plastics sales and marketing had taken a confidential Dow document and used it after he started work with GE. GE settled the case.

7.2.2 Contract-Created Intellectual Assets

Contractual agreements are a major practical way of protecting many trade secrets, in particular those that cannot be copyrighted or patented. Employees are expected by the law to be loyal to their employers, and this includes not disclosing trade secrets to competitors, even without any particular signed agreements. However, specific agreements can be made to toughen confidentiality requirements by employees, to spell out restrictions and penalties, and to put them on notice that they must not disclose sensitive information.

Companies thus attempt to create contract-based IAs by non-disclosure agreements (NDAs), work-for-hire agreements, and covenants to not compete (CNCs). These are known as confidentiality agreements. Such contracts require employees to refrain from activities competing with

42 Lee, C. Lewis and J. Scott Davidson. *Managing Intellectual Property Rights*. (New York: Wiley Law Publications, 1993), 229.
43 DuPont v. Christopher, 431 U.S. 5th Circuit F.2d 1012 (1970).
44 NPD Solutions. "What Is Reverse Engineering?" Last accessed May 25, 2017. ► http://www.npd-solutions.com/reverse-engineering.html.
45 Hansell, Saul. "RealNetworks Plans to Sell Songs to Be Played on iPods." *New York Times*. July 26, 200. Last accessed May 25, 2017. ► http://www.nytimes.com/2004/07/26/business/media-realnetworks-plans-to-sell-songs-to-be-played-on-ipod.html.
46 People's Republic of China. Ministry of Commerce. "GE Wins Trade Secret Infringement Case against Jiuxiang." Intellectual Property Protection in China., November 12, 2007. Last accessed June 1, 2011. ► http://www.chinaipr.gov.cn/casesarticle/cases/caseothers/200711/247674_1.html.
47 New York Times. "GE Wins a Stolen Secret." August 3, 1993. Last accessed October 5, 2010. ► http://www.nytimes.com/1993/08/03/business/ge-wins-on-stolen-secret.html.
48 Kennedy, John H. "Jury rules Korean company misused GE diamond secrets." *Boston Globe*. July 31, 1993. Last accessed May 25, 2017. ► https://www.highbeam.com/doc/1P2-8238711.html.
49 Rulison, Larry. "GE Claims Subcontractor Stole Secrets: Company Sues Feuz for Allegedly Selling Parts To Its Competitors." *The Times Union*. September 29, 2007. Last accessed on October 5, 2010. ► http://www.allbusiness.com/legal/legal-services-litigation/14703531-1.html.

their employer after their employment ends, and for others involved, such as potential investors or partners, not to make use of the information gained.[51] However, many NDAs and CNCs are actually legally invalid and hence unenforceable. They must be limited in duration and apply to specified and relevant information. Unreasonable parts of a contract are voided by judges as being contrary to good public policy. They would make it difficult for an employee to quit, and could, for example, prevent former employees from ever working again in their chosen field. CNCs are typically held valid for up to three years. In addition, confidentiality agreements do not cover third parties who have no obligations, such as taxi drivers who overhear privileged information. In other instances, CNCs are simply a "golden handshake" – way in which to pay a lot of money to former top managers beyond their term of actual work for the firm.

One survey found that 35% of companies remind departing employees of their NDA trade secret obligation; but only 7% of companies ask new employees to sign agreements preventing them from bringing in competitors' trade secrets.[52] In fact, part of the value of hiring former employees of a competitor may be their insider knowledge, and they may offer up trade secrets as a selling point in a job interview. As the above-mentioned case of *Dow v. GE* shows, a company must be cautious not to open itself up to allegations of stealing a competitor's trade secret by hiring its former staff.[53]

Contract-created IAs have also become popular as an alternative to copyright. For example, a common form of contract-created IPRs exists for the viewing of electronic publications online. Users are asked to click on a "terms of usage" button which makes them signatories to a licensing contract that restricts their rights, for example to "fair use" for educational applications.[54]

Software companies create contract-generated IP rights by way of a "shrink-wrap" contract. The seller considers users to have agreed to and be bound by a contract once they have opened the shrink-wrap packaging. The same term applies to software that is downloaded. In order to be valid, such contracts must be stated in a conspicuous, legible, and printable manner, and the user must have the opportunity to turn it down. (This is usually not much of a realistic option, even assuming that a user will peruse a lengthy agreement.)

Ideas can also be the subject of contractual IA protections. A writer who pitches a story idea to a studio or publisher is vulnerable to theft, since ideas are not protected under copyright law. However, a story idea can be protected by making it the subject of a contract, where a film producer agrees not to use the story idea presented except with those who pitched it. Realistically, a struggling writer is usually in no position to demand a signed advance agreement from an influential producer. A less threatening approach is to make the producer orally agree to confidentiality, in the presence of other participants who could be witnesses.[55] An agent who does repeat business with the producer adds a layer of protection. The writer might start by saying something like: "I want to make sure you understand that I am telling you this idea with the understanding that it is confidential, and if you decide to use it, I expect to receive reasonable compensation." The producer will probably nod affirmatively or say "sure," and this creates an agreement. The writer should follow up with a polite letter restating verbal agreements made in the meeting. But if the producer does not agree, warning lights should go off and the author might not continue to disclose information.

That said, it is not easy to define what constitutes the theft of an idea. Story elements are often similar. Not everyone who writes a play about two young lovers from hostile families has stolen the idea from Shakespeare (who, in turn, was not the first to come up with the story). It has been claimed that "there are only six basic plots." Some instances of parallelism may be quite innocent. Others are not. Media firms have been subject to legal challenges from authors who believe they have been plagiarized. The noted humorist and columnist Art Buchwald sued Paramount Pictures over the appropriation of his concept for the film *Coming to America*, and he won in court. Paramount settled for almost $1 million. But in another case, the Benay brothers submitted a screenplay to an affiliate of Warner Bros. The studio rejected their screenplay but later released a film with a similar plot (*The Last Samurai*). A court dismissed their lawsuit, stating the works were not similar enough.[56] To reduce such lawsuits, media firms will often not review unsolicited manuscripts unless submitted through a reputable agent or other trusted intermediary.

7.2.2.1 Case Discussion

Contract-Created IA at GE

All GE sub-licensees and suppliers must sign a standardized, sometimes mutual, NDA. For example, Zectek Medical Systems is subject to an NDA regarding GE Healthcare's LFS scintillation material, which is a material used for measuring and recording X-rays' gamma/alpha radiation and other tests. Zectek must also inform GE about the use of LFS in its machines. Similarly, GE requires, as a prerequisite for the use of its Advanced Diagnostics software by hospitals, for the latter to sign agreements that GE-made equipment be serviced only by GE.

GE has also CNCs for its former executives. For example, J. Krenicki, the former vice-chairman of GE, receives $1 million annually until 2022 for his agreement not to compete for three years.

50 Gilpin, Kenneth N. "Dow and G.E. Resolve Suit On Theft of Trade Secrets." *New York Times*. April 10, 1997.

51 Anawalt, Howard C. and Elizabeth F. Enayati. *IP Strategy Complete Intellectual Property Planning, Access and Protection*. (Eagan, MN: West Publishing, 1999), 536–537.

52 Joyce, Amy. "Keeping Secrets Under Wraps; In a Knowledge Economy, Companies Combat Theft of Intellectual Property." *The Washington Post*. June 27, 2004.

53 Lee, C. Lewis and J. Scott Davidson. *Managing Intellectual Property Rights*. (New York: Wiley Law Publications, 1993), 207–208.

54 Olson, Kathleen K. "Preserving the Copyright Balance: Statutory and Constitutional Preemption of Contract-Based Claims." *Communication Law and Policy* 11, no. 1 (2006): 83–132.

7.2.3 Patents

7.2.3.1 Patent Overview

The term "patent" is derived from Latin—"to lay open"—and was originally applied to many rights, such as offices, military commissions, titles, status, and monopolies, conferred by a ruler, often in return for payments or other service to the crown. In its modern and narrower meaning, a patent is the grant of an exclusive right to make (or use, sell, import, or license) an invention. The grantee of a patent has the exclusivity for the production and use of the product or process. In return, he must disclose details of the invention.

For example, Colgate had a patent for a three-stripe toothpaste which protects its method from being used by other manufacturers. Colgate's patent, like the vast majority of patents, is a "utility patent." There are also plant patents (on genetic plant development) and design patents (on a particular "look" that is not functional—valid for a shorter period). There are several ways to make money from a patent. In particular, companies can use it, sell it (assignment), rent it (licensing), or not use it at all but prevent rivals from using it.

After a government agency grants a patent, the product is protected typically for 20 years. In the USA, this protection period used to be 14 years after the patent was granted; in Europe and Japan protection lasted 20 years after initial application. But since patented technology tends to become quickly outdated in many fields, the average economic life of a patent is said to be five years.[57] After the patent expires, the innovation is in the public domain, and anyone can use it without permission.

Inventors who obtain patents have a monopoly on the exploitation of their innovation, which helps recoup research and development costs. The patent also adds credibility to a start-up venture. However, the downsides of patenting are, as mentioned, that inventors must disclose details of the invention, and the high cost of obtaining and protecting the patent.

A patentable invention can be a product, a process, a method, a composition of matter, a design, or a plant. Innovations that cannot be patented include ideas ("sail westward to reach India"), laws of nature ($E = MC^2$), mathematical formulas, unsafe drugs, and surgical techniques. Albert Einstein could not patent his scientific discoveries, but he obtained eight patents with another famous physicist, Leo Szilard, for something as mundane as a refrigerator pump. (Einstein knew the patent system well; he had been working as a lowly clerk at the Swiss patent office while writing several of his seminal papers. This suggests that his day job as a patent examiner was not particularly strenuous.) However, the recent patentability of software and "business methods" edges toward patents for formulas and ideas. Other things that cannot be patented include inventions for illegal purposes (e.g. devices to counterfeit money) and naturally occurring substances, plants, and animals.

The conditions for patent approval require "novelty," "non-obviousness," and "usefulness." Novelty means that the invention must be something new, not previously available, and not obvious to a person who has ordinary skill in the relevant field. Novelty can be an assembly of known elements, as long as no one has combined them before. A product is not novel if it is already for sale or it has already been described in the scientific literature. A trade secret holder will be ineligible for patents on an innovation if it has been commercially used or marketed for a year or more.[58] Inventors must file for a patent less than one year after a publication by themselves that describes the invention. Thus, the lesson for inventors is that if they have published, sold, or publicly offered an invention for sale, they risk losing patentability.

Non-obviousness means that it is not a trivial innovation, such as a beer can painted blue for the first time. The third condition for a patent is usefulness. The invention must work in a practical sense, but not necessarily be a winning product economically. There is no requirement that the use be important. Thus, patents have been granted for a device that holds big toes together to prevent sunburned inner thighs.

7.2.3.2 How to Get a Patent

Patents are granted by governments through a patent and trademark office (PTO). The process typically takes two to four years. Examiners search the databanks to determine if an invention is new. The inventors need not actually construct the invention or demonstrate that it works, as long as they can describe plausibly how one might make the thing work. In theory, the description must allow a skilled person to make and use the invention, but patents are often complex, underdescribed, and hard to understand, often on purpose. In the USA, the Patent Office had to keep patent applications confidential until a patent was issued. This gave inventors some protection against early copycats. After 2003, the rules were changed, and the patent application is kept confidential only for the first 18 months of the process. In Europe and Japan, patent applications were always open to the public, sometimes after a brief period. This means that such patent applications can be studied by competitors and challenged long before a patent is granted. This has pluses and minuses. Fewer patents might be granted for undeserving application, but on the other hand it enables rivals to delay or prevent innovative technology from getting a patent. They might give themselves a larger window for catch-up efforts. In the USA, only the patent examiner challenges an application, not third parties with expertise and interest. During the patent approval process, the inventor can use a "Patent Pending" label to inform the public that the product is innovative and to discourage potential infringers.

In the patent application, the inventor must describe the "prior art" that came before her invention and discuss its flaws; she must then broadly describe the advantages of the invention. The inventor must clearly describe the invention

55 Litwak, Mark. *Contracts for the Film & Television Industry*. Los Angeles: Silman-James Press. 1998.

56 Benay v. Warner Bros. Entm't, Inc., 607 U.S. F.3d 620 (9th Cir. 2009).

and how it works, including thorough drawings where appropriate. She must list formal claims and recite the elements of invention; for example, "I claim an electric device for back-scratching, consisting of a handle, a scratcher, and a power source." "Claims" define the bounds of the claimed invention.

The PTO normally responds to the application within 12–18 months after the application. Typically, the patent office rejects most of the claims, which have often been drawn over-broad to maximize coverage. The inventor and patent lawyer then dispute the ruling, resulting in a give-and-take between the inventor and the PTO, and a reinstated application, typically with a narrower focus.

Owing to this complex interplay, only one-fifth of patent applications in the USA were filed without the assistance of a patent lawyer. To get a US patent typically costs between $10,000 and $25,000. To obtain additional patents in other countries costs another $10,000 to $20,000 per country.[59] One study estimated that a European Patent Office filing valid for 13 European Union (EU) countries costs an average of €30,000 per patent.[60]

International patent protection is governed by the Paris Convention for the Protection of Industrial Property of 1883. Signatory countries committed to a non-discrimination of foreign patents, industrial designs, and trademarks. The Patent Cooperation Treaty (PCT) in 1978 simplified the filing of patent applications. It is only necessary to file one patent application in country A, which will then protect invention in country B as long as country B is a PCT member country.

For a patent filing in a foreign country, several factors are considered.[61] They include the size of the market in the country and the environment for the protection of IPRs in that country. A patent in China offers less protection than a patent in Japan, for example.

To identify existing patents and applications, inventors and rivals can visit free government PTO Web sites for patent searches in the USA, ► http://patents.uspto.gov, in Europe, ► http://www.epo.co.at:80/index.htm, and for Japan (full text translations on payment of a fee) at: ► http://www.intlscience.com and visit ► http://www.jpo-miti.go.jp.

Patents have become much more common. In the USA, courts used to be stringent and rejected many patents. This trend reversed in the 1980s after several Supreme Court rulings, and now patents are granted more freely.[62] A new specialized Appeals Court for Patent Appeals was established. Before, one-third of patent holders won cases. After the establishment of the court, two-thirds did.[63]

The number of patent applications in the USA has increased significantly from about 100,000 in 1979 to almost 500,000 in 2007 and 630,000 in 2015. For those years the number of patents granted rose from about 50,000 to 160,000 to 325,000, almost equally between US citizens and foreigners (52.8%). In 2016, the top US patent grantee was IBM with 8088 patents. This means that on every working day about 31 new patents were generated inside IBM. The next-largest patent grantees were Samsung (5518), Canon (3665), Qualcomm (2897), Google (2835), Intel (2784), LG Electronics (2428), Microsoft (2398), Taiwan Semiconductor (2288), and Sony (2181).[64, 65] IBM received over the years some 67,000 patents. It employs about 8000 researchers in 36 countries, with an estimated 6 billion per year R&D budget that has increased by about 3–4% every year. IBM has also bought numerous other companies (140 in 2011 alone), many with a patent portfolio that was part of the acquired assets.[66]

In Europe, top applicants in 2016 were Philips (2568), Huawei (2390), Samsung (2316), LG (2313), United Technologies (2067), Siemens (1871), Qualcomm (1704), GE (1628), BASF (1410), and Robert Bosch (1327).[67]

Case Discussion

GE and Its Patents

GE's first patent was to Thomas Edison, initiator of GE, for electric lights using a carbon filament (1880). Over the first half of the twentieth century GE won more patents than any other US company. GE's research laboratory was founded in 1900. In 1902, it received its first patent for an electric fan. GE's patents included fluorescent lighting, Coolidge tube (X-ray tube), the hermetically sealed home refrigerator, and the first US jet engine. Over the course of its corporate history, GE amassed more than 67,500 patents. In 1986, GE acquired RCA (Radio Corporation of America), the leading electronic technology company in the world from the 1920s to the 1950s. In 2016, it ranked 16th in US patents granted, and seventh among US-headquartered companies with 1646 patents.[68] GE spent $5.5 billion on R&D in 2016, in areas such as aviation, renewable energy and power, and transportation.[69]

The majority of GE's many thousands of patents probably have little value. Even so, the sizable patent portfolio represents a significant deterrent to competitors.

57 Poltorak, Alexander I. "Valuing Patents as Market Monopolies." *Patent Strategy & Management* 4, no. 5 (Sept. 2003).

58 Friedman, David D., William M. Landes, and Richard A. Posner. "Some Economics of Trade Law," *Journal of Economic Perspectives* 5, no. 1 (Winter 1991): 61–72.

59 Quinn, Gene. "Overview of the US Patent Process." *Patents & Patent Law*. February 15, 2008. Last accessed June 15, 2010. ► http://www.ipwatchdog.com/patent/patent-prosecution/.

60 Von Pottelsberghe, Bruno. *Lost Property: The European Patent System and Why It Doesn't Work*. Brussels: Bruegel Blueprint Series, 2009.

61 Myers, Robert A. "Foreign Filing Considerations." *Patent Strategy and Management*. February 2003.

62 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

63 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

64 Greenwald, Ted. "US Utility Patent Grants hit Record in 2016." *Wall Street Journal*. January 9, 2017. Last accessed May 25, 2017. ► https://www.wsj.com/articles/u-s-utility-patent-grants-hit-record-in-2016-1484013229.

65 ifi Claims Patent Services. "2016 U.S. Patent Trends & Insights." January 6, 2017. Last accessed May 25, 2017. ► https://www.ificlaims.com/news/view/ifi-claims/2016-u-s-patent-trends.htm.

66 IBM. "Intellectual Property Licensing." Last accessed May 25, 2017. ► http://www.ibm.com/ibm/licensing/.

67 European Patent Office. "Top 25 Applicants." March 7, 2017. Last accessed May 25, 2017. ► https://www.epo.org/about-us/annual-reports-statistics/annual-report/2016/statistics/applicants.html#tab1.

7.2.3.3 Frontier of Patents

Patents for Genetic Life Forms

Patents on genetic life forms are controversial—especially genetically engineered life forms beyond plants. The genetic alteration of life forms provokes ethical quandaries, and fears that human, animal, and environmental safety may be compromised.[70] However, gene-based compounds have long been patented. For example, adrenaline was patented in 1907. In 1923 insulin was patented, and then in the late 1970s cloned human insulin was patented as well.

In *Diamond v. Chakrabarty*, the US Supreme Court decided in 1980 by a five to four vote that genetically modified (GM) bacteria capable of breaking down crude oil (which could be used to deal with oil spills) are patentable if they constitute a new "composition of matter." Chakrabarty was an engineer for GE, which was the real party to the patent. The decision opened opportunities to create and patent genetically modified organisms (GMOs). This became especially important for GM seeds of higher yield and resistance.[71]

In 2000, Harvard University won a US patent on a GM mouse used in medical research, but lost an appeal to obtain a patent on the same mouse in Canada.[72] In 2006, the J. Craig Venter Institute applied for a patent for *Mycoplasma Laboratorium*, a microbe form of synthetic life.[73] Over a decade later, the application had not yet been granted.

The subject of GMOs, in particular for food, has been highly controversial. Agricultural innovation is important for the growing of food, and patents have long been issued on improvements. This is an important part of rural development. Almost all conventional non-GM seeds are patentable, not only GM ones. Plant related patents have been common since the 1970s. GM corn, cotton, sugar beets, and soy have been granted "plant patents."[74] Opposition activism shifted to consumer boycotts. This led to a push for the labeling of such products. In the USA, Connecticut became the first state to pass a law requiring products using GMOs to be identified.

As the burgeoning field of biotechnology continues to push the boundaries of biological possibility, the scope and frequency of patent controversy is likely to increase. In a highly significant case in 2013, the US Supreme Court ruled unanimously that isolated human genes cannot be patented, since nothing new has been created. (*Association for Molecular Pathology vs. Myrid Genetics 2013*). Synthetic DNA can be patented, but naturally occurring DNA cannot.

7.2.3.4 Patents for Software and Business Methods

Controversy has also arisen over software patenting. Since a software algorithm is a set of mathematical formulas, computer software programs historically were not considered patentable. However, in the 1981 *Diamond vs. Diehr* case, the US Supreme Court opened the way for patent protection for some computer software when its algorithms can be incorporated into a useful process. Software patents issued by the US PTO steadily increased after this court decision, from 200 in 1981 to over 40,000 in 2013. The business logic here is that a patent offers a stronger protection than a copyright which can be circumvented by using a different coding, but follows the same basic idea. On the downside, a copyright life is much longer, but that is rarely a problem for software.

A proposed EU software directive to clarify the EU position stated that software per se cannot be patented. Owing to protest and political pressure, the directive was rejected by the European Parliament in 2005 by a vote of 648 to 14.[75] Instead of a Europe-wide software patent system, the patent protection is decided on a nation-by-nation basis.[76] A patent recognition for software was given by several countries. In 2010, Germany's high courts declared software patents as valid in the cases of Microsoft's "file allocation table" file system and Siemens' "client-server software for the automatic generation of structured documents."

Historically, one could not get a patent on a method of doing business. Thus, the ideas of selling newspapers in the street, delivering packages overnight, selling goods through mail-order catalogs, or payments through credit cards were not patentable business methods. But in the 1998 case *State Street Bank & Trust Co. v. Signature Financial Group Inc.*,[77] a US federal court opened the door to patenting business methods. In 1998, the Signature Financial Group patented a computerized system for managing mutual funds. The product (hub-and-spoke data processing system) allowed managers to pool and calculate mutual fund investments. The court ruled that business models can be considered patentable "processes" as a transformation of data. Thus, business methods have been explicitly patentable in the USA since 1998. A claimed process is patentable if it is tied to a particular machine or apparatus, or if it transforms a particular article into something different.

In 2005, the US patent office went an important step further and issued a precedent that eliminated the requirement of a "technological arts" test for a patent.[78] This decision essentially allowed any novel non-technological methodologies to be patented, including business processes and models, financial services, and financial products.

68 ifi Claims Patent Services. "2016 U.S. Patent Trends & Insights." January 6, 2017. Last accessed May 25, 2017. ► https://www.ificlaims.com/news/view/ifi-claims/2016-u-s-patent-trends.htm.

69 General Electric. GE 2016 Annual Report. Last accessed May 25, 2017. ► https://www.ge.com/ar2016/assets/pdf/GE_AR16.pdf.

70 Ormandy, Elisabeth H. Julie Dale and Gilly Griffin "Genetic Engineering of Animals: Ethical Issues, including welfare concerns." *The Canadian Veterinary Journal* 52, no. 5 (May 2011): 544–550. ► https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3078015/.

71 Smith, Tempe. "Going to Seed: Using Monsanto as a Case Study to Examine the Patent and Antitrust Implications of the Sale and Use of Genetically Modified Seeds." *Alabama Law Review* 61 (2010): 629.

72 Harvard College v. Canada (Commissioner of Patents), 4 Supreme Court of Canada, 2002.

73 As of early 2017, the patent was still pending. US Patent application: ► http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220070122826%22.PGNR.&OS=DN/20070122826&RS=DN/20070122826

74 A lawsuit (The Organic Seed Growers and Trader Assoc (OSGATA) v. Monsanto) was filed in 2011. It sought court protection for family farmers who could be sued for patent infringement if Monsanto seeds hit their property. The organic farmers lost in the US Supreme Court in 2014. OSGATA. "OSGATA et al. v. Monsanto." Last accessed May 25, 2017. ► http://www.osgata.org/osgata-et-al-v-monsanto/.

75 Pinsent Masons. "Patents Directive killed by European Parliament." *Out-Law.com*. July 6, 2005. Last accessed on June 2, 2011. ► http://www.out-law.com/page-5884.

76 BBC News. "Software patent bill thrown out." July 6, 2005. Last accessed May 25, 2017. ► http://news.bbc.co.uk/2/hi/technology/4655955.stm.

77 Ravicher, Daniel. "Software Patents in Different Jurisdictions." Presented at Freedom to Innovate South Africa Discussion of Software and Business Method Patents, Pretoria/

The court decisions in the USA triggered an avalanche of applications to grant rights to business models. Dell patented its "build-to-order" method.[79] Priceline.com patented its system of "reverse auctions." Amazon.com patented its "one-click" sales system, and used the patent in a lawsuit against the bookstore chain Barnes & Noble, claiming that the latter's Express Lane feature infringed upon Amazon's one-click shopping patent. Amazon, in turn, was sued in 2006 for violating a one-click patent held by Cordance Corp., a Seattle-based patent portfolio firm, a type of company often described as a "patent troll" (see below). Cordance unleashed a number of patent lawsuits involving its claim for a one-click patent against Apple, PayPal, and Victoria's Secret.[80]

An obscure company called Sightsound.com claimed a patent on the concept of sending movies into consumer's homes over the internet. It claimed the exclusive right to downloading films in this way without having developed a single piece of software or technology. Similarly, the concept of paying consumers to view internet ads is owned by Cybergold.

Only a few other countries have allowed business process patents, for example Australia, Japan, and Korea, whereas most European countries and Canada have not.[81] The European Patent Office rejects patent applications that lack a technical or physical feature that is useful in solving an industrial problem. Canada requires that a patentable business method must be more than an abstract idea or theorem and have a practical application. In Brazil, commercial or financial plans, principles, or methods are not categorized as inventions. In Japan, a patentable subject matter involves "a technical idea utilizing a law of nature." Business methods are generally regarded as software-related inventions and are considered to have a technical nature.

About 12,000 business processes were patented annually in America.[82] The backlash came soon. In 2007, the federal courts cut business process patents back. In the case *In re Stephen W. Comiskey*, it was decided that patents cannot be issued in business systems that depend entirely on "mental processes or processes of human thinking."[83] This greatly reduced the number of business process patent applications and made technology processes the key factor in patents.

In 2010, the US Supreme Court in *Bilski vs. Kappos*, unanimously limited patents for business ideas.[84] Two inventors, Bernard Bilski and Rand Warsaw, sought to patent a method of hedging weather-related risks in energy prices. The US PTO had concluded that the process was too abstract and denied the application. The process would be eligible for a patent only if it was "tied to a particular machine or apparatus" or if it "transformed a particular article into a different state or thing."

Case Discussion

GE Software Patents

Examples for GE's Software Patents
GE software patent #1: 6,658,330: A "method and system for upgrading software for controlling locomotives." The innovation provides control software when a train has more than one locomotive.

GE patent #2:7,437,200: "Software based control system for nuclear reactor standby liquid control logic processor." The innovation provides software backup control of a hardware-based control system.

GE patent #6: 6,901,387 (GE financial patent): "Electronic purchasing method and apparatus for performing the same." Software and hardware for an electronic payment process where only a limited account of many is issued to a customer. Among other advantages, this can prevent fraud and abuse.

GE patent #7: 7,657,521 (medical data processing) "System and method for parsing medical data." This innovation identifies text strings in medical data, associating each of them with standardized identifiers from a library.

GE patent #8: 6,253,115 (Six Sigma software): "System for implementing a design for six sigma process." This application helps implementing the design for the Six Sigma quality control process. It uses a series of independent sub-process applications.

7.2.3.5 Patent Infringements

Applying for patents is not cheap, but the cost of maintaining them can be much higher. If the patent has commercial value it will attract imitators. The inventor will have to defend the patent in the courts. Often the cost of litigation is larger than the revenue the inventor may subsequently earn from royalties or licensing. As mentioned, patenting standards have decreased, and litigation challenging patents has therefore risen, which has raised transaction costs.[85]

A patent infringement occurs if another person uses the elements of the "claims" of a granted patent. To stop them, the original inventor can obtain a court injunction (a cease-and-desist order), seek a payment for damages, or demand the return of up to three times the infringer's profits ("treble damages"). Microsoft had to pay IBM $30 million in a patent-infringement suit. The patent holder need not actually produce the invented product or process to claim infringement. Companies can just use their patents to block somebody else.

Tshwane, South Africa, January 19, 2007.

78 Petty, Scott. "Ex Parte Lundgren Opens the Floodgates for Patenting Business Processes." *Intellectual Property Today*. December 2005.

79 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

80 Mullin, Joe. "Apple and PayPal Hit With Lawsuit Over Patent For 'One-Click.'" *GigaOm*. March 15, 2011. Last accessed May 25, 2017. ► http://paidcontent.org/article/419-apple-and-paypal-hit-with-lawsuit-over-patent-for-one-click/.

81 Bloomberg, Mark H. "Patenting Business." *LatinFinance*. November 2005.

82 The Economist. "Patent Nonsense." February 5, 2010. Last accessed October 19, 2012. ► www.economist.com/node/15479680.

83 United States Court of Appeals for the Federal Circuit. in re Stephen W. Comiskey. 2006–1286, 09/461,742. September 20, 2007.

84 Bilski v. Kappos 130 U.S. S. Ct. 3218 (2010).

Patent holders can then threaten to shut down the operations of other companies.[86]

In consequence, companies often apply for patents as a defensive strategy, in order to prevent others from obtaining a patent that would block the company. In other cases, they will engage in offensive patenting.[87]

For many years, large companies rarely sued each other over patents. But today it is normal. "Patent trolls" are firms that buy or file patents and later sue other firms in their field.[88] They buy patents and operate in plaintiff-friendly states or countries.[89] Patent infringement suits grew in the USA from an annual 1500 in the 1990s to more than 3000 in the 2000s. Complex patent trials can easily cost over $5 million. The average cost to challenge a patent is $1.2 million; thus it is often cheaper and faster to pay royalties than to challenge a patent. Most suits are settled before the trial. In trials, and even with the ability of the challenger to the claimed patent to seek a friendly jury, the defenders of the patent win 58% of copyright infringement trials and 68% of jury trials.[90]

Protecting patents is relatively costlier for small firms than for large firms. Small companies, even with solid patents, can be overwhelmed by legal challenges by deep-pocket firms who tie them up while catching up in their R&D, or by patent trolls with spurious claims but with the ability to create delay.

An infringement suit that almost ruined a company was the case of NTP versus RIM, the Canadian maker of the BlackBerry smartphone. In 1990, Thomas Campana developed a method for wireless email. He patented it and founded NTP Inc. NTP had no employees and never released a product. A few years later, RIM launched the BlackBerry device and soon held about 50% of the wireless email devices market. In 2001, NTP sued RIM for patent infringement. RIM offered a modest settlement but NTP refused. One year later, the court awarded NTP $53 million in damages and punitive damages plus $4.5 million in legal fees.[91, 92]

RIM challenged the validity of the NTP patents because NTP patented but had never entered the market with a product. RIM's immediate problem, however, was much bigger. The court also created an injunction that would force RIM to stop its service by a certain date, thereby stranding its millions of customers. RIM engaged in a lot of legal maneuvers but to no avail. NTP's patents were held valid. Eventually, a jury awarded NTP the equivalent of 8.55% of RIM's BlackBerry sales in the USA.[93] The case was finally settled in 2006 after almost five years. RIM ultimately had to pay $612.5 million to NTP to license the technology.[94] It also covered large costs of litigation and lobbying, and the uncertainty over its service hurt its business.

The risk of a challenge to a vital patent has led to the emergence of IP insurance. This strengthens a small firm's bargaining position in licensing deals since the license is more secure.[95]

Another issue is the rights of patents created by employees, but not as part of their direct job. When the employee uses the employer's resources in creating the invention, the employee is the technical owner of the patent but the company is entitled to a nonexclusive, royalty free, and nontransferable license for the invention.

Case Discussion

GE Patent Infringement

GE and its ultrasound imaging rival SonoSite have repeatedly engaged in heated patent infringement lawsuits. SonoSite, a Seattle company owned by the Japanese firm Fuji Film, is a leader in small ultrasound devices and held the "412 patent" for its production—the 412 patent family.[96] After a claim by SonoSite in 2007, GE counter-sued. Eventually, GE paid $21 million for a perpetual license, plus royalties.

7.2.3.6 Are Patents Necessary?

Are patents essential? Patents may create positive economic incentives: IPR encourage technological change, provided that IP protection has a strong, positive correlation to R&D investment.[97] But critics argue that the quality of patents has eroded and that they offer too much protection.[98] Empirical economic research sheds doubt on the patent system's contribution to innovation. One study found that patents provide incentives to research and to disclose information,

85 The Economist. "Patent Nonsense." February 5, 2010. Last accessed October 19, 2012. ► www.economist.com/node/15479680.
86 Griffin, Greg. "System patently out of date, some inventors complain A CU symposium dissects U.S. patent procedures in light of an explosion in technological innovation." *Denver Post*. April 10, 2006.
87 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
88 Chapman, Glenn. "Patent wars plague Internet Age, add 'innovation tax.'" *The Sydney Morning Herald*. April 16, 2012. Last accessed October 22, 2012. ► www.smh.com.au/it-pro/business-it/patent-wars-plague-internet-age-add-innovation-tax-20120416-1x2ej.html.
89 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *Wall Street Journal*. August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.
90 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
91 Stephenson, Correy E. "Blackberry case illustrates complications of patent system," *Lawyer's Weekly USA*. February 13, 2006, 1.
92 Law360. "Supreme Court Patent Cases: Past And Pending." January 5, 2011. Last accessed June 2, 2011. ► http://www.venable.com/files/Publication/1cd1e441-c312-4c24-b797-3c66532017a4/Presentation/PublicationAttachment/95fd4a5b-15a8-47bc-9915-30bac8726f7e/McCann-PatentCases.pdf.
93 Squeo, Anne Marie and Mark Heinzl. "Patent Office Sides With BlackBerry." *Wall Street Journal*. February 2, 2006. Last accessed May 25, 2017. ► https://www.wsj.com/articles/SB113883389359662562.
94 Noguchi, Yuki. "BlackBerry Patent Dispute Is Settled; $612.5 Million." *Washington Post*. March 4, 2006.
95 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
96 MDBR. "SonoSite Announces Global Patent Settlement With GE Healthcare." October 19, 2009. Last accessed July 15, 2013. ► http://diagnosticimaging.medicaldevices-business-review.com/news/sonosite_announces_global_patent_settlement_with_ge_healthcare_091019.
97 Kanwar, Sunil and Robert Evenson. "Does Intellectual Property Protection Spur Technological Change?" *Oxford Economic Papers* 55, no. 2 (April 2003): 235–264.
98 The Economist. "World Patent War 1.0." December 19, 2011. Last accessed July 31, 2012. www.economist.com/node/21542005

but that they reduced the invention's use during the patent life.[99] Another study found that stronger patent protection did not stimulate R&D expenditures by a firm, and that the increased danger of infringing on another firm's patents exerted the opposite, a negative influence.[100] Research by Frederic Scherer found that for most American firms and industries patent protection was unimportant for decisions regarding investment in R&D. Instead, companies considered whether R&D would yield competitive advantages. The exceptions were small start-up companies entering fields in which they had little technical advantage or marketing experience.[101] Similar research was conducted by economists at Cambridge and Oxford on the impact of the absence of patent protection on the R&D behavior of British companies. Their study showed that the worldwide average reduction in R&D expenditures would be only 8% if subjected to compulsory licensing with modest fees. The exception, as in most other studies, is the pharmaceutical industry. Many surveys indicate the expectation of patent protection has a greater impact on investment in pharmaceutical R&D than in most industries. Patents are more valued in pharmaceuticals than in IT because the exclusivity of life-saving medicine makes customers' demand very price inelastic, and the monopoly's value is hence higher.

Many analyses of IP assume that patents are the sole means of protecting innovations from theft and appropriation. In the abstract, patents are supposed to make a positive difference to investment in technology. But studies show that getting a first-mover advantage can have a greater impact on investment behavior than patent protection. In a 1994 survey conducted by Carnegie Mellon University, the responses by over 1000 R&D managers show that patent protections were not very important in R&D decisions. Of several factors patent protection ranked near the bottom (34.83%) in its importance.[102] Another study by economists from Yale and Carnegie Mellon surveyed 600 managers and found that a vast majority believed that lead time, learning curves and service efforts were more effective than patents.[103] Patents were not seen as the main barriers to potential imitators. More important to R&D decisions were development and production costs regardless of patents. Other negative factors were the challenges to introduce a new product and the negative image of providing a knock-off follower product. Empirical research performed on patents by Schankerman and Lanjouw found that the value of patent protection is only about 25% of related R&D expenditures.[104] Another study concluded that most industries do not look to the patent system as the main source for invention protection. It was crucial for a few industries only, in particular pharmaceuticals.[105] Other research found that inventors rely on a variety of other ways to appropriate returns from their investment, independent of patents.[106] Joshua Lerner studied the impact of policy shifts in 60 countries over 150 years. He found support for a positive impact of patent length on innovation provided the patent protection was initially low. But the impact of patent length on innovation was negative where the patent was already high. He conjectured that market incentives were adequate to spur these innovations without additional protection.[107]

Many studies conclude that patenting does not significantly affect firms' ability to acquire monopoly power or that it may, indeed, reduce them. Zvi Griliches and Ariel Pakes studied the increase in patent applications, and whether patent length, friendly courts, or an expansion of the scope of patents play a causal role in this expansion.[108] Patent protection is found, on average, to be relatively unimportant compared with the three other first mover advantages: "technological leadership," "preemption of scarce assets," and "switching costs and buyer choice under uncertainty."[109]

Extensions of patent duration may actually reduce research incentives.[110] An increase in patent life induces the researcher to develop larger inventions, but inventions also occur less frequently. At some point in lengthening protection, the frequency effect dominates the size effect, and the rate of innovation therefore declines for increases in patent length.[111] Other research, by Waterson,[112] Kitch,[113] Cockburn,[114] and Henderson,[115] shows that patents do not necessarily create monopoly power as seen in prices, but that companies with a patent may charge a price somewhere between competitive and monopolistic. Therefore, the benefit (and incentive) of a patent is lower than postulated but also harmful to users, though at a less than monopolistic level.

But there is also counter-evidence. One study shows the share of R&D spending in gross domestic product (GDP) is affected by the extent of IP protection. The protection index

99 See Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
100 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
101 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
102 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
103 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
104 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
105 Schankerman, Mark. "Enforcing Patent Rights and Competition." OECD Conference, 2003.
106 Nancy T. Gallini. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
107 Jaffe, Adam B. and Joshua Lerner. *Innovation and Its Discontents: How Our Broken Patent System Is Endangering Innovation and Progress, and What to Do about It*. Princeton, N.J.: Princeton University Press, 2004.
108 Pakes, Ariel and Zvi Griliches. "Patents and R&D at the Firm Level: A First Look." In *R&D, Patents, and Productivity*. Ed. Zvi Griliches. (Chicago: University of Chicago Press, 1984), 57.
109 Lieberman B. Marvin and David B. Montgomery. "First-Mover Advantages." *Strategic Management Journal* 9, Special Issue: Strategy Content Research. (Summer 1988): 41–58; Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
110 Koo, Bonwoo and Brian D. Wright. "Economics of Patenting as a Research Tool." EPTD Discussion Paper No. 88. International Food Policy Research Institute and University of California, Berkley, 2002; Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
111 Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
112 Waterson, Michael et al. "Strategic Behavior of Incumbent Firms in the UK." *International Journal of Industrial Organization* 16, no. 2 (Mar. 1, 1998): 229–251.
113 Kitch, Edmund W. "The Nature and Function of the Patent System." *Journal of Law and Economics* 20, no. 2 (Oct., 1977): 265–290.
114 Cockburn, Iain and Zvi Griliches. "Industry Effects and Appropriability Measures in the Stock Market's Valuation of R&D and Patents." *The American Economic Review* 78, no. 2 (May, 1988): 419–423.

is measured on a scale of 0–5. Where such protection is negligible (Indonesia), the R&D to GDP ratio is 0.3%. As one moves to a weak protection (IP protection index 1–2) average shares rise to 0.48; for a protection index of 2–3 it is 0.84; for a protection level of 3–4 it is 1.5%; and for a protection level of 4–5 it is 1.8%. It is 2.7% for the USA and 2.3% for Sweden, both with strong IP protection. This would confirm a fairly pronounced effect of IP protection on R&D spending. (On the other hand, the percentages are fairly low for Italy and South Africa, despite strong protections.)

These findings show that business firms (and countries) should consider whether the economic benefit of obtaining a patent exceeds direct and indirect costs. The alternative may be to keep the innovation confidential and as much as possible as a trade secret, and to aggressively push it in the early stages of a rollout. Thus, patents are not the only way to go, and innovators, companies, and investors should not be mesmerized by them.

7.2.4 Trademarks and Trade Dress

7.2.4.1 Trademark Overview

Trademarks are another major category of intellectual assets. A trademark is a word, name, phrase, sound, logo, or symbol used to identify a company and distinguish its products and services. The aim of a trademark is to protect the investment in a name or logo to build reputation and brand, avoid confusion by consumers, or create brand awareness. Examples of trademarked terms are "Windows 10," "Disney World," or "iPhone."

Some names started out as distinct products by a company but were not registered. They became generic over time and lost protection. Examples are aspirin, cellophane, escalator, kerosene, yo-yo, zipper, and trampoline. In consequence, companies now make major efforts to clarify that products that are used in everyday language—such as Xerox, Kleenex, or Band Aid—are identified as distinctive trademark and use a clarifying qualification such as "Xerox copier" or "Kleenex tissue."

How does one obtain a trademark? Typically trademark registration goes through a country's patent and trademark office. Such a PTO grants the use of the registration symbol (R in a circle). But there are also "common-law" trademarks, for which no registration is required. An unregistered trademark holder can generally only defend in the area it does business in, not necessarily in the entire country. Furthermore, it cannot sue to recover damages, just prevent the use. The symbol "TM" is used for unregistered trademarks. This also prevents others from using the same or similar marks. In Europe, a trademark regulation was passed in 1993 that made a trademark valid throughout the EU and established the European Trademark Office in Alicante, Spain. In the USA, Europe, and Japan, official trademark registration lasts ten years and can be renewed forever. But if a trademark is not used for two years (five years in the EU), a presumption of abandonment is created.

What kind of words can a firm register as a trademark and thus get legal protection of some exclusivity? Easiest to protect are arbitrary new words, such as Xerox.[116] According to photography pioneer George Eastman, a good trademark should be short, easy to spell, punchy, and mean absolutely nothing—an example being his company's name Kodak. Trademark names to avoid, because they are hard to protect, are personal and family names, nicknames, initials, or words that describe a product's characteristics or location. Personal names can get protection if they become distinct, such as Ben & Jerry's for ice cream (but not for a garage, especially if the owners are indeed named that way, and avoid misleading customers that they are connected to the ice cream company).[117] To create trademark names, there are name consultants, websites, and software programs such as NameStormers. They also screen for meaning in other languages, avoiding the problems of the French soft drink Pschitt.

Beyond names, there are trademarks for unique symbols, for phrases such as "Don't leave home without it," for musical jingles, distinctive colors associated with a company, and even for odors. One can trademark a film or book title if it has acquired a distinct secondary meaning.[118]

A major trademark dispute arose over the use of the everyday word Apple. The music rock band, The Beatles, owned the music companies Apple Corps and Apple Records. About a decade later Steve Jobs's company was named Apple Computing by its founders. After a 1978 lawsuit brought by the music company, the computer company paid the music company $80,000 and both parties agreed not to enter each other's domains. This was easy for the Beatles to stick to, but the computer company soon edged into multimedia and music. Another lawsuit and settlement followed in 1991, this time for $26.5 million. The computer company agreed not to sell or distribute music. In 2003, the music company sued again, charging that the iTunes Music Store was a violation of the contract. But it lost in a British court, which accepted the defendant's classic legal argument that "only a moron in a hurry" could confuse the two. In 2007, in a third settlement, the computer company bought all the music company's trademark rights for $500 million, and licensed them back to the music company.

In a trademark violation dispute, the best strategy for a company (claiming an infringement by another party) should be to frame its private interests as a consumer interest—to help prevent consumers being misled by the alleged violator of the trademark. In one case, the studio Tri-Star sued another producer over the use of the film title *Return from the River Kwai*, which misled audiences into believing that

115 Henderson, Rebecca et al. "Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations." *The Quarterly Journal of Economics* 108, no. 3 (August, 1993): 577–598.
116 Gardner, Steven. "Basics of Trademark Law and Trademark Registration Procedures for the General Corporate Practitioner." *Campbell Law Observer*. April 1, 1999.
117 Elias, Stephen and Kate McGrath. "Trademark Legal Care for Your Business & Product Name." Berkeley: Nolo Press, 2010.

the film was a sequel to the Oscar-winning film *The Bridge on the River Kwai*.[119] Tri-Star was successful in its claim.

"Trade dress" is related to trademarks. It protects distinctive packaging and more: it is the totality of elements—color, shape, texture, design, themes, and labels. Similarity, of course, is in the eye of the beholder. Various factors are considered, with the common focus on whether a reasonable consumer would be misled. In general, the legal system tries to protect consumers, beyond the owners of the trademark. A company claiming a trademark or trade dress has a good chance of winning in court when it can show consumer confusion.[120]

There are many gray areas relating to trademark infringement. One case established the "Polaroid test" for trademark infringement, with eight factors to consider:

- the strength of the mark;
- the degree of similarity between the two marks;
- the proximity of the products;
- the likelihood that the prior owner will bridge the gap;
- actual confusion;
- the defendant's good faith in adopting the mark;
- the quality of defendant's product or service;
- the sophistication of the buyers.

Other factors are:

- the size of the plaintiff's investment in the trademark;
- the expectations of the public;
- the plaintiff's treatment of its own mark;
- the methods by which the products are advertised;
- the geographical distribution of the products;
- the similarity in appearance of the products.[121]

Internationally, trademarks are covered by the Singapore Treaty concluded in 2006, which established a regulatory framework of common standards.[122] If a company is regularly doing business in another country, a trademark registration there might help to protect it.[123] Companies may spend much effort on protecting their trademarks. At the consumer products company Unilever, the trademark team alone consists of 54 professionals based in three different countries.[124]

7.2.4.2 Case Study

GE Trademarks

GE has over 2000 registered trademarks in the USA alone. GE's primary trademark since 1900 has been the well-known GE monogram, with the stylized letters GE inside a circle with four curlicues (Fig. 7.2).

In 2003, *Business Week* ranked the GE brand the fourth "most valuable" in the world. GE trademarks the actual letters GE across many different industries, from medical technologies to fuel cells to chemical research. When it owned NBC Universal, it held many iconic trademarks of entertainment media, such as the NBC peacock and chime jingle, and Universal Studios' globe, both recognizable to most TV and film viewers.

GE also held the trademarks owned by Universal, including those for films and TV series such as *Jurassic Park*, *Magnum P.I.*, *The Tonight Show*, and *Saturday Night Live*.[125] Not only is the name *Saturday Night Live* protected, but NBC has also trademarked the initials SNL, a nickname by which the show is commonly known.

In 2011, a subsidiary of the office supply chain Staples reached a deal with NBC Universal to create a "Dunder Mifflin" paper brand that was based on the fictional paper company of the popular TV series *The Office*. NBC receives 6% of Staples' revenue from its paper sales under this brand name. The cases of paper are sold (at a price that is well above market price) for $65 each, so that NBC gets $3.90 for each case of paper reams sold.[126]

7.2.4.3 Rights of Publicity

Rights of publicity is close to trademarks in that it establishes property rights in a person's name and picture. Partly this is to protect privacy and partly it deals with the issue of who can commercialize a person's likeness. For example, the film stars Michael Douglas and Catherine Zeta-Jones sold the rights to photograph their 2000 wedding for $1.55 million to *OK!* magazine. *OK!* successfully sued a rival magazine which took and published unauthorized photographs of the ceremony.[127]

Lawsuits have arisen over what constitutes a celebrity's persona and how completely the celebrity can control it. California governor and film star Arnold Schwarzenegger sued someone who was marketing a "Governator"

118 Greene, K.J. "Abusive Trademark Litigation and The Incredible Shrinking Confusion Doctrine – Trademark Abuse in The Context Of Entertainment Media and Cyberspace." *Harvard Journal of Law & Public Policy* 27, no. 2 (2004): 608–642.

119 Greene, K.J. "Abusive Trademark Litigation and The Incredible Shrinking Confusion Doctrine – Trademark Abuse in The Context Of Entertainment Media and Cyberspace." *Harvard Journal of Law & Public Policy* 27, no. 2 (2004): 608–642.

120 Friedman, Avi. "Protection of Sports Trademarks." *Loyola of Los Angeles Entertainment Law Review* 15, no. 3 (1995): 689–716. ► http://digitalcommons.lmu.edu/elr/vol15/iss3/7.

121 There are also some "anti-dilution" statutes in the USA at state level, which protect against the diminution of the marketing value of trademarks. These laws do not require a showing of a likelihood of confusion.

122 New International Treaty. *WIPO Magazine*. April 2006. (An earlier common framework was the Madrid Protocol, which offered a trademark owner in one country the ability to obtain registration in many other foreign countries.)

123 Internicola, Charles. "What Are The Benefits of The International Trademark Registration Process?." Charles N. Internicola, Business and Franchise Lawyer, 2011. Last accessed June 2, 2011. ► http://www.franchiselawsolutions.com/faqs/what-are-the-benefits-of-the-international-trademark-registration-process.cfm.

124 Managing Intellectual Property. "25 ways to be a more effective TM manager." May 1, 2006. Last accessed May 25, 2017. ► http://www.managingip.com/IssueArticle/1254631/Archive/25-ways-to-be-a-more-effective-TM-manager.html.

125 Legal Force Trademarkia. "Magnum." July 15, 2013. Last accessed May 25, 2017. ► http://www.trademarkia.com/magnum-73281111.html.

126 LoGiurato, Brett. "Dunder Mifflin Paper Comes to Life as NBC, Staples Strike Licensing Deal." *International Business Times*. November 28, 2011. Last accessed June 18, 2013. ► http://www.ibtimes.com/dunder-mifflin-paper-comes-life-nbc-staples-strike-licensing-deal-375734.

Fig. 7.2 GE trademarked logo

bobble-head doll of Schwarzenegger in a business suit holding a machine gun.[128] With him being a public official, the case seemed weak. On the other hand, a movie star and a Hollywood distributor could claim rights to a particular image, though a satire had more leeway. The parties settled before a court ruling. Ohio Discount Merchandise (ODM) was allowed to continue to produce a bobble-head with Schwarzenegger's likeness, under the condition that it removed the gun from the figurine. ODM also agreed to donate part of its sales proceeds to Schwarzenegger's non-profit after-school program in Los Angeles.[129]

The rights of publicity that prove central to celebrities over the use of their persona can easily conflict with the First Amendment free speech rights, since they can provide a means to block biographers, photographers, and film-makers from covering a person's life. In the USA, authors need no permission to write an article or an "unauthorized" biography about someone. On the other hand, consent must be given to use another's name or likeness for some type of gain, financial or otherwise. This is therefore a fine line to toe. For example, Elvis Presley's heirs have the rights to control the commercialization of Elvis' identity. This has been applied aggressively, and authors and publishers try to avoid costly lawsuits. Similarly, the heirs to Martin Luther King Jr. have claimed exclusive rights to King's "I Have a Dream" speech.[130] In another case that went to trial, the heirs of civil rights icon Rosa Parks sued the hip-hop group OutKast and record company for no less than $5 billion over their 1998 song entitled "Rosa Parks."[131] The case went to the US Supreme Court and lasted for years, and in the end the Parks heirs largely lost the case and had to accept a minor settlement.

In the UK, Eddie Irvine, a Formula One racing driver, sued Talksport Radio. Talksport took an unauthorized image of Irvine and superimposed a Talksport radio onto the image (to make it look as if he was holding it). This image was used in a brochure that Talksport sent to advertisers. The British courts held that this was falsely suggesting an endorsement. Courts in other jurisdictions do not necessarily provide celebrities with the same protection. In 2000, Hong Kong pop star Andy Lau lost his case against a bank that offered credit cards with the singer's image without a direct license from him. A court, implausibly, ruled that merely putting an image on a credit card did not suggest an endorsement,[132] and that the bank had therefore not violated Lau's right of publicity.[133, 134]

Case Discussion

Right of Publicity

Oksana Baiul, a Ukrainian figure skater, won the World Championship in 1993 at the age of 15 and in 1994 the Olympic gold medal a year later. She claimed that her appearance was promised by NBC to its viewers for two skating events even though she had not agreed to take part. She was then negatively portrayed as a "no show" after declining to appear.[135] According to Baiul, "her likeness, persona, and image were used illicitly in marketing." Eventually, the case was thrown out and her lawyer was sanctioned.[136]

7.2.5 Copyrights

7.2.5.1 Copyright Overview

Copyright is the property right created by law that grants to the creator of an original work the exclusive rights for its use and distribution. It originally covered books and then expanded far beyond printed works to almost any form of expression, including dance, music, paintings, photographs, movies, software, TV shows, sports, computers, architectural sketches, and computer chip designs. In music, for example, these rights include reproducing and distributing copies, making derivative works based upon the copyrighted work, performing publicly, and more. Copyright gives the owner, for a certain period, exclusive rights to use (or to not use) and to transfer ownership of the work. After that period, the work moves into the public domain.

As mentioned earlier, the first copyright privilege was issued in Venice in 1469. In 1710, the first copyright law was passed in England, known as the Statute of Anne after the contemporary English queen. In 1787, the US Constitution

127 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
128 Bennett, Drake. "Star Power Celebrities Have a Legal Right to Prevent the Commercial Use of their Images Without Permission. But Are They Silencing Artists and Satirists as Well?" *Boston Globe*. June 4, 2006.
129 Ochoa, Tyler. "The Schwarzenegger Bobblehead Case: Introduction and Statements of Facts." *Santa Clara Law Review* 45, no. 3 (2005): 547–556.
130 Wolff, Michael. "Pride and Property." New York. May 14, 2001. Last accessed May 25, 2017. ► http://nymag.com/nymetro/news/media/columns/medialife/4681/#.
131 "OutKast's Tribute." *Know Your World Extra* 29, no. 9 (February 2006): 6–7.
132 Pendleton, Michael D. "Sponsorship Rights and Passing-off Actions: Test Cases." *Asia Law*, October 2007. Last accessed July 27, 2010. ► http://www.asialaw.com/Article/1970932/Search/Results/Sponsorship-Rights-and-Passing-off-Actions-Test-Cases.html.
133 Irvine v. Talksport Ltd., [2003] EWCA Civ 423. ► http://www.ipo.gov.uk/ipcass/ipcass-alphabetical/ipcass-alphabetical-fj/ipcass-irvine.htm/.
134 Leaffer, Marshall. "The Right of Publicity: A Comparative Perspective." *Albany Law Review* 70, no. 4 (Fall 2007): 1357–1374.
135 Marsh, Julia, and Dan Mangan. "Oksana suing for cold cash." *New York Post*. February 5, 2013. Last accessed June 5, 2013. ► http://www.nypost.com/p/news/national/oksana_suing_for_cold_cash_CgA7xDrUKvAZvE070MAjYL.
136 Wilson, Daniel "Biaul's Atty Sanctioned over 'Frivolous' NBC Suit." *Law360*. May 19, 2016. Last accessed May 25, 2017. ► https://www.law360.com/articles/798494/

listed the protection of authors as one of the specific powers of federal government, and the first US copyright law was passed in 1790, among the very first pieces of legislation on the federal level. Exclusive rights were given for 14 years, being renewable for another 14 years. But by the twenty-first century, both American and European copyrights had lengthened considerably. In 1962, US copyrights were extended to 28 years, renewable for an additional 28 years. Over the next 40 years, the US Congress extended the lengths of copyrights 11 times. In 1998, the Sonny Bono Act, named in commemoration of its chief sponsor, the Congressman and pop singer (in the duo Sonny and Cher) who died in a skiing accident, added another 20 years to the previous periods of 50 years beyond the life of the author and 75 years for works of corporate authorship.

These are very long periods, especially since the economic value of most copyrighted works is far shorter than these extensive periods of protection. But there are notable exceptions, among them creations whose authors and artists died in the early or middle part of the 20th century but whose works still produce income today. This includes films by Charlie Chaplin, and Walt Disney which benefited from the 20-year retroactive extension. Other beneficiaries were the heirs to Edward Munch, Glenn Miller, Wassily Kandinsky, Jerome Kern, Theodore Dreiser, H.G. Wells, R.L. Ripley, Hank Williams, Albert Camus, Ernest Hemingway, e.e. cummings, and Ian Fleming.

A copyright notice contains three elements: the symbol or word copyright, the year, and the name of the copyright owner. Use of the © mark is not necessary. However, the extent of how much notice is given will affect, in an infringement lawsuit, the size of damages that would be awarded. To obtain a copyright, no formal registration is necessary. But if there is no registered copyright one cannot usually sue for damages but only stop the copying and distribution. Registration provides evidence of the creation and is a notice to others that they cannot use the work**.** This is especially necessary for screenplays and manuscripts that circulate. While contract-based protections such as non-disclosure agreements are also available, registration provides good evidence in a potential court case.[137]

To register for a formal copyright, the owner sends a copy of the work to the Copyright Office (in the USA at the Library of Congress), files a copyright registration application, and pays a registration fee.

7.2.5.2 What can Be Copyrighted?

Many things can be copyrighted. Literary and dramatic works, sound recordings, choreographic works, pictures, graphics and sculptural works, motion pictures, and computer software, names (and logos) of programs, or program format, and set designs can all be protected by copyright trademark. After 1984, copyright protection was provided in the USA and other countries for mask works (the original etching) of semiconductor chips, providing protection for 10 years.

What cannot be copyrighted? An idea or a fact, by itself, cannot get a copyright, though the actual expression of the idea or the fact itself is protected. But if a different wording is used for the idea there is no copyright violation, at least not in America. Simple lists of facts do not get a copyright, for example, phone directories arranged alphabetically. This was decided by the US Supreme Court in 1991 when it denied copyright protection for databases that did not involve some original "creative" selection and/or organization of data. Until then, the legal theory was that a "sweat of the brow" effort created copyright for a database. The management consequence therefore is for such lists to be either kept as a trade secret or to be augmented and transformed in some fashion.

The US government cannot copyright its own documents; they are in the public domain unless formally classified as secret. Commercial firms can republish the information, add some information, then resell it. In some cases, such as aviation instrument flying charts, the publishers tried to bring political pressure to bear on the government to stop publishing its information widely and thus providing a competitive alternative to the commercial firms.

Can the way that a play is staged by a director be copyrighted? This question arose over the stage direction of a musical. To produce the Broadway show *Love! Valour! Compassion!* in Boca Raton, Florida, the Florida director travelled to New York and measured the Broadway stage and settings to replicate the original stage direction. A lawsuit ensued, and the court found that stage directions are not copyrightable.[138]

Direct and unauthorized copying of someone else's work is a copyright violation. Quotes and paraphrases with attribution are acceptable within reason, as are innocent omissions of attribution, especially where the content is not central to the new work or in not truly unique. But there is a gray area when it comes to the commercial use of another person's central ideas without attribution or compensation. Such borrowing has a long history, such as the retelling of someone else's joke. But today, some authors (or wannabes) will sue.

The mega-selling book (and film) *The Da Vinci Code* by Dan Brown led to such a copyright dispute. In 2006, the two authors of another book entitled *The Holy Blood and the Holy Grail* sued Brown and Random House, his publisher, for allegedly stealing ideas from their own book, without attribution or compensation.[139] They could not claim that Brown copied their actual words, but that he used the "architecture" of their book (i.e. the steps they took to reach their conclusions.) The court ruled that merely receiving inspiration from another

baiul-s-atty-sanctioned-over-frivolous-nbc-suit.

137 Litwak, Mark. "Frequently Asked Questions: Copyright." *Mark Litwak's Entertainment Law Resources*. Last accessed June 27, 2011. ► http://www.marklitwak.com/faq/copyright.html.

138 Mantello v. Hall, 947 U.S. District Court, New York 92 (1996).

139 Lyall, Sarah. "Idea for 'Da Vinci Code' Was Not Stolen, Judge Says." *New York Times*. April 8, 2006. Last accessed May 25, 2017. ► http://www.nytimes.com/2006/04/08/books/idea-for-da-vinci-code-was-not-stolen-judge-says.html.

work does not qualify as copyright infringement, because an idea cannot be copyrighted.[140]

Even where another work's words are not used, creating a work that is derivative of someone else's story or character, such as an unauthorized sequel, could infringe upon copyright (unless it is "fair use" or a parody), despite every word and name being original. But just to make doubly sure, creators who want to protect character names or titles of their work—which cannot be copyrighted—may instead seek a trademark.

Patent protection deals mostly with technological property, whereas copyright protection is mainly concerned with literary and artistic property. But in some cases, both are available. Computer software or semiconductor designs (as mentioned) qualify for either. Which then to choose? A patent offers strong protection but for a relatively short period (17–20 years) and must satisfy strict standards, such as novelty. Obtaining a patent can be long and expensive, and the inventor has no enforceable rights until a patent is issued. A copyright offers relatively soft protection against direct copying for a very long period (creator's life plus 70 years). It can be obtained early and quickly.

Shakespeare took the story for *Romeo and Juliet* from *The Tragical Historye of Romeus and Juliet* (1562, Matteo Bandello). He took the story for *Julius Caesar* from Sir Thomas North's 1579 translation of Plutarch's *Lives*. Today, would Shakespeare be considered in violation of copyright because he used earlier stories for *Romeo and Juliet*? No; because he is not using the language of the predecessors, only the basic story, to which significant additions are made. However, this has become an increasingly close question as claims of copyright of a "format" have succeeded.

Copyrights for TV shows have been a contentious issue. In 2003, the TV network CBS brought a lawsuit against its rival ABC, claiming that ABC's reality TV program, *I'm A Celebrity … Get Me Out of Here*, was a copy of CBS's *Survivor*, but ABC won the suit since it could show that its show was an original format.[141, 142] A show by the Fox Network called *The Next Great Champ* had a format very similar to NBC's show *The Contender*. Yet NBC did not take legal action, and had to change the start date for its own show. Then NBC sued Fox, trying to get an injunction to block the airing of the show. The judge dismissed that motion, holding that a lawsuit over money was the proper avenue, rather than restraint of speech.[143] In the end, NBC's *The Contender* proved to be the stronger show, while the Fox show was perceived to be a rushed knockoff.

In the UK, the basic plot of a theatrical play has been held to be protected by copyright, but such protection does not exist for TV formats. Brazil and the Netherlands, in contrast, have given TV formats a copyright protection, perhaps because these countries are successful exporters of TV shows and formats. Two TV companies, Endemol and Castaway, got into a dispute over the originality of Endemol's *Big Brother* program. Castaway TV argued that the *Survivor* format was a copyright work by virtue of its unique combination of 12 elements. But the Dutch court ruled that the format of *Big Brother* was not an infringing copy.[144, 145, 146]

Format and content similarities can occur by coincidence. For reality shows especially, there is a very fine line between an original and a copied format. The best-selling English author Barbara Taylor Bradford sued an Indian Bollywood production company, Sahara Television, in an Indian court for copyright infringement, claiming that the company had plagiarized the plot of her book *A Woman of Substance*,[147] and turned it into a 260-episode television series, *Karishma: A Miracle of Destinies (2003),* the most expensive production in Bollywood history at the time. But Bradford eventually lost the case before the Indian Supreme Court.

It is difficult to gain and protect exclusive copyrights for a format because it is, after all, an idea or a concept, and these cannot be protected by copyright law. Trademark may help to protect the titles, catchphrases ("you're fired"), and other identifiable elements. Also protectable are sets, props, and graphics.[148] In 2000, the industry created a Format Recognition and Protection Association to clarify rules on format copyright and to arbitrate claims.[149]

In the USA, fashion designs are not fully protected under any one of the traditional rubrics of IP law (trademark, patent, copyright). There are no laws protecting fashion designs, and copycat versions have generally been held to be legal.[150, 151] Copyright law protects original prints, patters, unique color arrangements, and so on. It does not, however, protect the design itself. If an imitator makes a dress that looks stylistically just like a $5000 Zack Posen™ but has changed the color from green to blue, it would not be a copyright infringement.

140 Lazar, Bart A. "Court says 'inspiration' does not infringe." *Marketing News* 40, no. 9 (May 15, 2006): 6.

141 Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times.* January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html.

142 David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." *Television Business International* 4, (April 2002): 1.

143 Paulsen, Wade. "Fox's 'The Next Great Champ' wins First Amendment court fight against NBC's 'The Contender.'" *Reality TV World.* September 1, 2004. ► http://www.realitytvworld.com/news/fox-the-next-great-champ-wins-first-amendment-court-fight-against-nbc-the-contender-2864.php#3FLXs9ZLKwPXVvyw.99.

144 Waisbord, Silvio. "Understanding the Global Popularity of Television Formats." *Television & New Media* 5, no. 4 (2004): 359–383; Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times*. January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html; David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." Television Business International 4, (April 2002): 1.

145 Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times.* January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html

146 David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." *Television Business International* 4, (April 2002): 1.

147 Desai, Rachana. "Copyright Infringement in the Indian Film Industry." *Vanderbilt Journal of Entertainment Law and Practice* 7, no. 2 (2004–2005): 259–280.

148 Johnson, Debra. "UK: Formatting a plan to protect copyrights." *Variety* 390, no. 5 (March, 2003): 28.

149 Challis, Ben and Jonathan Coad. "Format Fortunes – Is There Now a Copyright for the Television Format?". *Monday Business Briefing*. September 9, 2004.

150 Cox, Christine and Jennifer Jenkins. "Between the Seams, A Fertile Commons: An Overview of the Relationship Between Fashion and Intellectual Property." Presented at Norman Lear Center Conference. USC Annenberg School of Communication, Los Angeles, CA, January 29, 2005.

151 United States Patent and Trademark Office. "A Guide to Filing a Design Patent Application." Last accessed October 28, 2010. ► http://www.uspto.gov/web/offices/pac/design/definition.html#difference.

What is protected are images on clothing. One cannot imitate the Chanel™ Cs on an outfit, or Tiffany's™ Blue but one can duplicate the look of a Chanel™ bag. Copycat versions of bags are held to be legal. Even established companies produce knockoffs of famous brands that they sell at a much lower price.

To deal with this problem for fashion designers, New York senator Charles Schumer introduced in 2010 the Innovative Design Protection and Piracy Prevention Act. The bill proposed adding "Fashion Design" to "Designs Protected" under the Copyright Act. It would have given fashion designs a protection period of three years against knockoffs.[152] But there was only limited sympathy in Congress to protect overpriced fashion.

The EU protects fashion designs. Since 2002, designers can register their designs and obtain protection for designs that are new and unique. The protected period is five years, with renewals up to 25 years. Unregistered designs are protected for three years. Courts can issue injunctions to stop infringements, levy fines, and seize the products.[153]

Copyright laws differ somewhat in every country. In some jurisdictions such as France, the "moral rights" of creators against the alteration of work give them the right to participate in the future profits of resale. Moral rights in a work refer, in particular, to the right to be known as the author of a work, and to the right of authors to prevent others from doing things to her work which can hurt her reputation. Moral rights are retained by an author even if all the other rights are assigned to another. Moral rights cannot be assigned to anyone else by the author.

In contrast, in the USA and the UK such rights barely exist. In 1990, the US Congress enacted the Visual Artists Rights Act, to include limited moral rights for new works of visual art. The artist has the right to claim authorship in his works and disclaim authorship in works that have been altered. However, the statute only covers a limited scope of subjects—visual art, which is a painting, drawing, print, or sculpture that exists in less than 200 copies and is signed and numbered by the author. Moreover, the work must not be made for hire. It offers only limited protection for artists.[154]

7.2.5.3 International Copyright Protection

The USA was pro-piracy in its early years—in fact, the first US copyright law of 1790 explicitly limits the protection of foreign works (typically British ones). This attitude toward foreigners' IP rights encouraged the widespread legal piracy of English books. Only in 1891 did the USA begin to recognize international copyrights. This follows the classic pattern that a country which is primarily an importer of creations and innovations is disdainful of foreigners' IPR, until that country becomes an exporter itself.

There is no such thing as an "international copyright." However, through international treaties and agreements many countries recognize each other's copyrights. Such agreements began with the Berne Convention for the Protection of Literary and Artistic Works in 1886.[155] Each country respects the copyrights of other signatory countries and applies the copyright laws of that nation in which the work is originally copyrighted. The minimal protection period is 70 years for authors and 50 years for performers. The USA eventually adopted the terms of the convention in 1989. The Berne Convention aimed to help non-national authors and publishers receive payment wherever their works are sold.

Another landmark international treaty is the 1961 Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. This convention, which the USA has not signed, extended such protections to musical and audio media.[156]

Another treaty, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIP, 1994), established minimal requirements and procedures for enforcement.[157] In 1996, The World Intellectual Property Organization Copyright Treaty was created, partly in response to the emergence of the internet and online distribution.[158] Among other provisions, the treaty establishes that computer programs may be protected as literary works.[159]

Most importantly, that treaty created the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations (UN) in Geneva, with over 180 member-nations. Because WIPO has its own financial source in its hefty payment and patent registration fees, it is said to be the richest United Nations agency.

The WIPO's principles are "national treatment" and "material reciprocity." A government is obliged to protect the IP rights of foreign owners in the same way that it protects the rights of national holders, as long as the foreign country grants reciprocal rights. WIPO has also created an arbitration and mediation system.

152 Innovative Design Protection and Piracy Prevention Act. August 5, 2010. ► http://www.counterfeitchic.com/Documents/IDPPPA_as_introduced_8-5-10.pdf.

153 Jimenez, Guillermo, Lara Corchado, and Kristen Kosinski. "Should the United States Protect Fashion Design? The Proposed Design Piracy Prohibition Act." New York State Bar Association. Last accessed October 28, 2010. ► http://www.nysba.org/AM/Template.cfm?Section=Home&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=43396.

154 Visual Artists Rights Act of 1990 (VARA), 17 U.S.C. § 106A.

155 United Nations. *Berne Convention for the Protection of Literary and Artistic Works*. (1979). Last accessed June 6, 2011. ► http://www.wipo.int/treaties/en/ip/berne/trtdocs_wo001.html.

156 ILO/UNESCO/WIPO Intergovernmental Committee. "Information on the states not party to the Rome Convention but party to the international copyright conventions referred to in Article 24 of the Rome Convention." Presented at Geneva, Sept. 7–9, 2009, Last accessed May 25, 2017. ► http://www.wipo.int/edocs/mdocs/govbody/en/ilo_unesco_wipo_icr_20/ilo_unesco_wipo_icr_20_3.pdf.

157 United Nations. Agreement on Trade-Related Aspects of Intellectual Property Rights. (1994). June 6, 2011. ► http://www.wto.org/english/tratop_e/trips_e/t_agm0_e.htm.

158 United Nations. WIPO Copyright Treaty. Presented at Geneva, 1996. Last accessed June 6, 2011. ► http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html.

159 United States of America. International Copyright Relations of the United States. Washington D.C.: U.S. Government Printing Office, 2010. Last accessed June 7, 2011. ► http://

Another major international organization dealing with IP violations is the international criminal law enforcement cooperative organization Interpol and its Global Congress on Combating Counterfeiting and Piracy.

7.2.5.4 Copyright Infringement

Infringement of a copyright is not always easy to recognize. One test for infringement is the likelihood of confusion by a user. This can refer to objective similarity or to subjective perceptions. Use of even a small part of the work may be considered infringement if it uses a significant part of the protected work (especially in music).

Most users do not realize that they may infringe on copyrights by engaging in distributing articles or reports electronically to others without permission. Employees at the financial investment firm Legg Mason forwarded electronic copies of a newsletter among its office staff. In court, they claimed they did not know that they were infringing on a copyright. The court, unpersuaded, required Legg Mason to pay $20 million to the newsletter publisher.[160]

The cost of getting permission from a copyright license holder is not just the payment. It is time consuming to determine what copyright permissions applies to what content/documents, and by whom. To assist with this, countries establish public sources to provide this service. The Copyright Clearance Center (CCC) in the U.S. established Rightsphere, a computer database which stores all of a company's copyright, licensing, and per-use permissions information in one place.

Infringement is often not easy to define. In 2006, several major TV networks and film studios sued the cable TV company Cablevision, which wanted to incorporate personal video recording into its network.[161] This would allow users to record every TV show, with the technology built directly into Cablevision's network. According to the studios, the companies had only licensed Cablevision for simultaneous broadcast, not for, in effect, a personalized video-on-demand system.[162] In a similar lawsuit, major music companies sued the XM satellite radio company for copyright infringement. XM's Inno device enabled users to pick songs from the radio and to store them in lengthy playlists. Record companies claimed that this made XM into a music distributor, not just a broadcaster, which required much higher licensing fees. XM eventually settled with the music labels.

7.2.5.5 "Fair Use" and "First Sale"

The fair use exemption permits making and distributing copies for research, teaching, parody, journalism, and library activities. Media firms hate fair use, but universities rely on it. Factors that determine fair use are its purpose (i.e. a non-profit educational purpose); the amount (only a small or non-central part of the total work may be used), and the market (the use does not have a major effect on the market for the work).[163]

Fair use was at issue in 2005 when book publishers sued Google for copyright infringement.[164] Google had started to scan books and make them available through its search engine when they were out of copyright, but also intended to expand the project to copyrighted works. Developing an electronic library, as many university and public libraries have done, falls under the terms of fair use. However, creating such a digital library for commercial purposes requires permission of the copyright holders. Publishers argued that Google, while not charging for access to the books, was using the digital library to increase the number of visitors to its site, and therefore raise its advertising revenue.[165]

When it comes to parody, courts have been lenient in accepting fair use.[166] Thus a film producer could create a parody to the film *Casablanca* with the title of *Uncasablanca*, if it is distinguishable and does not purport to be a sequel.[167]

While copyright holders tend to be critical of fair use, users argue that it has significant economic benefits. The Computer and Communications Industry Association claims that fair use exceptions are responsible for more than $4.5 trillion in annual revenue for the US economy, which would represent an extraordinary one-sixth of the entire US GDP.[168] A more realistic perspective is that restrictions on fair use would inhibit legitimate comment and study and thus reduce the vitality of education, creativity, and democracy.[169]

Another legal limitation to copyright is the first-sale doctrine, which has existed in the USA since the Supreme Court recognized it in 1968. Once a copyrighted work is sold, purchasers are free to resell, rent, and use the work in other ways, with respect to a third party, though they are not free to make copies and resell them. A video store's traditional business model, buying a movie cassette or DVD disc and renting it, is a good example of the first sale doctrine. The video rental company Red Box purchases and rents copies of movies through its vending machines, but it cannot copy the discs without a license to do so.

www.copyright.gov/circs/circ38a.pdf.

160 Brynko, Barbara. "Life, Liberty, and the Pursuit of Copyright." *Information Today* 23, no. 6 (June 2006): 50–51.

161 Grant, Peter. "Cablevision Recording Plan Draws Copyright Suit." *Wall Street Journal*. May 25, 2006.

162 Associated Press. "Studios Sue Cablevision Over New Service." *New York Times*, May 25, 2006. Last accessed May 25, 2017. ► http://www.nytimes.com/2006/05/25/business/media/25cable.html.

163 Minow, Mary. "How I Learned to Love Fair Use." Stanford Copyright & Fair Use Center. July 6, 2003. Last accessed May 25, 2017. ► http://fairuse.stanford.edu/commentary_and_analysis/2003_07_minow.html.

164 Gilbert, Alorie. "Publishers Sue Google Over Book Search Project." *CNET News*. October 19, 2005. Last accessed June 21, 2010. ► http://news.cnet.com/Publishers-sue-Google-over-book-search-project/2100-1030_3-5902115.html.

165 Gilbert, Alorie. "Publishers Sue Google Over Book Search Project." *CNET News*. October 19, 2005. Last accessed June 21, 2010. ► http://news.cnet.com/Publishers-sue-Google-over-book-search-project/2100-1030_3-5902115.html.

166 Warner Bros. and J.K. Rowling v. RDR Books 575 U.S. F.Supp.2d 513 (2007).

167 U.S. Copyright Office-Fair Use. title 17, U. S. Code. Last accessed May 25, 2017. ► http://www.copyright.gov/fls/fl102.html.

168 Computer and Communications Industry Association. "Fair Use Economy Represents One-Sixth of U.S. GDP." September 12, 2007. Last accessed February 19, 2008. ► http://www.ccianet.org/artmanager/publish/news/First-Ever_Economic_Study_Calculates_Dollar_Value_of.shtml.

169 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed August 1, 2012. ► http://www.economist.com/node/1534271.

Case Discussion

Fair Use

Republican Presidential candidate Mitt Romney in 2012 used in part of his campaign advertising a clip from a 1997 NBC Nightly News report featuring the news anchor Tom Brokaw. NBC claimed that no permission had been given. In effect, the network's position was that while it was free to show clips of Romney, Romney was not free to use clips of Brokaw. The Romney campaign argued that the footage was a small segment of a 14-year-old NBC newscast for which there was no market value, and it was used in a campaign ad, not for profit. It was in the best interest of the public to have full information on a presidential election, and not permitting usage would prevent the flow of information.[170] In the end, NBC recognized the weakness of its legal and public relations positions and did not push its complaint further.

7.3 The Commercialization of Intellectual Assets

Now that we have described IAs and their scope and limits, we will look at how one creates value from them. This raises questions about the importance of the IA and how it fits with the company's overall strategic priorities.

7.3.1 Assessing the Importance of an Intellectual Asset

How to judge the importance of an item of intellectual property? One way is to use the public record. Applications and registrations for patents, copyrights, and trademarks are public. In the case of patents, the applications require specific references to "prior art." This permits a check on which patents are out there and which seem to be important to subsequent inventors. This information can be used to check on the importance of a patent and its place in the broader technology trends of its field, as well as the technology status of rival firms and inventors.

Patent "parents" (backward citations) show the influences of prior art, assessing whether an innovation potentially infringes on a prior patent and whether a firm should acquire a license before using the technology. One can also trace an invention's "children" (forward citations): Who has been influenced? Where did it lead? Are there potential infringements? Does it provide clues to technology competitors and to potential licensees?

Figure 7.3[171] shows the "children" of patent no. 5153830 ("Method and Apparatus for providing assistance with respect to the development, selection, and evaluation of ideas and concepts") awarded to Fisher Idea Systems. Six subsequent

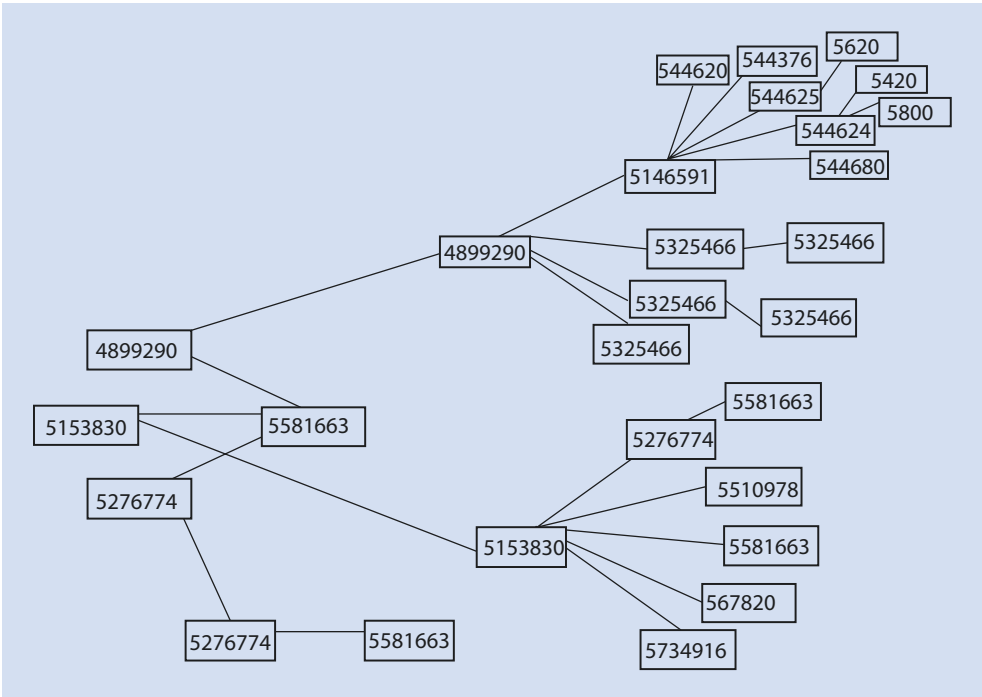

Fig. 7.3 Mapping of the *Prior-Art* interrelationship of patents

170 Paulsen, Ken. "First Amendment Center." *First Amendment Center*. January 30, 2012. Last accessed June 13, 2013. ► http://www.firstamendmentcenter.org/copyright-law-favors-romney-in-ads-use-of-nbc-news-report.

171 Based on Aurigin Systems, Inc. 1999. Aurigin is now part of the Clarivate company.

patents refer to it; while 14 patents refer to #4899290 ("For a system for specifying and executing protocols for using iterative analogy and comparative induction model based"), awarded to Digital Equipment Corporation (DEC) which seemed to be a rival.

Of course, some patents are much more important than others. In patent valuation, the more other patents cite a patent as "prior art," the more fundamental and valuable it is likely to be. This increased value is known as "citation impact." Empirically, citation impact of a firm's patents is positively correlated to its profitability.[172] Furthermore, the more a patent cites scientific papers as "prior art," the more science-based it is likely to be; this generally yields a higher-value patent. Conversely, the more other patents are cited in an application as "prior art," the more likely it is to be a less-valuable derivative variation. It is also more likely to be challenged.

Patent application patterns reveal development trends in various technology sub-fields. An upward trend in patent filings in a sub field indicates an active technology development and its relative importance. The applications can be used by a firm to identify competitors and their strengths, potential partners, likely licensers, and potential targets for acquisition.

7.3.1.1 Case Discussion

GE's Top Cited Patent

GE's most cited patent was # 3,745,623: "Diamond tools for machining" (1972), an invention for a carbide-supported polycrystalline diamond cutter used in oil drilling. It was cited in 163 other patent applications by others. In turn, GE's original patent application referenced three other patents: two also held by GE and one held by the tooling supplier Kennametal (#3,702,573).[173]

Table 7.1 illustrates the use of such information. Other companies, in their own patent applications in the diamond drilling patent applications, reference GE patents numerous times. Smith International's patents list GE's particular diamond drilling patent 42 times. Smith is a supplier to gas and oil companies, with annual revenue of $10.7 billion, and owned since 2010 by Schlumberger, the world's largest oil field company, with revenues of $42.15 billion and 180,000 employees. Smith (i.e. Schlumberger) is an excellent prospect for a license by GE.[174] On the other hand, Smith/Schlumberger's own patents seem to be of much less an interest to GE, with only three references to them in its diamond drilling patents.[175]

It is the opposite with Kennametal, a supplier of tooling and industrial materials. Relevant GE patents cite Kennametal patents 21 times, while there are only six citations in the opposite direction. It seems that Kennametal has many more patents of interest to GE rather than vice versa, and it might be a good and possibly essential source of technology licenses.

The third category of companies is represented by US Synthetic and Baker Hughes. Here, diamond drilling technology seems to be balanced in both directions. There would be a good opportunity for a patent pool, agreeing to use each other's technology without having to pay license fees.

Table 7.1 GE's drilling patents and prior art citations

Company	Number of patents, by company, citing a GE drilling patent	Number of citations, by company, in GE drilling patents (Hypothetical)
Smith International	42	3
US Synthetic	27	19
Baker Hughes	13	18
Kennametal	6	21
Others	75	101

7.3.2 Aligning Intellectual Assets with Strategy—IA Audits

A second tool for IA analysis is the internal IA audit. A company must systematically review what it owns, what it needs, and what it could sell or otherwise dispose of. An "audit map" represents visually which IAs are most valuable to the firms' business strategy. The X-axis is for Ias, showing the asset's fit and importance in the company's current and future plans, and the Y-axis is the rate of growth of that business line as a ratio to GDP growth.

Figure 7.4[176] shows in broad terms which IAs have the most commercial value for the business. The most valuable patents are in the northwest quadrant—the high growth

172 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

173 Wentorf, Jr., Robert H. and William A. Rocco. Diamond Tools For Machining. U.S. Patent 3,745,623 filed April 8, 1970, and issued July 17, 1973.

174 Schlumberger Limited. "Financial News: Schlumberger Announces Fourth-Quarter and Full-Year 2012 Results." January 13, 2013. Last accessed July 15, 2013. ► http://investor-center.slb.com/phoenix.zhtml?c=97513&p=irol-newsArticle&ID=1775981&highlight=.

175 Nemeth, Bela J. Cermet product and method and apparatus for the manufacture thereof. U.S. Patent 3,702,573 filed March 19, 1969, and issued November 14, 1972.

176 Based on Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. (Boston: Harvard Business School, 2000), 68.

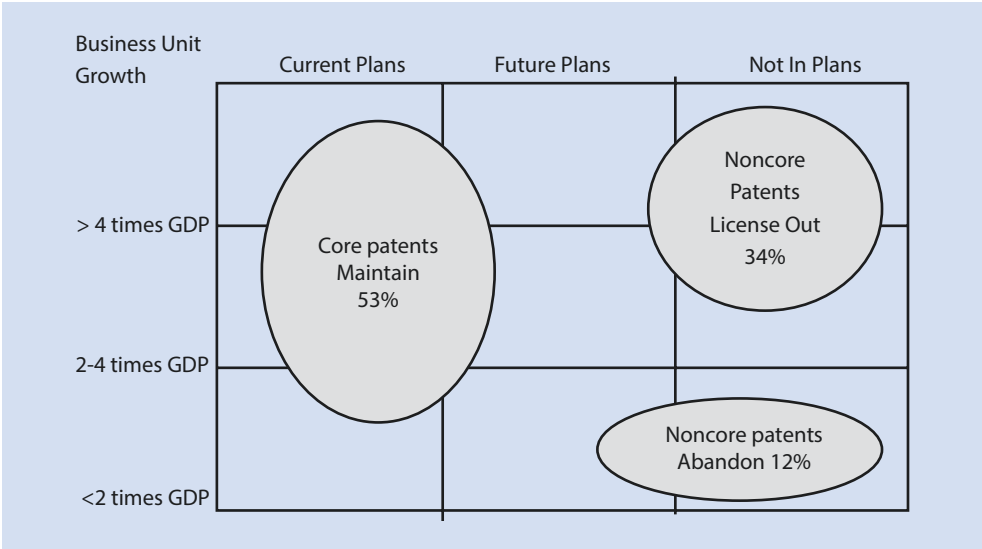

Fig. 7.4 Intellectual asset audit map

area. The map also shows which IAs should be supplemented, licensed, sold, or abandoned. The audit helps differentiate between core and non-core patents. Core patents are technologies central to current or future products, and are not usually licensed. Non-core patents are technologies not being used in current or planned products, and these are often licensed.[177]

Using such an audit, Dow Chemical audited its 29,000 patents, and after identifying and valuing them it assigned each to one of the 15 major Dow business units, which thereafter assumed responsibility for its use. Dow then abandoned or donated the unused patents to universities or non-profit groups, yielding a saving of $50 million in taxes and lower maintenance cost for unneeded patents. At the same time, patent licensing revenues rose from $25 million in 1994 to $125 million in 1999.[178]

Another example of good IA management following such an audit is the case of the defense contractor Lockheed Martin. It had developed a flight simulator technology, Real 3D. After review, it spun the division off as a new firm, whose market value rose to several hundred million dollars.

7.3.2.1 Case Discussion

GE Patent Audit

GE's VP and Chief IP Counsel, a former head of the US PTO, observed: "Quality intellectual property just sitting in a portfolio gathering mothballs is going to do very little in the way for contributing to the bottom line."[179] To avoid this, GE could conduct a patent audit. As an example, we look at five of its technology products.

GEnx is a turbofan jet engine for the Boeing 787 Dreamliner and the Boeing B-747-8. It increases fuel efficiency and reduces noise and emissions.

Growth Potential: Replaces existing 747-8 and Dreamliner engines for decades to come. Only Rolls-Royce competes with GE for the Dreamliner engines. It is an estimated $40 billion market over 25 years. Strong growth and captured customers are to be expected.

Corporate Fit: the engine is an essential element of GE's jet engine division.

Conclusion: in the Patent Audit Map (Fig. 7.5), GEnx is placed in the northwest corner, that of high growth and good fit.

H-System. A combined cycle gas turbine to produce electric energy. It was the first to break the 60% efficiency barrier while producing fewer emissions.

Growth Potential: many electric utilities need more efficient turbines to replace the old ones, and there are few competitors. One can expect strong demand along with healthy margins.

Corporate Fit: this product is an essential element of GE's power plant division.

Conclusion: This product, too, is located in the northwest corner: strong growth, strong fit.

High Definition Magnetic Resonance Imaging (HD-MRI). Generates better image quality than traditional MRI diagnostic tools.

Growth: there is strong competition in this market. Many hospitals already use prior devices. Therefore, expect moderate growth.

Corporate Fit: HD-MRI is important for GE's world-leading medical imaging business.

Conclusion: strong fit, moderate growth.

Organic LED (OLED). First functional 24 inch OLED panel that can be used as an

177 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. Boston: Harvard Business School, 2000.

178 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. Boston: Harvard Business School, 2000.

179 Wild, Joff. "The GE Revolution." *Intellectual Asset Management*. (August/September, 2004): 25–28.

alternative lighting source, as a lamp for example.

Growth: there is potential for commercial use in the future but it will take a long time for consumer-market products to become economical.

Corporate fit: this product line is not central to GE's lighting division, which in turn is not central to GE.

Conclusion: Not a central product.

StreetLab. A portable system to identify traces of explosives or narcotics used in the area of homeland security.

Growth: owing to its high cost it is not affordable by most police departments, and market potential is low.

Corporate fit: this is a new business area for GE with potential in the future.

Conclusion: keep only if committed to a long-haul strategy.

What should GE do with these five patent areas? It should keep patents for GEnx, H-System, and HD-MRI. It might keep StreetLab if corporate strategy is to develop this business over the long haul; otherwise it should license those patents to another company. It should license the OLED lighting invention to another company with a better fit.

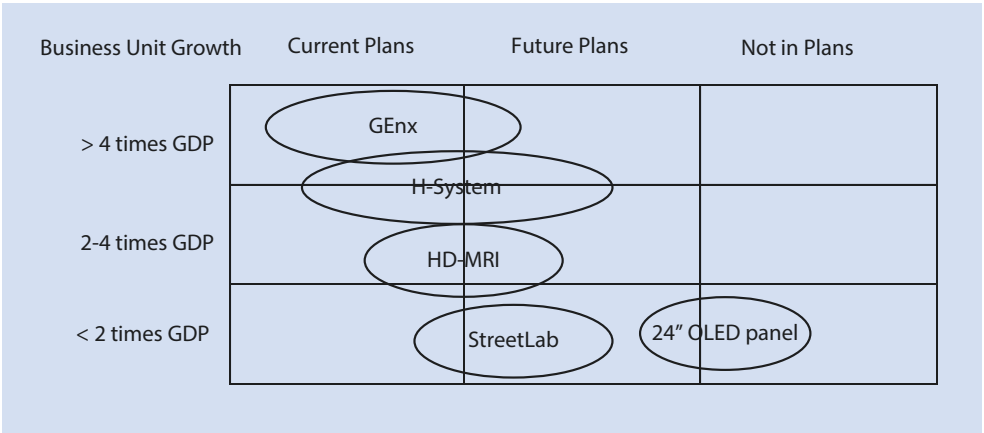

Fig. 7.5 Audit map for GE patents

7.3.3 How to Value Intellectual Assets

There are many factors that affect the value of an IA:

- the economic life of the IA;
- the life-cycle of the technology;
- the strength of the legal protection;
- restrictions on exploitation;
- level of upgrade required to maintain asset;
- market competition;
- economic and technological trends in the industry;
- cost of developing competing assets.[180]

How then does one value IAs for managerial purposes? The valuation methodologies are:

1. book value;
2. cost (or replacement);
3. market value;
4. income;
5. the residual approach;
6. the real options approach.

These will now be explored.

7.3.3.1 The Book Value Approach

Business assets are normally recorded at the cost of creation or purchase. But IAs are treated differently. The main issue is that accounting standards treat in-house developed IAs as an expense rather than an asset. The development of a video game or a film may create an asset of considerable value, but it will not show up on the balance sheet. If a company develops, for example, a new software product and gains a valuable copyright, patent, and maybe trademark, the costs (performers, programmers, editors, overhead, etc.) are written off as expenses against current revenues. The IA rights to the software are not assets on the balance sheet and they cannot be depreciated. As a result, the book value of the company is understated, while its expenses for the developmental years are often overstated.[181] In contrast, the cost of a machine would be written off against revenues over a period of several years. Thus, investors cannot easily use such balance sheets to value a firm with important IAs or to evaluate its performance. A book value does not exist for an IA. The exception is where the intellectual asset has been acquired in a purchase transaction from another party and thus has a clearly stated value as an asset. It should be noted, however,

180 Bertolotti, Nick. "Valuing Intellectual Property." *Managing Intellectual Property* no. 46 (February 1995): 28.

181 Litan, Robert E. and Peter Wallison. "Beyond GAAP." *Regulation*, 51, (Fall 2003).

that companies' stock price valuations reflect, to some extent, the value of the patent holdings and the earnings that they produce, even if they do not show up as assets on the balance sheet. Omitting intangible assets such as copyrights and patents from the balance sheet is not necessarily flawed in terms of assessing a firm's value, because there is also an income statement, and the value of intangible assets can be ascertained from that.[182]

For example, in 2008, Microsoft traded at $25 per share for a $228,775 million market capitalization, yet its book value was much lower, at $36,286 million. Thus, $192,489 million were "missing" from the balance sheet. But if one used the income statement as well, one could gain a much better picture. Microsoft's reported net income was $17,681 million. When such an income stream was transformed into net present value (NPV), in other words capitalized from earnings, it resulted, in combination with the book value, in a valuation similar to that of market capitalization.[183]

In the USA, the rules are set in a document called "FASB Statement 142," which decrees that patents, copyrights, and trademarks with finite lives are amortized over their useful lives, and for not more than 40 years. Thus, although copyrights are granted to the author of a work for the life of the creator plus 70 years (which could easily exceed 100 years), according to the rules the cost of the copyright is amortized only over the expected life of the benefit, not to exceed 40 years. Similarly, the cost of creating or acquiring trademarks must be amortized over the period of the benefit, not to exceed 40 years. Domain names have a depreciation period of two to ten years and website development has a period of three to five years.

7.3.3.2 The Cost Approach

The cost approach, closest to an accounting treatment, defines the value of the IA to be the expense that it took to create it. It is rarely straightforward to measure such costs, given the high overhead and the joint costs of several projects, and assign them to the particular patent or copyright that was created. Beyond the measurement problems there is a more fundamental point. The problem is that the cost expended for an invention or creation is not necessarily related to its economic value. Many costly developments do not lead to successful inventions or products; that is, they are worthless. Should the costs of such unsuccessful inventions be counted as an asset?[184] Conversely, would one value an invention or melody conceived in a flash of creativity at the cost of that brief effort, rather than at its much greater economic worth as an asset?

7.3.3.3 Market Valuation

The third technique, market valuation, assigns the value of the IA as the value given to it by the market. If there are buyers for the rights to a particular videogame at $1 million, but not higher, then that is the value of such an asset.

Using a market value for an IA is fine in concept, but for this approach to work a market must be active with exchange of comparable products, and incorporate only arm's-length transactions (i.e. transactions in which both sides are independent of each other). It must also provide readily available transaction data. Because these conditions are seldom met, the market approach is rarely used for intangible assets. In the media sector, the market approach is sometimes used for "commodity" TV series such as game shows.[185] There are computer programs that simulate a market and draw parameters from other similar industries or products. These valuation models use various formulas to crunch data about the markets, competition, forecasts, and assumptions, and then come up with a value that might serve, at least, as the starting point for negotiation. The data requirements may make this method time consuming and costly to utilize.

The developers of one such valuation model, TRRU, for example, divided the technological spectrum into several hundred categories that reflected industries and businesses and determined the average value of a single piece of technology in each category by observing market values assigned to companies.[186] The computerized models tend to assume that all technology in a given field is of equal value except for two factors: the investment required to bring the technology to market (i.e. cost) and the time remaining until market introduction (i.e. impact on income stream).

Even when there has been an identifiable transaction for the IA that serves as the basis for its valuation, such value tends to decline over time. It must therefore be subject to a calculation of its depreciation in value. This is partly an accounting and tax issue, subject to its rules, and partly a question of economic value. Most patents and copyrights lose value after a few short years.

182 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.
183 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.
184 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
185 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
186 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

7.3.3.4 Income Approach

The income approach is based on the NPV of the income stream the patent generates. This method identifies the value of income flows related to the IA in each time period, and then capitalizes cash flows by discounting them to the present.[187] The income approach is best suited for the appraisal of licenses and franchises.[188] With some imagination, it can also be used to value trade secrets where the income flow is known.[189] The income approach is implicit in various rules of thumb. Typically, music licenses are valued at five to eight times (or sometimes even 12 to 13 times) the revenues they generate per year. (The revenues are the sum of the annual averages of earnings from musical performances, publisher's share of mechanical, i.e. recording, earnings, and foreign income.)

The income approach has two major challenges: how to estimate revenues into the future and how to pick a discount rate. More fundamentally, the income approach has a major conceptual flaw. It does not distinguish between the value of the IP and the value of the technology.[190] A newly invented technology or a new movie would have a value even without the patent or copyright. The patent or copyright's value is the extra value due to the monopoly in commercializing the patent or copyright. (This objection is applicable to some of the other valuation methods too.)

For example, the value of Intel's patents is difficult to determine because of its comparative advantages in chip production. Intel would have significant revenues from its chips even without any patent protection, and it would be therefore incorrect to attribute all of Intel's revenues from a particular chip to the patents associated with it.

The formula below defines this relationship. The value created by the IA in year i is the forecasted annual profit of the firm under monopoly conditions (MR_i) minus the corresponding profit of the firm employing the same technology under competitive (non-monopoly) conditions (CR_i).[191]

The true value of the IA is the present value of these profit differentials over the life of the IA, adjusted by a discount rate reflecting perceived risk. This is reflected in the following equation:

$$V = \sum_{i=1}^{n} \frac{MR_i - CR_i}{(1+r)^i}$$

In a simplified case, where the incremental value and the discount rate remain constant through the life of the patent, the previous formula can be rewritten[192]:

$$V = \sum_{i=1}^{n} \frac{\Delta_i}{(1+r)^i}$$

Applying this formula is not easy in practice. Forecasting future revenues is iffy. The incremental value attributable to IAs can come in many indirect forms, including future cost savings and price increments. It is difficult to pick the proper discount rate for IAs, and they are riskier than tangible capital assets. Risks include legal challenges, infringement litigation, piracy, technology changes (e.g. another new invention is more useful), and other business risks.[193] Furthermore, IAs are not easy to liquidate.

The simplest practice to use in the income approach for the patent value is to estimate the price differential obtainable with an IA above the price of a comparative generic, unbranded product, estimate sales volume, and thus calculate gross revenues attributable to the patent, then deduct the corporate overhead, support costs, and incremental costs that are associated with obtaining and protecting the patent, and the relevant taxes on the extra profit. The industry rule-of-thumb is that a patent is typically worth four to five times the extra profit figure.[194]

7.3.3.5 The Residual Approach

The key question identified in the preceding section is how to figure out the extra value that the IA gives to a product. Baruch Lev, an accounting professor at New York University, proposed a solution by capitalizing what is left of earning after deducting the normal expected return from a business's financial and physical assets. These residual earnings are then attributed to intangibles, including IAs. A variant of the approach is called calculated intangible value. Lev's approach makes it possible for outside investors to estimate the value of intangibles. One can further decompose residual earnings to determine what proportion is attributable to different types of intangibles—people, brands, patents.[195] Profits attributable to IP can be calculated by subtracting, from the firm's total profits the profits attributable to tangible assets. The latter are calculated by applying an industry average return rate to the actual amount of the firm's tangible assets.[196] This is discussed in ► Chap. 13 Accounting in Media and Information Firms.

The problem with this method is that it lumps together all intangible assets, of which IAs are only a sub-set. Moreover, they are all aggregated, and one cannot calculate the value of a particular IA.

187 Bertolotti, Nick. "Valuing Intellectual Property." *Managing Intellectual Property* no. 46 (February 1995): 28.
188 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
189 Halligan, R. Mark and Richard F. Weyand. "The Economic Valuation of Trade Secret Assets." *Journal of Internet Law* 9, no. 8 (Feb 2006): 476–503.
190 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
191 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
192 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
193 There is a real probability that the patent will be infringed, denoted by E. And there is a probability F that the patent owner will prevail in court.
194 Poltorak, Alexander I. and Paul J. Lerner (2002). *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc. 2002.
195 An average of a period of about three years is used to smooth out temporary fluctuations.
196 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

7.3.3.6 Real Options

The sixth IA valuation technique, the real options approach, is a variation of the discounted cash flow method. It analyzes investment opportunities as "options." Real options valuation takes into account that an investment developing in an IA is usually not a one-shot deal but requires ongoing investment decisions about whether to go forward. At the end of each period, the company can decide whether to proceed further, or pull the plug and write off part-investments. This, in effect, provides an option with a value. Similarly, a patent gives the firm an option whether to commercialize the technology. A simple discounted cash flow calculation will fail to capture the value of this option of step-wise decisions.

The value of the patent is, to a large extent, the option value it provides to a company for going forward with commercialization or further development.[197] Investing in a patent is analogous to buying a call option. It gives a company the right to decide, in the future, whether or not to exercise that patent investment. If prospects look good, the option will be exercised and the firm will make an additional commercialization investment. But if the prospects are dim, the company will not exercise the patent and the loss will be limited to the investment in the patent.[198]

One way to apply the options approach is to use a binomial method such as a decision tree. It is a transparent approach, but there are so many possibilities that a model would become large and complex. A second approach is to use the so-called Black-Scholes formula, which describes uncertainty as distributed in a log-normal fashion without worrying about the components of the uncertainty in the way that the decision tree does.[199]

Using an options approach often results in a much higher valuation than a discounted cash flow/NPV approach, because the latter does not capture the value of the increased flexibility of the firm.

To calculate an IA's value based on a real options valuation, one does a discounted cash flow calculation, models the step-by-step uncertainties underlying the IA, identifies managerial choices, uses the Black-Scholes option pricing model (or the binomial decision tree approach), and calculates the value of IA as the discounted cash flow value plus the options value.[200] An application of this relatively complex approach is provided in the case discussion that follows.

7.3.3.7 Case Discussion

Valuation of Intellectual Assets

GE Aviation is a top jet engine supplier for civil and military aircraft. It accounts for approximately 12% of GE's revenue. The jet engine division is its most profitable. It racked in $17.6 in revenue and had an order backlog of $99 billion. A large share of the revenue comes from maintenance. Successful products include the F404, which is the engine for the F/A-18 fighter jet, and the GEnx engine, which is used in the Boeing 787 and 747 aircraft. GEnx is GE's next generation of jet engines that are quieter and cleaner.[201] How would one value the patent(s) for the new-generation GEnx jet engine?

IA Valuation #1: The Book Value Approach

Under General Acceptable Accounting Principles (GAAP), GE must book its R&D investments in the jet engine as expenses rather than as assets (unless it bought the patents from another firm, which it did not). Therefore, there would be no asset in its balance sheet to correspond to the jet engine patent.

IA Valuation: #2: The Cost Approach

The cost includes top engineers, skilled manufacturing process, complex technologies and materials, and expensive testing. GE's rival Pratt & Whitney spent $650 million or more on developing a new jet engine.[202] GE spent 50% more time on developing its engine. The cost-base value of the patent accordingly would be $1 billion.

This approach, however, is divorced from economic value. The product technology might not work out in practice and the product might not be chosen by aircraft manufactures. On the other hand, it might be a wild success. A unique feature of the GEnx engine is the lightweight composite material used to build the fan case and fan blades. It took 20 years for GE to develop the composite, and its manufacturing process is likely to prove valuable for other fields too.[203]

IA Valuation #3: The Market Approach

There is no active market for jet engine patents. But suppose that GE's rival in jet engines, Rolls-Royce, has sold similar patents to Pratt & Whitney; that the patents cover similar aspects of a new jet engine; and that the sale price is known to be $240 million. One could then estimate the GE patents to have a similar value. This approach does not seem promising except as a potential reality check.

IA Valuation #4: The Income Approach

The value of the GEnx patents to GE is based on sales, contracts, and maintenance. These agreements are assumed for purposes of the analysis to generate $50 million after-tax net income each year for the next 12 years. Contacts are assured contractually and involve solid and dependable parties. The discount rate is therefore the low-risk rate of 6.7%. The NPV of GE's GEnx patents is then:

$$\sum_{t=1}^{T=12} \frac{\text{Net Revenues}_t}{(1+r)^t}$$

where $r = 6.7\%$ (discount rate), revenues = $50 million per year, and $t = 12$. This results in an NPV of $403.56 million.

197 Faulkner, Terrence W. "Applying 'Options Thinking to R&D Valuation." *Research Technology Management* 39, no. 3 (May/June 1996): 50–56.

198 This presumes that managers are prepared to walk away from patent investment rather than commercialize it, and this is not always easy for a firm to do.

199 Faulkner, Terrence W. "Applying 'Options Thinking to R&D Valuation." *Research Technology Management* 39, no. 3 (May/Jun 1996): 50–56.

200 Kennedy, G. William. "Commentary: Valuing Intellectual Property: Applying Real Options Analysis." *St. Louis Daily Record*. January 2005.

201 Carrigan, Christopher. "Greening Our Blue Skies Above with GE's GEnx." *Vermont Business Magazine* 38, no. 8 (July 2010): 62.

202 Troshinsky, Lisa. "Analysts: 7E7 engine choice based on costs, geography." *Aerospace Daily & Defense Report* 210, no. 14 (April 2004): 3.

203 GE Reports. "Talkin' 'Bout GEnx. Record-Breaking GEnc Engine by the Numbers." June 12, 2013. Last accessed July 15, 2013. ► http://www.gereports.com/talkin-bout-genx/.

IA Valuation #5: The Residual Approach

The profits attributable to IP can be calculated by subtracting from the firm's total profits the profits attributable to tangible assets. The profits from tangible assets are calculated by applying an industry average return rate to the actual amount of the firm's tangible assets.[204] The numbers below are hypothetical.

Step 1: calculate GE's earnings of tangible assets for the past three years.

- Tangible assets: $37.6 billion.
- Average rate of return in industry: 10%.
- Earnings attributable to tangible assets: $3.76 billion.

Step 2: Calculate earnings of IA.

- Total earnings of GE: $9.5 billion.
- Less earnings attributable to tangible assets ($3.76 billion).
- Earnings attributable to intangible assets: $5.74 billion.

Step 3: Allocate earnings to GEnx line.

Step 4: Capitalize the income stream, at discount rate of 12% = $47.825 billion.[205]

Step 5: Allocate. The share of GEnx in GE overall revenues is 8% ($460 million). Allocating at the same proportion results in GEnx valuation of $3.826 billion.

IA Valuation #6: The Options Approach

The classic NGV method discussed above does not capture the full value of the patent. On top of the patent's direct value, GE has a benefit from the ability to make additional business decisions and strategies that will affect its bottom line, such as whether to commercialize the patents or move to developing a subsequent generation of jet engines. In addition to the value of the discounted cash flow, as calculated above, there is value to the ability to make these business decisions and strategies based on the patent. This is the additional options value of the patent.

The value of GE's patent can be calculated by using an option pricing model. The Black-Scholes option pricing formula is the standard for calculating stock options pricing. It consists of two sections: the first describes the expected benefit to an investor of acquiring the asset outright, while the second is the present value of the option exercise price.

The formula is:

$$C = S \times N(d_1) - Ke^{-rt} \times N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}.$$

Where C = the call premium. It is the value of the option to pursue further development of the patented technology to commercialization.

S = the current value of the patent. The NPV will be the best estimate for S; it is the NPV of $50 million a year for the next 12 years, which, as has been shown earlier, is $403.56 million.

K indicates the present value of the cost to continue developing the patented technology until the point of product maturity; it is assumed to be $200 million.

t = the time to maturity of the option, that is the legal and economic life of the patent (the investment horizon), 12 years in this case; and r is the discount rate assumed at 6.7% as before.

N is the cumulative standard normal distribution; that is, a distribution with a mean equal to 0 and a standard deviation of 1;

σ is the volatility of the value of the patent based on the volatility of licensing fees, and is based on the expected demand for the product enabled by the patent. This will raise and lower annual income from a license based on sales of units. σ measures the volatility from an average. Because volatility measures risk, variance can be used in this case to determine the risk a company (or investor) is taking when purchasing (or holding) a particular patent. σ, the volatility of licensing fees, is 47.33%, based on historical data.

The last step is to plug these values into the Black-Scholes formula.

$$C = 403.56 \times N\left(\frac{\ln\left(\frac{403.56}{200}\right) + \left(6.7 + \frac{47.33^2}{2}\right)\times 12}{47.33\sqrt{12}}\right) - 200e^{-6.7\times 12} \times N\left(\frac{\ln\left(\frac{403.56}{200}\right) + \left(6.7 + \frac{47.33^2}{2}\right)\times 12}{47.33\sqrt{12}} - 47.33\sqrt{12}\right) = 338.71$$

Thus the value C of the call option equals $338.71 million. The full value of the patent is its NPV of expected revenues plus the value of the option, which comes to $403.56 million + $338.71 million = $742.27 million.

Summary and Conclusion

We have gathered the results of the various valuation approaches in Table 7.2.

As one can see, the results vary between $240 and $742 million. Is that the value of the patent? No. GE would still derive significant revenues and profits from a new technology even without patent protection. Patent protection adds value but it would be incorrect to attribute all of GE's revenues to the patent rather than to the technology itself. The value created by the IP is the forecasted annual profit of the firm under patent monopoly conditions minus the corresponding profit of the firm employing the same technology under competitive (non-monopoly) conditions.[206]

Suppose that GE had no patents. It would still have strong sales based on the technology it developed. True, Rolls-Royce, Pratt & Whitney, and maybe one or two others could gain access to the technology and copy it, but it could take years of development and certification approvals, and this would also reduce those firms' reputation among their airline and airframe manufacturing clients. Given the rapid advances in technology, GE's head start in its patented technology, even when imitated, would likely last long enough until the next generation. Thus, the actual patent granted monopoly has a limited value in this particular case. Suppose that the premium sales that GE (and its rivals) could extract due to a patent is 20% over the price it would otherwise negotiate with airframe makers and airlines. The valuation calculations then change.

We then observe a more modest value for the patent, between $48 and $148 million. We can compare this with the rule of thumb described in the text, namely for the value of the patent to be 4.5 times the monopoly premium. That premium is 20% of the monopoly profit for the year, or about 20% × $50 million × 4.5 =$45 million.

204 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc., 2002.

205 GE's overall activities cover many business lines, most with a higher risk than the jet engine business. A higher discount rate is thus used.

206 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc., 2002.

Table 7.2 Summary of results of different valuation methodologies

Approaches (in $ million)	Valuation
Book value	$0
Cost	$650
Market	$240
Income	$403
Residual	$460
Real options	$742

7.3.4 IA Management

So now you have set up an IA department. You understand the legal issues of IPRs. You've identified the importance of your assets and their fit in overall company strategy. You know how to value IAs. The next step is to develop IA-savvy management. We start with licensing.

7.3.4.1 Licenses

A major way for profiting from IAs is by licensing them out. Licensing is an allocation of rights to a product or property among parties. It is somewhat analogous to a rental or lease in real estate. Licensing can take place at any point on the value chain of media, from creators to producers to packagers, distributors, retailers, and end users.

Figure 7.6 shows the flow of rights and license fees. The rights flow from the creators to the producers to the packagers, to the distributors, retailer, and end users. The license fees flow in the opposite direction, from the users and retailers toward the creators. Creators are writers, game programmers, musicians, athletes, and so on. Producers are book publishers, film production companies, music labels, sports teams, newspapers, or bundlers of content products (e.g. a TV channel). Packagers are sometimes part of producers and sometimes part of wholesale distributors (such as a TV network.) A distributor is a wholesaler to retailers, such as a cable TV channel, a book distributor company such as Ingram, or a film distribution studio. Retailers are a local TV station, a cable multiple-system operator (MSO), a book store, an online streaming service, etc.

Licensing can be profitable. Qualcomm's licensing revenues were $7.6 billion in 2013, and $6.4 billion in 2017. In 2000, IBM's licensing revenue accounted for $1.7 billion, 20% of its net income and 98% of its profit margin that year.[207] Some universities, as mentioned earlier, earn hundreds of millions each year from licensing.

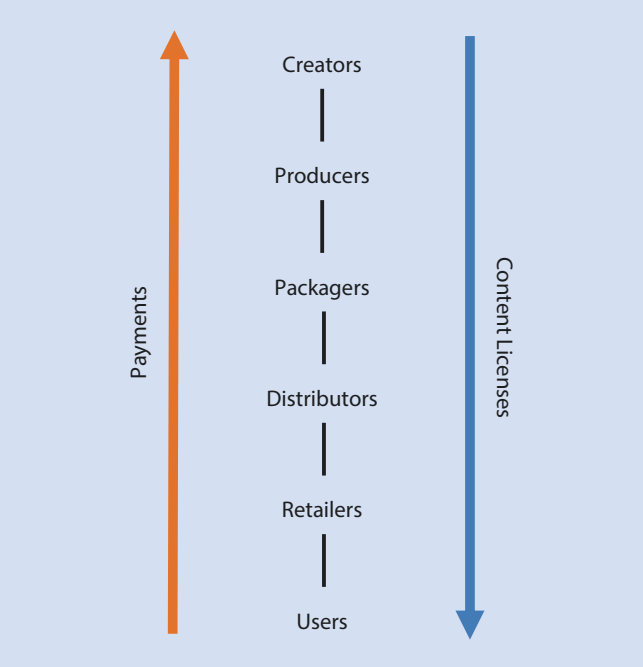

Fig. 7.6 The flow of rights and license fees

There are three main types of licenses: exclusive, partial, and compulsory. Some are given involuntarily ("stick licenses"), usually as a result of a settlement of a lawsuit, but most are given voluntarily as part of a commercial deal ("carrot licenses").[208]

Payments for IA licenses are often called royalties. Royalties can be paid in two ways: in an upfront lump sum, called a paid up" license, or based on sales, profits, units, or other measures of the licensed products, called a running royalty. Profits are often difficult to define and measure. Sales revenue figures may seem to be easy to track, but in practice they are not easy to define and measure. Counting units sold also has its problems, since it may not differentiate between different product grades.

For running royalties based on sales revenues, typical rates for patent licensing are 1–5% of the gross sales related to the patents.[209] For important technologies, rates are 3–5% of gross sales. For computer hardware, typical royalty rates are also 1–5%. In patent infringement litigation, courts have typically ordered payments in the range of 1–5% of the gross sales related to the patents, and maybe twice as high for important technologies.[210]

207 Kline, David. "Sharing the Corporate Crown Jewels." *MIT Sloan Management Review* 44, no.3 (2003): 89–93.

208 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

209 Kinsella, P., R. Leonard, and G. Weinstein. "Four keys to successful technology in-licensing." *Licensing in the Boardroom.* October 8, 2007. Last accessed March 15, 2017. ► http://www.iam-media.com/Intelligence/Licensing-in-the-Boardroom/2009/Articles/Four-keys-to-successful-technology-in-licensing; Lichtenthaler, Ulrich. "Corporate technology out-licensing: Motives and scope." *World Patent Information* 29, no. 2 (June 2007): 117–121.

210 Megantz, Robert C. *How to License Technology.* (New York: John Wiley & Sons, 1996), 55–69.

When the royalty is tied to profits, for fully commercialized technology, rates are often a 50% profit share. For less developed technology the licensor will receive less (e.g. 25%) profit share.[211] Application software might have royalties of up to 25% of profits.

For video games, a publisher typically pays the game developer a percentage of wholesale revenues with a flat advance fee upon signing the deal. Similar arrangements are used when a game publisher or developer creates a game about an existing movie. The license will typically include an upfront payment as well as royalties based on sales.[212]

After firms license a patent or copyright to others, many lose track of their licenses, the revenues generated for the licensee, and the use to which they are being put. Thus, it is necessary to establish a licensee accounting and tracking system and to frequently check on licensees. This is known as a royalty audit. Any license given must include audit provisions that allow the licensor to review and inspect the licensee's books that are relevant to the license.[213]

There are software programs to organize information about a firm's IA, status, maintenance dates and costs, licenses given, license royalty collections, and invoicing.[214] Such IA management software provides a view of what the company owns, what its intellectual output is, what the resultant revenue streams are,[215] how they align with strategic business goals, how and when to renew them, and what the IP laws in other countries are.[216]

Case Discussion

GE Patent Licenses

Historically, GE has limited the licensing of its patents, but more recently it has become more active in licensing its technology, albeit mostly its non-core technologies.

Example 1: Licensing in Non-Core Industry: Cooling Technology for Electronics
The technology of dual piezoelectric cooling was developed by GE's aircraft engine unit. It consists of two thin ceramic layers, which contract and expand to produce airflow. The technology allows for a 50% size reduction over traditional technologies. GE licensed this new cooling technology to Fujikura Ltd, a world leader in cooling technologies for the telecom and electronic markets. Its strategy is to leverage IA in a market where GE is not active.

Example 2: Compressors
GE licensed the production and distribution of oil and gas compressors for the Indian market to Bharat Heavy Electricals Limited. The products are a part of GE's core portfolio. Its strategy is to shift the risk of a new market to a local firm with strong standing and to use partnership to enter an emerging market.

7.3.4.2 IA License Intermediaries

There are several types of license intermediaries, in particular IP brokers and IP consolidators. IP brokers market and arrange IA sales between firms or inventors with unwanted patents and firms that can use these patents, and typically receive 10–30% of the transaction price. Consolidators purchase IAs from multiple parties and assemble packages that can be used to start a new product. Some of the leading consolidators are law firms.[217]

On the sell side, IAs may be licensed through auctions open to all-comers. Literary agents hold auctions among publishers for publication rights of especially promising manuscripts. Similarly, the film rights of a book or script may be auctioned. In 2003, Sony Pictures paid $6 million for the rights to Dan Brown's *The Da Vinci Code*. The movie made over $750 million worldwide. In 2007, DreamWorks acquired the rights to the film adaptation of *The Lovely Bones*, outbidding Sony, Universal, and Warner Bros.

7.3.4.3 Strategic Licensing

Strategic licensing by a firm can be part of a wider attempt to shape the market. A firm can use licensing to deter the entrance of strong competitors or to select the preferred competitors for the time after the patent protection expires by giving them a head start through a license. For example, pharmaceutical firms are often reluctant to license firms considered tough rivals, and prefer licensing friendlier firms with whom they collaborate on other matters.[218]

211 Megantz, Robert C. *How to License Technology*. (New York: John Wiley & Sons, 1996), 55–69.
212 Wiley, Sam, and Adam Falconer. "Licensing and IP Issues for Mobile and Social Game Developers." *Ipstrategycom.* June 13, 2013. Last accessed June 3, 2014. ► http://ipstrategy.com/2013/06/13/licensing-and-ip-issues-for-mobile-and-social-game-developers/.
213 Licensing in the Boardroom. "The How's and Why's of Monitoring your Licensees." October 2005, 44–46.
214 Business Wire. "Microsoft and Kimberly-Clark Select ANAQUA5." June 26, 2006. Last accessed May 28, 2017. ► http://www.businesswire.com/news/home/20060626005487/en/Microsoft-Kimberly-Clark-Select-ANAQUA5-Intellectual-Property-Leaders.
215 Janes, John & Napper, Brian. "Optimize." January 1, 2004, Business Management, Columbia University, June 14, 2004.
216 Business Wire. "Microsoft and Kimberly-Clark Select ANAQUA5." June 26, 2006. Last accessed May 28, 2017. ► http://www.businesswire.com/news/home/20060626005487/en/Microsoft-Kimberly-Clark-Select-ANAQUA5-Intellectual-Property-Leaders. Products by SAP and by Skandia, which develop a financial measurement system that determines and reports the income of intellectual assets. Anaqua software lets IA owners maintain accurate records and aligns them with strategic business goals. It can be used for tasks such as filing, registration, and renewals and incorporates a rules engine that understands IP laws in many countries.
217 Elton, Jeffrey J., Baiju R. Shah, and John N. Voyzey. "Intellectual Property: Partnering for Profit." *McKinsey Quarterly* (Winter 2002): 59.
218 Rockett, Katharine E. "Choosing the Competition and Patent Licensing." *RAND Journal of Economics* 21, no. 1 (Spring 1990): 161–171.

Licensing of a firm's core technology carries risks. It can undermine a firm's competitive advantages. Conversely, joint-ventures licensing among competitors may be perceived as collusion and raise anti-trust concerns.[219] A number of strategic considerations emerge. If a firm issues an exclusive license to one favored party and rejects that firm's competitors, it may receive more in license fees upfront. But this often leads the excluded competitors to come up with a similar or better technology. Exclusive licensing is therefore often not the best way to go. Given a non-exclusive license at a reasonable price, a firm's competitors may become its technology followers.[220] Thus a firm can use the licensing process to create industry standards around its technology.

In one classic example, Matsushita/Panasonic licensed to other companies the VHS system used in videocassettes, and it became industry standard. In contrast, Matsushita's competitor, Sony, did not offer licenses for its rival Betamax video recorder, which became a business failure despite its technical superiority.

A similar dynamic exists for the price of the licensing royalty. A high royalty can be counter-productive if it creates incentives to develop alternative technologies or join another standard coalition, or even engage in unlicensed use. An overpriced royalty will also weaken the competitiveness of the licensee and therefore its sales.

7.3.4.4 Cross Licensing and Patent Pools

When several firms hold critical patents and block each other, cross-licensing is often necessary to get a new technology moving. Patent pools reduce litigation risk and intentional blocking, but they also lower innovation, because firms have fewer incentives to leapfrog each other's technology.[221] In the USA, the government and courts had a skeptical view on cross-licensing due to its potential to reduce competition by substituting collaboration.[222] In the case *Standard Sanitary Manufacturing vs. U.S.,* the US Supreme Court held that an ironware-manufacturing patent pool violated anti-trust laws because it led to prices being set through a collective, rather than individually.[223] The 1995 anti-trust guidelines issued by the US government specify where an act has an anti-competitive effect that outweighs pro-competitive effects (such as facilitating innovation), and would then be challenged.[224] An example is the technology for laser eye surgery. VISX and Summit were two companies that each held patents, the only ones within the field. The patents were substitutes for each other. By placing them within a single pool, the companies reduced competition among themselves and could charge high prices for royalties. This was found to violate US anti-trust laws.[225] The European Commission, too, has considered problems of competitors' cross-licensing.

Cross-licensing has become frequent. Often entire fields rather than single patents are cross-licensed. One reason is that in some fields innovations build on each other. To avoid the risks of mutually blocking patents, firms often cross-license all of their patents in that field. To engage in such cross-licensing, a portfolio of strong patents that covers large areas of the partner's product markets is essential. If the patent portfolios of the firms are not equally strong, some balancing payments may be required. A listing of a firm's most valuable patents (the "proud list") is used to assess their value.[226] A royalty rate is assigned to each patent and multiplied by its quality weighting factor and by the annual sales of its product base. This determines the royalty rate percentage of a patent holder in total sales revenues. Cross-licensing negotiations are positively affected by the likelihood that firms will need to co-operate again in the future. Cross-licensing usually lasts for five years, and rarely includes trade secrets or sub-licensing rights.

The development of radio in the early twentieth century is an example.[227] The development of radio technology during World War I required the application of many earlier inventions. Edwin Howard Armstrong, a Columbia engineering professor, pioneer of radio, and inventor of FM radio, wrote that "It was absolutely impossible to manufacture any kind of workable apparatus without using practically all of the inventions…" At first, radio development was deadlocked. Only under massive pressure by the US Navy did three major companies (AT&T, Westinghouse, and American Marconi) pool their interests and patents and form the Radio Corporation of America (RCA) in 1919, which aggregated their over 2000 radio-related patents. RCA established itself as the technical leader in radio, but also enabled other firms to cross-license and develop technology to use in different fields, or as suppliers to RCA.

Patent Pools – The MPEG-2 Patent Pool

MPEG-2, a digital video compression standard required for almost all digital video transmission, was needed to join the essential patents to foster adoption. A patent pool was

219 Kline, David. "Sharing the Corporate Crown Jewels." *MIT Sloan Management Review* 44, no.3 (2003): 89–93.

220 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy.* Boston: Harvard Business School Press, 1999.

221 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *The Wall Street Journal.* August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.

222 Standard Sanitary Mfg. Co. v. United States, 226 U.S. 20 (1912).

223 Standard Sanitary Mfg. Co. v. United States, 226 U.S. 20 (1912).

224 United States of America. Antitrust Guidelines for Collaboration Among Competitors. 2000. Last accessed June 7, 2011. ► http://www.ftc.gov/os/2000/04/ftcdojguidelins.pdf.

225 Lind, Robert C. "Report on Multiparty Licensing." European Commission. April 22, 2003. Last accessed June 7, 2011, ► http://ec.europa.eu/competition/antitrust/legislation/multiparty_licensing.pdf.

226 Grindley, Peter C. and David J. Teece. "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics." *California Management Review* 39, no.2 (1997): 8–41.

227 Grindley, Peter C. and David J Teece. "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics." *California Management Review* 39, no.2 (1997): 8–41.

created that includes 25 patent holders and 880 patents in 57 countries and serves approximately 1500 licensees.[228] Patent holders include Apple, Columbia University, GE, Samsung, Siemens and Sony. The licensing program helped to establish what is claimed to be the most widely used standard in consumer electronics history. The MPEG 2 patent holders wanted to ensure that their IP would be aggressively marketed. CableLabs and other licensors injected $3 million to found a corporation, MPEG LA, which handled the licensing of MPEG-2. The licensing rate set by the pool was $4 per decoder.[229] Worldwide revenues were $3.8 billion in 2004 and $8.4 billion in 2012.[230, 231]

The pool administrator collects royalties and distributes them according to a formula. MPEG-2 pool members agreed to a distribution based solely on the number of patents contributed to the pool. This was adopted because it was easier to administer than other fee rules. The problem, though, is that not all patents are of equal importance. This led Lucent to choose not to participate in the pool since it believed that its patents, while relatively few in number, were particularly important to the standard.[232]

The Mobile Patent Pool

In the smartphone business the main providers were Apple, Google, Samsung, Microsoft, and for a time RIM and Nokia. A smartphone might involve as many as 250,000 patent claims, although a good number of them are questionable.[233] With all of these patents, mobile-phone makers inevitably infringe someone's patents, risking billions in lawsuits and major delays. The best defense is to have bargaining chips. Google sought patents to protect itself and Android-handset producers such as Samsung from claims by Apple and Microsoft. Its fears were not unfounded. Manufacturers using Google's Android operating system must pay several dollars per smartphone to Microsoft. In response, in 2011 Google bought about 2000 patents from IBM.[234] In 2011 Google also tried (but failed) to buy Nortel's patent portfolio. It subsequently bought the major handset manufacturer Motorola Mobility, which added nearly 25,000 patents to its holdings (17,000 valid and 7500 pending). Motorola's important patents in video streaming and 3G phones explained the purchase price of $12.5 billion, about $400,000 a patent. There were about 18 patents in Motorola's portfolio which dealt with GPS, screen interaction, and data storage. In 2012, Google bought from IBM another 188 patents and 29 patent applications related to mobile phones. Armed with these patents Google could negotiate with Apple and Microsoft on cross-licensing deals. It sought to double royalty payments from Microsoft for the H264 codec used to play videos. Motorola held 50 of the 2300 patents which make up that codec, and now they were Google's.

In 2011, the bankrupt Canadian telecom technology giant Nortel put up for auction its last remaining major asset, a portfolio of 6000 patents. This resulted in a heated bidding war of five bidder groups. A consortium consisting of Apple, Microsoft, RIM, EMC, Ericsson, and Sony won the patents for $4.5 billion, three times higher than experts expected. The Apple consortium paid about $750,000 for each Nortel patent. They covered important areas such as 3G and 4G technology for cellphones and internet search technology. Apple's consortium members wanted the patents for their own use, and partly to keep them out of Google's hands.

Microsoft, on its part, bought more than 800 patents from AOL in 2012 for $1.056 billion. In 2013, it bought for $7.2 billion much of Nokia's device and service business and its 8500 design patents (but not its more valuable utility patents. For those, it got only a ten-year non-exclusive license, had to cross-license a number of its own valuable patents, and had to pay Nokia $2.2 billion as part of the deal.) Nokia thus embarked on a transition from a technology manufacturing company to a technology developing company, with IA as its main output, as IBM and Qualcomm had done before.

For mobile handsets, the patent licensing costs for a non-pool company were estimated to be as high as 29% of the cost of a GSM handset and of 20% of the price of a 3G handset.[235] For a 4G (LTE) handset with a $400 retail price, about $60 (15%) went to patent holders, according to a formula in which Qualcomm got 3.25% of the retail price ($13), Motorola got 2.25%, Alcatel Lucent about 2%, and Huawei; Ericsson, and Nokia each 1.5%.[236]

228 Lee, Alexander. "Examining the Viability of Patent Pools to the Growing Nanotechnology Patent Thicket." *Nanotechproject*. June 20, 2006. Last accessed June 4, 2013. ► http://www.nanotechproject.org/process/files/2722/70_nano_patent_pools.pdf.

229 Lerner, Josh and Jean Tirole. "Public Policy toward Patent Pools." *Innovation Policy and the Economy* 8 (2008): 157–186.

230 Design & Reuse. "Buzz Continues to Build Around MPEG-4 AVCs, But MPEG-2 Still Strong." June 28, 2005. Last accessed May 24, 2017. ► https://www.design-reuse.com/news/10774/buzz-continues-build-around-mpeg-4-avcs-but-mpeg-2-still-strong.html.

231 Design & Reuse. "Buzz Continues to Build Around MPEG-4 AVCs, But MPEG-2 Still Strong." June 28, 2005. Last accessed May 24, 2017. ► https://www.design-reuse.com/news/10774/buzz-continues-build-around-mpeg-4-avcs-but-mpeg-2-still-strong.html.

232 Layne-Farrar, Anne and Josh Lerner. "To Join Or Not To Join: Examining Patent Pool Participation And Rent Sharing Rules." November 15, 2006. *International Journal of Industrial Organization* 29 (2011): 294–303.

233 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *Wall Street Journal*. August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.

234 Chapman, Glenn. "Patent wars plague Internet Age, add 'innovation tax.'" *The Sydney Morning Herald*. April 16, 2012. Last accessed October 22, 2012. ► www.smh.com.au/it-pro/business-it/patent-wars-plague-internet-age-add-innovation-tax-20120416-1x2ej.html.

235 Dunlop, Hugh. "A Dusty Road to Standards Licensing." *Managing Intellectual Property*. June 1, 2003. Last accessed May 25, 2017. ► http://www.managingip.com/IssueArticle/1255709/Archive/A-dusty-road-to-standards-licensing.html.

236 FN DD-1 Quies, Peter. "Valuing Standard Essential Patents: An Examination of Announced FRAND Royalty Rates for LTE" *American Bar Association*. ► https://www.americanbar.org/content/dam/aba/publications/litigation_committees/intellectual/012413-valuing-standard-essential-patents-memo.authcheckdam.pdf

Case Discussion

GE Cross-Licensing

In 2008, GE and LG signed a cross-licensing deal on household appliances such as freezers and cooking devices. Both companies were to share each other's patents without paying each other any licensing fees. The companies hoped to challenge Whirlpool and Electrolux through this deal.

Considering the size of the two companies in appliances around the globe, could this partnership be a potential anti-trust violation? Because other strong competitors exist, regulators accepted the deal. Helped by the agreement, GE became the second largest appliance maker in the US market in dollar terms and LG jumped from fourth place to third.[237] In 2014 GE went one step further in consolidation and signed a deal to sell all of its appliance business to its chief rival Electrolux. That sale was challenged by the US Justice Department on anti-trust grounds, and after a trial it was abandoned by GE in 2015. A few months later, GE sold the appliance business to a smaller competitor in the US market, the Chinese firm Quindao Haier, for $2 billion more than had been offered by Electrolux.

7.3.4.5 Music Licensing

Music rights are a highly complex system, with many participants. Every musical recording consists of two separate copyrights. The first is for the underlying musical creation (the music and the lyrics). Copyrights for this "musical work" are typically owned by the songwriter(s) and/or their music publisher. Royalties for this musical creation, when it is performed publicly, are collected and distributed by performance rights organizations such as ASCAP, Broadcast Music, Inc. (BMI), and the Society of European Stage Authors and Composers (SESAC) on behalf of composers and lyricists.

The second type of copyright is for the sound recording—the actual recording itself. This includes the artist's performance and interpretation of the musical composition, and the contributions of producer, sound engineers, and background musicians. The copyright to the sound recording is held by the music label or an independent musician.

Thus an audio transmission of a musical recording, for example by an online music service such as Spotify, usually requires payment for both the underlying musical work and the actual sound recording.

Songwriters typically let music publishers manage the IA created by them, either on their behalf or through direct ownership by the publisher. Music publishers must be distinguished from the labels and distributors, which do the actual production, marketing, and distribution of the music. In practice, the major music publishers are owned by the major music groups, which also own labels and distributors. But the functions are distinct. There are music publishers who do not produce or distribute, and vice versa. Bertelsmann Music Group (BMG) sold its labels, production, and distribution system to Sony but kept the music publishing part, and indeed strengthened it through acquisitions.

The ownership of music work copyrights is heavily concentrated: 65% of copyrights to musical works of commercial value are said to be owned by three or four music publishers. The music publishers are assigned these copyrights by songwriters and they then proceed to license the work to others, collect license fees and royalties, and distribute part of them to the creators.

These secondary licenses come in several categories. *Mechanical licenses* are granted to music labels for the production of physical recordings (and now digital downloads and streaming.) The revenue is shared with the creators. For download sales in the USA, by law at least 9.1 cents per song must be paid to the music publisher, usually partly shared with the creators. Mechanical licenses depend on sale volume. In contrast, *synchronization licenses* are granted for a movie, television show, and other media, and earns revenue through upfront fees. *Performance licenses* are collected whenever a song is performed to the public, such as through a radio station, podcast, nightclub, or public event. Performance rights organizations track and collect such royalties and pay part of them to the songwriters.

The price of music licensing and the rights that are conferred by a typical license differs among distribution media. Music distributors set different licensing rates on their recordings for different transmission types. MP3 downloads have become increasingly important and in 2007 overtook CD sales as the primary mode of music distribution, in terms of dollar sales volume in the USA.[238] Typically, music download services such as Apple or Amazon pay to the music group $.70–.75 for a download with a $.99 retail price, that is about 70%, and get to keep 30%.

For a CD, the retailer keeps about 20% of the retail price. The wholesale distributor receives another 17%, which leaves 63% for the label—the producing entity, which is often part of the distributor, and engages in the manufacturing and marketing. The music labels, in turn, typically pay a royalty percentage to the performing artists, usually ranging from 17% of the published price to wholesale dealers. This is for the performance. For the musical work itself, the label pays about 6% to the songwriter (composer and lyricist) and/or music publisher (holder of the copyright).

Using a recorded piece of music in visual media such as film, television, advertisement, video game, and so on, requires a synchronization royalty. Usually this is negotiated between the music rights owner and the maker of the visual material, such as a film producer. The rights owner will charge a one-time use fee, which will vary based on several factors

237 Hagerty, James and Min-Jeong Lee. "Samsung's Phones Help Sell Home Appliances." *Wall Street Journal*. August 6, 2013. Last accessed May 31, 2017. ► http://online.wsj.com/news/articles/SB10001424127887323664204578609892263756014.

238 Arango, Tim. "Digital Sales Surpass CDs at Atlantic." *New York Times*. November 25, 2008. Last accessed May 31, 2017. ► http://www.nytimes.com/2008/11/26/business/media/26music.html.

such as the centrality of the song, how much of it is used, how well known the song is, how wide a release there will be, and so on. This payment can range from a few hundred dollars up to hundreds of thousands of dollars. The payment is then divided between the owner of the master sound recording (usually the record label) and the songwriter/publisher. Normally, the performer will not receive extra payment for the song appearing in the material, unless the contract provides it. The rationale is that the increased popularity of the song that is featured in the film material will increase sales for the song, thus benefiting the performer.

Music Licensing by Performing Rights Organizations

Large media companies have licensing departments that negotiate and collect copyright licenses. They have legal departments that monitor violations and file legal complaints accordingly. Small copyright holders in the music field, however, must resort to joint collection agencies. These are known as performing rights organizations (PROs). PROs grant licenses to all types of venues and broadcasters, including TV and radio stations, networks, bars, and so on.[239] PROs were first established in France in 1851. They license and collect royalties for the public performances of members' copyrighted works. Members include composers and authors, but not artists or record companies.

PROs exist in many countries.[240] Major PROs in the USA are for the American Society of Composers, Publishers (ASCAP); the Society of European Stage Authors and Composers (SESAC), owned since 2017 by the Blackstone private equity firm; and Broadcast Music, Inc. (BMI), which is owned by broadcasters. There is also Sound Exchange, a nonprofit, Library of Congress-appointed performance rights organization that collects royalties from digital broadcasting media, such as cable TV music channels and satellite radio.[241]

In the USA, terrestrial radio broadcasters pay royalties to songwriters and composers but not to performers. A license fee is paid by the radio stations to PROs. These, in turn, distribute the revenues to their members, who are songwriters and composers. But a song being played on an FM station will not generate royalties for the artist. The idea is that the promotional value of being played on the radio is the benefit conveyed to the artist. However, the songwriter/publisher is paid, and often the singer/artist is also the songwriter. PROs scan the radio airwaves and keep a log of who is playing what songs. They collect royalties and pay them out according to the airplay. (Thus if ASCAP collects $10 million for one month of radio play, and during that month the stations played a total of 50 million songs, of which 1 million were Taylor Swift-written songs, she could expect to receive $200,000 in royalties for the month (2% of the royalty pool)). There are also bonuses for songs that are "hits" (played at least 95,000 times in a quarter). Similarly, there is also a bonus paid for "standards," songs which have had at least 2.5 million plays since being released, and are played a certain number of times each quarter. This system is different from that in many parts of Europe, where radio stations have to pay not just the songwriter/publisher, but also the performer.

PROs such as SESAC track songs on an online database (DJMonitor). DJMonitor has a playlist management system that lets rights holders review the music performed to verify the results and to make corrections.

PROs give radio stations a blanket license for all of the music of its members. The typical fee for such a license in the USA is about 1.6% of the radio station's net revenues. Alternatively, stations may purchase a "per-program" radio license, keep track of all music used, and pay periodically for those songs used.[242] The rates negotiated for blanket licenses vary, depending on bargaining strength and the value of the music to the distributor. A 1993 court case disclosed that the broadcast network NBC paid 0.44% of gross network revenue (TV and radio) to ASCAP for licenses for its 261 TV and radio outlets.

The PRO distributes the license fees it collects, minus administrative costs of about 20%. ASCAP determines performance credits based on the number of uses, the type of use, and the estimated audience. There are various formulas for the distribution of revenues. For example, for a musical, 5/12 (~42%) might go to the composer, 3/12 (25%) might go to the author, and 4/12 (33%) might go to the publisher.[243]

PROs calculate songwriters' revenues from royalties based on the type of media, size of anticipated listenership, popularity of the song, and other considerations. In the USA, songwriters are paid 12 cents each time a popular song is played on the radio by one of the stations in the top quartile of audiences, and 6 cents each time a song is played on smaller stations. For classical music, composers earn 32 cents per radio performance for stations in the top quartile and 1 cent for all other stations.[244] BMI, another major PRO in the USA, uses two systems to allocate music royalty, the Hit Song Bonus for major success music and the Standards Bonus.

239 Obringer, Lee Ann. "How Music Royalties Work." *Howstuffworks Entertainment*. April 2011. Last accessed June 28, 2010. ► http://entertainment.howstuffworks.com/music-royalties.htm.

240 Examples are the Kenya Association of Music Producers (KAMP), the Indian Performing Right Society (IPRS), the Argentine Society of Music Authors and Composers (SADAIC), the Russian Organization for Intellectual Property (VOIS), and the Japan Society for Rights of Authors, Composers and Publishers (JASRAC). In the EU there are 25 collection societies, each one the sole society for that country, established as a government-affiliated monopoly that collects all the royalty money in the country. PROs try to co-ordinate internationally in order to reduce the ability to bypass national payments. International organizations are the Confédération Internationale des Sociétés d'Auteurs et Compositeurs (CISAC), founded in 1926, which comprises 229 author's societies from 121 countries worldwide, and the Societies' Council for the Collective Management of Performers' Rights (SCAPR), founded in 1986, with 47 member organizations.

241 SoundExchange. "SoundExchange." Last accessed June 8, 2010. ► http://www.soundexchange.com/.

242 American Society of Composers, Authors, and Publishers. "Common Licensing Terms." Last accessed June 28, 2010. ► http://www.ascap.com/licensing/termsdefined.html.

243 To calculate performance royalties, PROs use different methods. ASCAP, for example, gives different weights to different performance types. A song that is featured on TV or on the radio is weighted higher than background music in a radio commercial. Similarly, the time of day a song is played is a factor. The total number of credits of a song is then multiplied by a "credit value," a factor which equals the total credits for all writers and publishers divided by the total collected money for that quarter. Royalties are paid out quarterly.

244 Preston, Frances. "The Royalty Information Booklet." *BMI*. July 1999. Last accessed on August 1, 2012. ► http://www.bmi.com/songwriter/resources/pubs/royalty_print.asp.

As mentioned, in the USA radio stations do not pay radio-play royalties to the actual performers or to the music labels. In contrast, much of the rest of the world compensates these performers for radio play. Owing to a lack of reciprocity by the USA, American artists are therefore not compensated for radio play abroad either. Music labels, too, are not paid by radio stations owing to the relative bargaining strength of the parties. Being played over the air is considered a form of promotion for the song. In fact, music companies have often paid the radio station for such exposure or given other benefits. This is known as "payola" and is illegal in the USA. Internationally, the treatment of this practice varies from country to country. (It is a perfectly legal transaction for books, films, and TV shows). In many countries, Jamaica being an example, it is not prohibited.[245] In South Korea, on the other hand, it is illegal, and payola scandals in the 1980s led to the dismissal or even arrest of Korean radio employees.[246]

A complex area of transactions is around license fees for the live performance of music. Music publishers and songwriters receive royalties for public performances of their songs, for example for a "cover song" performed at a concert or restaurant. The performance rights organizations handle performance licenses. For concerts, these PROs solicit, in the USA, the 300 major live performance venues (such as Madison Square Garden) and receive set lists for all of the performers. There is a license fee due for songs unless the performer owns/wrote them. The concert promoters and venues are responsible for covering the fees. The rate varies based on the size of the venue and is around 1% of the gross of gate receipts. Suppose an average ticket price of $200 and a venue that holds 15,000, then the venue will have to pay about $30,000, just for the copyright license, not the performance itself. The PROs collect the fees each quarter and then distribute them to the music publishers and songwriters, minus an administrative fee of about 11%. From there the fees are split up according to usage, and if one rights holder accounted for 20% of the songs performed, she would receive 20% of the fee pool collected.

For live venues such as restaurants and bars, PROs usually charge a flat fee per year, with a set limit for the number of people covered. The rate varies based on the type of establishment and its size A small restaurant may pay $105 a year flat rate for music events up to 2100 customers. Beyond that number the restaurant might have to pay an additional 0.05 cents per person. The fees are collected in the same way as for live concerts, pooled, and then distributed (minus the 11% fee).

For live concerts, the performer himself is paid by the concert promoter/venue. The upper echelon of the music touring industry (Rolling Stones, Bon Jovi, Taylor Swift, etc.) will be paid a flat, upfront fee for a specific number of shows (i.e. $10 million for 40 shows in the USA). The performers are then responsible for various costs (i.e. backup band, background dancers, scenery, special effects, equipment, grips, etc.). They also can get a percentage of the net as well (what is left over after the concert promoter/venue covers all costs for the show). This is called a door split deal. For less-known performers, a door split deal is usually the way to get paid. The performer's take might be 50–75% of the net receipts, after many others have been paid as expenses. Music labels may offer performers a loan called "tour support". Because it comes with a variety of strings attached, not all performers will elect to take this, and instead will self-finance their tours.

Another type of rights representation negotiates on behalf of copyright holders/publishers with the music labels. In the USA, the Harry Fox Agency (owned since 2015 by SESAC) is the major clearing house for such "mechanical licenses" by music publishers to music labels. It was established by the National Music Publishers' Association in 1927 and mostly serves these music publishers/rights holders.[247] It negotiates on behalf of music publishers with labels, collects and distributes royalties, and tries to fight piracy. Its Songfile service allows individuals to log in, view the catalog of songs, and purchase the rights to use them. The company was bought in 2015 by SESAC (which in turn was acquired by the private equity firm Blackstone in 2017).

Satellite radio, as well non-interactive internet radio (where the user is unable to select what the next song will be, such as Pandora) have to pay royalties to the songwriters and publishers as well as the performers. This is different than terrestrial radio, and came about as part of changes to the Digital Millennium Copyright Act. The rights organization SoundExchange was created by legislation with the exclusive right to negotiate and charge royalties for digital and satellite radio on behalf of the songwriters/performers. SoundExchange has two ways of determining royalties. For satellite radio, it charges a percentage of received revenue. Thus, SiriusXM does not pay individual royalties, but rather a percentage of the subscriptions it receives (11% in 2017) for performance rights and an additional 3% of revenues to publishing rights (i.e. to songwriters/publishers). The second method applies to non-interactive online radio and is based specifically on per-performance/per stream. Each service has an automatic fee ($500 per year, which rises to $50,000 if the service has more than 100 channels/stations) and an additional per stream rate. For non-subscription services (e.g. basic Pandora) the rate is $0.17 per 100 streams. For subscription services (e.g. Spotify in Radio mode) the rate is $0.22 per 100 streams. SoundExchange distributes 45% of performance royalties to the featured artists on a recording; 5% is paid to a fund for non-featured (unknown) artists. The other 50% of the performance royalties is paid to the rights owner of the sound recording.[248] SoundExchange allocates the money according to the number of streams over the time period.

245 Stanbury, Lloyd. "Have a law against payola." *The Jamaica Observer*. December 30, 2010. Last accessed June 6, 2011. ► http://www.jamaicaobserver.com/letters/Have-a-law-against-payola_8260693.

246 Billboard. "Korea radio de-hibernates, karaoke skyrockets, congloms rally market." August 21, 1993: SE22.

247 The Harry Fox Agency. "About HFA." Last accessed June 28, 2010. ► http://www.harryfox.com/public/AboutHFA.jsp.

248 SoundExchange. "About Digital Royalties." Last accessed May 31, 2017. ► https://www.soundexchange.com/artist-copyright-owner/digital-royalties/.

How are these online music royalty rates and terms determined? In the U.S., a Copyright Arbitration Royalty Panel (CARP) used to set rates for compulsory royalty payments. However, smaller webcasters protested the rates as unaffordable, and as a result of the political pressure the Library of Congress and Congress intervened and a new agency was created. In 2004, Congress replaced the CARP system with the Copyright Royalty Board (CRB), a three-member panel of judges that adjudicates copyright issues, collects payments, and distributes them.[249]

The CRB determines rates and terms for a statutory license. These are set either through voluntary negotiations or trial-type hearings before the panel of judges. In negotiated cases, distribution services negotiate with SoundExchange, which represents the rights holders, and present a deal that is reached to the judges for adoption. If the agreement is adopted by them, it will be available for opt-in by any similarly situated music distributors.[250]

In 2016 the CRB set the licensing rates. They have three tiers. Tier 1 service is commercial and interactive subscription services (Spotify, Google Play Radio, ApplePlay Radio, etc.), which pay $0.22 per 100 plays. The law requires that these services negotiate with copyright owners for licenses. Tier 2 is commercial non-subscription services (e.g. the basic Pandora), which pay $0.17 per 100 plays. These do not allow a user to choose what song to hear. They need not license each song, but such broadcasters may be subject to other statutory licenses. Tier 3 are non-commercial webcasters, which are basically non-profit style organizations doing online radio. An example is the rebroadcast of a terrestrial radio station on iHeartRadio. They are exempted from digital performance rights and pay $500 a year, so long as they do not have more than 159,140 aggregate tuning hours a month (this is the number of people listening each month). Any usage over that amount is charged at the rate of $0.17 per 100 performances.

Therefore, if a website has on average 2000 listeners and plays 15 songs per hour, then the royalty payment is $.0255 per listener per hour (15 × $.0017), or $51 for 2000 listeners per hour. This translates to $440,760 of licensing payments per year, which non-profit stations can rarely afford.[251] Even when the audience is, on average, a tiny 20, it would still require payment of $ 4467. This is reduced, for Tier 3 non-profits, by $2724, which still leaves a formidable barrier.

Large music sites also face financial problems. For example, Spotify has an $8 per month advertising-free subscription price. Assuming a per month use by a subscriber of four hours per day, 120 hours per month, this means that the subscriber pays Spotify about $0.066 per hour of listening. Assume 15 songs per hour at a regulated license rate of $0.0022 per song, the license cost to Spotify is then ~$0.033 per hour. Thus, music license fees alone eat up half the subscription revenue. And of course Spotify also has to spend money on marketing, production, technology, distribution, and administration. Furthermore, most Spotify users do not pay a subscription fee at all but rather listen to an advertiser-supported music stream.

It should be noted that this is a considerable change from the system prevailing for radio broadcasting. Historically, radio had a symbiotic relationship with the music industry. It provided free promotion for songs and thus may have generated higher sales. But now, the distribution platform is subject to a mandated payment rate by a government agency.

7.3.4.6 Licensing of Books

Factors in Book Licensing

In book publishing, acquisition editors sign authors to book contracts. (Subsidy publishers, "vanity presses," and the providers of self-publishing services, such as iUniverse and Xlibris, have their own publishing arrangements.)

A contract gives the publisher the rights to the book, usually worldwide, and may include rights to all derivative works, such as TV shows, films toys, and so on. A contract typically covers the grant of rights, copyright, publication, royalties, advances, foreign sales, deep discounts and book clubs, sale of rights, payments, and reserve against returns.

Royalties to authors range from 5% to 15% of gross sales revenues. Some publishers offer author royalties of 15% of the publisher's net, which is about 7.5% of the gross sales revenues. Authors typically receive a higher percentage for hardcover books and a lower one for paperbacks and romance books. Variable royalty rates depend on unit sales. The contract will specify which books count toward sales. Book advances typically count against royalties. In other words, a book must sell enough to earn back an advance. A publisher may hire a writer as a contractor or employee to write a book for a set honorarium rather than a royalty, either under the publisher's name such as in a travel book series, or under the author's name, or under a pen name.

For foreign sales, publishers usually assign different (mostly lower) royalty rates. Since a publisher's net receipts on foreign sales is easy to manipulate, authors prefer royalties based on gross sales.[252] When publishers license other publishers internationally, the royalty schedule for that license is typically 50/50 with the author on net foreign receipts. It is higher as a percentage because the domestic publisher has no production or marketing costs to cover when a foreign publisher covers these in its own country.[253] In other cases, the sale of foreign or translation rights are sold for a lump sum, often as low as a few hundred dollars.

249 Congressional Research Service. *Statutory Royalty Rates for Digital Performance of Sound Recordings: Decision of the Copyright Royalty Board*. Washington DC: Library of Congress, May 28, 2007.

250 SoundExchange. "Licensing 101." Last accessed May 31, 2017. ► https://www.soundexchange.com/service-provider/licensing-101/.

251 Harwood, D. Emily. "Staying Afloat in the Internet Stream: How to Keep Web Radio from Drowning in Digital Copyright Royalties." *Federal Communications Law Journal* 56, no. 3 (May 2004): 675–695.

252 Rosenthal, Morris. "Book Contracts- Author Royalties, Advances, and Rights in a Publishing Contract." *Foner Books*. July 11, 2005. Last accessed June 29, 2010. ► http://www.foner-books.com/contract.htm.

253 Walsh, Caroline. "Publishing Agreements." *Writers & Artists*. Last accessed May 31, 2017. ► https://www.writersandartists.co.uk/writers/advice/162/after-publication/rights-and-legal-advice/publishing-agreements.

When a book is out of print, in other words the publisher is not selling or producing it anymore, the rights may return to the author, by contract. But electronic print-on-demand permits publishers to now claim that a book is never out of print, and that they therefore permanently keep the rights to it. The Authors Guild, representing writers, termed this the worst of both worlds for an author: no marketing of a book by a publisher, yet no possibility of escape. Authors therefore seek contracts that specify tests for out-of-print besides availability, such as minimum sales or sales promotion efforts.[254]

When a book becomes the basis for a film, the first stage is typically an option arrangement. The book publisher (or author, depending on who retains the rights) enters into a literary option/purchase agreement. This means that a producer, or studio, in return for a payment (normally about 10% of the literary property's final purchase price if the option is exercised), gets the exclusive right to purchase by a specified time. After that period, the work can be purchased by anyone.[255]

The determinants of the option fee are the demand for literary property, the length of the option, the type of project (movie, television, etc.), the purchaser's resources, and the two parties' respective eagerness. An option period is typically set at 12–18 months, after which it expires. The option fee will typically be credited as the overall purchase price later if the option is exercised. There may also be a "set-up bonus"—an additional fee compensation to the buyer of the option if he makes a production deal with a film studio or TV network.[256]

The purchase price for a screenplay is subject to negotiations, but the minimum terms for a Hollywood production are set by and industry-wide contract negotiated with the writers' union (WGA). Minimum purchase price for an original screenplay is around $30,000–$70,000, depending on the production budget. But the WGA agreement does not cover books, articles, or plays that form the basis for a film. The copyright holder may get an upfront fixed amount, or a percentage of the production budget, or a percentage of the net profit of production (typically 5%). The latter arrangement means that the copyright holder shares in the film's upside and downside potential.

The copyright owners may try to keep certain rights in the options agreement, such as the publication rights, if the purchaser of the work does not use it for production after a given period of time; it may return ("revert") to the author's control, if so agreed, so that she can solicit another option deal. Well-established writers may retain creative control through approval rights over the use of their work.

Online book publishing has somewhat different arrangements. Amazon.com's Kindle store pays authors or publishers a 70% royalty rate of retail revenues.[257] There are several conditions, including that the price of the book must be below $10, and above $3, and at least 20% lower than the price charged for a paper version of the book.[258] Outside these brackets, Amazon keeps a much steeper cut of 65% in order to discourage such pricing. This issue is also discussed in ► Chaps. 11 and 12.

Amazon has historically held close to 65% of the e-book market and 40% of the total book retail market. The publishers, as they lost bargaining strength, rallied consumers to their side even though their goal was to keep consumer prices high. Publishers sold their digital works over Amazon with the same wholesale prices used for print. Amazon sold new book releases and bestseller for $9.99, even though these books typically sold in hardback for $26 to $35. Amazon's goal was to accelerate e-book sales. Publishers, though they collected the same wholesale price whether for print copies or e-versions, feared that in time a dominant Amazon would press them for much cheaper wholesale prices. To keep prices at $9.99, Amazon had to absorb substantial deficits. By 2009 it was covering $2, $5, and $7 losses on the sale of nearly every copy of the most popular titles.[259] Enter Apple. In contrast to Amazon, Apple operated a different model. Whereas Amazon used a wholesale model in which it set its own retail prices, Apple operated on an agency model. It takes the same 30% commission for books on whatever price the publisher's charges.

Apple had a "most favored nation" arrangement with publishers which gave it the right to match the price at which any e-book was being sold by another retailer, for example Amazon. If Amazon priced a book at $9.99, Apple could sell that book at $9.99 too, and the publisher would make only 70% of $9.99 from Apple—$7—instead of the $12 or $15 wholesale price it would get for that book from Amazon.

The publishers therefore had to push Amazon to get off its low price of $9.99. Macmillan's chief executive officer (CEO) John Sargent, leading the industry, gave Amazon a choice. Amazon could switch to agency (i.e. a percentage cutoff whatever price the publishers chose), or it could stay on the wholesale model. In that case, Macmillan would then window all its digital new releases, that is, release them gradually. Amazon then pushed back: it removed the buy buttons on all Macmillan books. This exercise

254 Rosenthal, Morris. "Book Contracts- Author Royalties, Advances, and Rights in a Publishing Contract." *Foner Books*. July 11, 2005. Last accessed June 29, 2010. ► http://www.foner-books.com/contract.htm.

255 Perez Esq., Dinah. "The literary option & purchase agreement." *Surfview.com*. Last accessed on August 1, 2012. ► http://www.surfview.com/sedpfrm.htm#THE%20LITERARY%20OPTION%20AND%20PURCHASE%20AGREEMENT.

256 Appleton, Dina and Dan Yankelevits. "Optioning Literary Properties." *Hollywoodlitsales.com*. June 21, 2005. Last accessed on August 1, 2012. ► www.hollywoodlitsales.com/ownwords/optioning.shtml.

257 Trachtenberg, Jeffrey A. "Amazon Launches Royalty Plan for E-Books." *Wall Street Journal*. January 21, 2010. Last accessed May 31, 2017. ► https://www.wsj.com/articles/SB10001424052748704320104575014653299582416.

258 Engadget. "Amazon announced new option they put their loyalties to 70% and it will start from end of July." January 20, 2010. Last accessed August 22, 2011. ► http://japanese.engadget.com/2010/01/20/kindle-70-6/.

259 Parloff, Roger. "Second Bite: Can Apple clear its name in the ebooks drama?" *Fortune*. December 2, 2014. Last accessed May 31, 2017. ► http://fortune.com/2014/12/02/apple-ebooks-litigation/.

of market power led to very negative publicity. Amazon, having flexed its muscles, agreed to switch to the agency model.

When the iBooks Store opened, most of the five major publishers' new-release books were priced at or near the $12.99 or $14.99 price caps, not at Amazon's $9.99. For the publishers this was a positive ending, but for consumers it meant higher prices.

Amazon fought Macmillan's demand to charge higher prices instead of $9.99. But it was unable to hold the line when publishers could charge more on Apple iPad/iTunes.[260] Amazon capitulated and accepted the agency model Macmillan demanded.

Amazon and Barnes & Noble both concluded that the price of an e-book should be between $3 and $10. They pushed publishers toward that price range by offering a more favorable percentage of the list price. At the bottom end publishers cannot sell an e-book for less than $1. Amazon has two tiers. For list prices in the desirable range between $3 and $10, the publisher receives 70% of the list price, minus the delivery fee. When the list price is below $3 or above $10, the publisher receives only 35% of the list price. In Europe, Amazon pays publishers 70% minus a delivery fee based on the file size (which runs from about $0.10 to $0.15 per megabyte). In Canada, Kobo pays publishers 70%.

The publisher, in turn, pays the author a rate of 5–15% on the 70% of retail which they get.[261] In Japan, one of the biggest publishing companies, Kodansha, set authors' royalty rates for electronic books to 15% of retail, excluding tax.[262] For paperbacks, royalty rates are usually about 10%. Kodansha's contracts require exclusivity and the company sets the retail prices.

There are also audio books, typically downloaded online. With audio book content, some US book publishers have exclusive three- to five-year contracts for all or some of their titles with the website Audible.com (owned by Amazon), which in turn is the exclusive supplier of online audiobook content to both iTunes (Apple) and Amazon. The exclusivity of iTunes was ended in 2017 when Amazon agreed to drop it in response to an investigation by the EU. iTunes can sell any audiobook.[263] Audible, through its affiliate ACX, gets to keep a decreasing percent as its share. ACX connects rights holders (i.e. publisher, self-published authors, etc.) with production individuals (narrators, audio engineers, studios, producers, etc.) so that audiobooks can be generated. Once the audiobook is created it can either be distributed by ACX to Audible, Amazon, and iTunes exclusively, or by a non-exclusive contract which allows the publisher to distribute it through another distribution channel.

An example of a European audiobook seller is Storytel AB, a Swedish company founded in 2005. For about $25 a month, users are able to stream unlimited audiobooks.

Licensing Organizations for Print

In 1938, patent attorney Chester Carlson made the first "electrophotographic" image. In 1947, Carlson licensed the technology to the Haloid company to develop the machine. By 1960, the Haloid machine was a huge success, and the company was renamed Xerox. Copying became easy and cheap. And so, therefore, did the unauthorized copying of copyrighted materials. Tape recorders had already done the same for music, starting in the 1950s.

Countries adopted different approaches to the new technology. For a while France imposed a tax on all copying machines, with its revenues paid out to copyright owners according to a formula. France and Spain had a per-page tax in certain circumstances.[264] Austria taxes blank tapes, and Germany taxes recording equipment.[265, 266] The USA mainly went the route of IP law enforcement. Reproduction rights organizations were created as a mechanism to pay participating publishers for copies. The CCC, based in Massachusetts, was established in 1977. Similar organizations exist around the world.[267] CCC manages the rights of millions of works of art, sound, and images, representing more than 10,000 publishers and hundreds of thousands of creators. It also operates an Amsterdam-based subsidiary, Rights Link, for European publishers. CCC facilitates transactions, especially by universities, to reproduce course reading materials from copyrighted articles and chapters from books. It deals with millions of individual licensing transactions each year. In 2013, according to its annual report, the CCC collected $100 million in royalties per year, over three times as much as in 2000. It is the largest licensor of rights for academic paper course packs in the USA through its Academic Permissions Service. This

260 Rich, Motoko and Brad Stone. "Publisher Wins Fight With Amazon Over E-Books." *New York Times*. February 1, 2010. Last accessed May 31, 2017. ► http://www.nytimes.com/2010/02/01/technology/companies/01amazonweb.html.

261 Milliot, Jim. "Authors Guild Slams 'Inadequate' E-book Royalty." *Publishers Weekly*. July 9, 2015. Last accessed May 31, 2017. ► http://www.publishersweekly.com/pw/by-topic/digital/content-and-e-books/article/67433-authors-guild-slams-inadequate-e-book-royalty.html.

262 J-Cast. "What will happen on royalty with moving to electronic books? It seems too cheap the price Kodansya set." October 31, 2010. Last accessed August 29, 2011. ► http://www.j-cast.com/2010/10/31079548.html.

263 Kastrenakes, Jacob. "Apple and Amazon End Decade-Long Audiobook Exclusivity Deal." *The Verge*. January 19, 2017. Last accessed May 31, 2017. ► https://www.theverge.com/2017/1/19/14323438/apple-audible-exclusivity-agreement-ended-antitrust-investigation.

264 Guibault, Lucie. "The Reprography Levies across the European Union." *Institute for Information Law*. March 2003. Last accessed May 31, 2017. ► https://www.ivir.nl/publicaties/download/reprography_levies.pdf.

265 Reuters. "Austria's Supreme Court Orders Amazon to Pay Copying Levy." *Business Insider*. March 17, 2017. Last accessed May 31, 2017. ► http://markets.businessinsider.com/news/stocks/r-austrias-supreme-court-orders-amazon-to-pay-copying-levy-2017-3-1001846593.

266 WIPO. "International Survey on Private Copying." June 5, 2015. ► http://www.wipo.int/edocs/pubdocs/en/wipo_pub_1037_2016.pdf.

267 Cancopy (Canada), Union des Ecrivain Quebecois (Canada), Kopiosto (Finland), Centre Francais du Copyright (France), VG Wort (Germany), KOPIKEN (Kenya), Kopinor (Norway), Pro Litteris-Teledrama (Switzerland), Copyright Licensing Agency Ltd. (UK).

is provided through its rapidly growing Electronic Course Content Service.[268]

7.3.4.7 Licensing of Films, TV, and Games

Factors in Licensing of Films and TV Shows

Film producers or distributors often issue licenses to pay-TV networks such as HBO or Canal Plus, and to advertising-supported TV networks such as CBS or Televisa. Each of these programming wholesalers buys licenses for hundreds of titles a year, spending billions of dollars to license slates of films from major Hollywood distributors.[269] Such licensing of films to programming wholesalers can give studios and producers a solid base of financing in advance of production. Another option is to sell distribution rights of the film in exchange for an agreed-upon royalty or sharing percentage in gross or net revenue ("participation"). Producers can borrow money from banks using these agreements as collateral.[270] A film or TV show can be sold by a producer to a distributor in every aspect, or limited in terms of rights to a particular language market, geographical territory, or media type (pay per view, video on demand, TV, in-flight movies, etc.). The producer tries to keep the license specific and narrow in order to allow the licensing of the product to other licensees.[271] Films also have future potential licensing opportunities for sequels, TV series, books, products, and so on. The ownership of these rights needs to be clearly partitioned from other licensing agreements.[272]

Production companies license programming to networks. A typical network licensing fee in the USA for regular television shows is about $1–2 million per episode, with one rerun, and $0.7–0.8 million for reality shows. Exclusive and unique shows such as award ceremonies have higher licensing fees.[273]

Additionally, networks or independent producers may license—or "syndicate"—their program licenses to other broadcasters. In 2010, NBC Universal bought exclusive syndication rights to the hit sitcom *Modern Family* for its USA channel for $1.4 million per episode, and *Glee* for its Oxygen channel for half a million per episode. Sony Pictures, which owns hundreds of television series (*Fantasy Island*, *Charlie's Angels*, *All in the Family*, *Designing Women*, etc.) made over two-thirds of its money in the 1990s from licensing such programs to television stations throughout the world.[274] TV shows are often licensed for syndication at major TV trade fairs such as the NATPE market in the USA and MIPCOM in Cannes, France.

Royalties for Film and TV Content Producers

In 2002 NBC paid Warner Brothers, the producer, $10 million per episode in licensing fees for the tenth season of the sitcom *Friends*. This was the highest price ever paid for a 30-minute sitcom, which NBC justified by citing the huge fan following of the show. The company expected to recover the cost by selling advertising time at about $450,000 per minute, or about $7 million per episode, and by using the show to plug its other series extensively.[275] Because of the high price of the show, NBC bought only 18 episodes of the season, including reruns. The show, even though still quite popular, was discontinued owing to its high cost. A more typical US TV drama show received $1.5 million per episode from a major network. On average, it costs about $3 million to produce a network show episode.[276] *Two and a Half Men* and *The Big Bang Theory* cost over $4 million an episode.

The independent producers of a film or TV program in turn pay royalties to performers and participants. These can have two components, flat and contingent.

The flat royalties are governed by a union contract as a floor; above it they are governed by negotiation and contracts. Contingent royalties come in two types: gross and net. In gross participation, the recipients are entitled to a share of the total revenues received by the studio. In net deals, performers or investors get paid only after deductions are taken, which often reduces profits to zero. Of gross participants, "dollar one" parties have the best deal because they get a share of all the revenue received by the studio even if the film loses money. For example, for the film *Saving Private Ryan* the lead actor Tom Hanks and the director Steven Spielberg each received 16.75% of the revenues from the first dollar brought in by the film, adding up to $30 million each from the theatrical distribution alone.[277] In contrast, most other gross participants get a share of the film's revenues only after

268 United States Patent and Trademark Office. Technological Protection Systems for Digitized Copyrighted Works. January 14, 2003. Last accessed August 1, 2012. ► http://www.uspto.gov/web/offices/dcom/olia/teachcomments/copyrightcc.pdf.

269 Marich, Robert. *The European Commission EC versus the Hollywood Studios*. New York: Informa, 2004.

270 Garon, Jon. "Film Financing and Distribution Deals." Gallagher, Callahan and Cartrell. August 2009. Last accessed August 1, 2012. ► http://www.gcglaw.com/resources/entertainment/film_distribution_deals.html.

271 Lisotta, Christopher. "Reality Gets Reworked for Prime." *Television Week* 23, no. 33 (August 16, 2004): 41–42.

272 Litwak, Mark. "Frequently Asked Questions: Music." *Mark Litwak's Entertainment Law Resources*. Last accessed June 27, 2011. ► http://www.marklitwak.com/faq/music.html.

273 Networks pay a fee of between 5.5 and 7.5 million dollars for the Emmy awards and 5 million annually for the Grammy awards. ABC has a seven-year contract for the Oscars for a total of 350 million dollars (fifty million dollars per year). Albiniak, Paige. "The Emmy goes…nowhere." *Broadcasting & Cable*. November 17, 2002. Last accessed May 31, 2017. ► http://dev.broadcastingcable.com/news/news-articles/emmy-goes…nowhere/94525.

274 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005

275 Braxton, Greg and Elizabeth Jensen. "Even as It Loses Money, 'Friends' Is Must-have TV." *Chicago Tribune*. December 24, 2002. Last accessed June 18, 2013. ► http://articles.chicagotribune.com/2002-12-24/news/0212240289_1_matt-leblanc-tentative-deal-nbc.

276 Carter, Bill. "Weighty Dramas Flourish on Cable." *New York Times*. April 4, 2010. Last accessed May 31, 2017. ► http://www.nytimes.com/2010/04/05/business/media/05cable.html.

277 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

the film has earned a certain amount, and net participants are entitled to a share of the profit only after numerous deductions are taken from the gross.

A special royalty system exists for DVD sales to pay the creators of a film. A studio's distribution arm pays the producers (typically an independent entity) 20% of the DVD wholesale revenues. This is the gross revenue of the producer for calculating payments to the artists or other participants. This leaves most of the DVD's revenues with the distributor.

To understand these internal transactions, an example provided by Edward Epstein is the sale of DVDs for the film *Gone in 60 Seconds*. Buena Vista Home Entertainment International (BVHEI), the distribution arm of Disney, earned $198 million from sales and rentals of videos and DVDs of this film. BVHEI then credited another Disney subsidiary, Walt Disney Pictures, the 20% royalty, which was $39.6 million. Against these gross rentals, BVHEI deducted as a video distribution fee $12.6 million and expenses of $7 million. This left $18.4 million credited to the film, which was then divided among participants for profit distribution. The actor Nicholas Cage received, by his contract, 10% of the video gross, in other words $3.96 million. If net profits were the basis, Cage would have received $1.84 million. But the actual gross receipts of $198 million had been used to calculate his share, he would have instead have been due $19.8 million. (For further detail, see ► Chap. 13 Accounting in Media and Information Firms.)

Residual Royalty Payments

A problem that emerges regularly is whether the creator who sells the rights to his creation for current distribution media has thereby handed over the rights to any future and new forms of distribution. In the 1990s, freelance journalists sued the *New York Times* for copyright infringement after it republished print-licensed articles in digital form. In 1997, the US Supreme Court agreed, and ruled that the publishers must explicitly purchase electronic rights from an author before reproducing the material in an electronic format. A publisher cannot simply "repurpose" the original material into other forms of media without permission.[278] The case sent a shockwave through the media sector, and from that time on contracts included a blanket clause that covered future distribution forms.

Similarly, the licensing of TV "residuals" has been the source of controversy. A residual is a sum paid to actors and writers every time a commercial, a TV show, or an episode airs or a copy is sold. In 1992, the Screen Actors' Guild (SAG) negotiated a contract which established a residuals compensation of 12% of a minimum of $761 for the first rerun of a program and 1% of the minimum for the thirteenth rerun and beyond.[279] In 2006, SAG succeeded in raising the residual to 17% of the license payment by the TV station or network for the first rerun and to 1.5% for the thirteenth and subsequent reruns. When the contract expired in 2008, a lengthy dispute ensued.[280] Similarly, disagreements over residuals compensation resulted in the prolonged and costly writers' strike of 2007–2008.

Licensing of Online Video

Licensing of online distribution of video content is an active area of development. Download services for feature films, such as Amazon, typically pay about 50–60% of their revenue to the copyright holders. This payment is somewhat lower for subscription services.

For the licensing of films there are two parts to a contract. The first is for new film releases. Streaming services such as Netflix negotiate a time release (such as 12 months from the opening date) when the film enters the streaming service. The rate at which the streaming service pays varies based on the film's box office performance. Netflix uses a rate card which in 2016 set the rate which it paid for the film, which could range from $787,500 for a film grossing less than $1 million up to $19 million for a film grossing more than $125 million.[281] Such rate cards are negotiated between the two sides, based on different factors such as exclusivity, the time frame of the contract (how many years it runs), and other factors.

The second part deals with back catalogs of films and television. Here, streaming services use big data analysis to explore the types of content their customers are viewing. Netflix has been cutting down its back catalog of films, having found that no matter how large a catalog is offered, average consumers only spend about a third of their time watching films; the rest is spent viewing original content and TV shows.[282] For TV, streaming services negotiate for exclusivity and how many seasons they get access to, along with the desirability of the content. As part of Netflix's deal with Disney, it acquired the streaming rights for TV shows such as *Lost*, *Scrubs*, and *Desperate Housewives*, paying $45 million, $26 million, and $12 million respectively each year of the agreement.[283]

278 *New York Times Co v. Tasini* 533 U.S. 483 (2001).

279 McNary, Dave. "SAG's Keeping Cable on the Table." *Daily Variety*. March 16, 2006.

280 Wyatt, Edward. "Screen Actors Approve New Contract." *New York Times*. June 9, 2009. Last accessed May 31, 2017. ► http://www.nytimes.com/2009/06/10/business/media/10sag.html.

281 The information regarding this rate card came about due to an ongoing lawsuit between Relativity Media and Netflix. Gardner, Eriq. "Relativity's $1.5 Billion Lawsuit Offers Rare Peek at Netflix License Agreement." *The Hollywood Reporter*. October 18, 2016. Last accessed May 31, 2017. ► http://www.hollywoodreporter.com/thr-esq/relativitys-15-billion-lawsuit-offers-939463.

282 McAlone, Nathan. "Netflix Explained Why Its Movie Selection Has Gotten So Skimpy." *Business Insider*. December 5, 2016. Last accessed May 31, 2017. ► http://www.businessinsider.com/netflix-viewing-is-a-third-movies-no-matter-what-2016-12.

283 Investopedia. "How Netflix Pays for Movie and TV Show Licensing." June 25, 2015. Last accessed May 31, 2017. ► http://www.investopedia.com/articles/investing/062515/how-netflix-pays-movie-and-tv-show-licensing.asp.

Case Discussion

NBC Universal Film and TV Licensing

NBC grants licenses for use of its content ("outbound licensing"), and acquires licenses to content by others ("inbound licensing"). In an example of outbound licensing, NBC Universal struck a multiyear licensing agreement with BSkyB in 2012. The agreement provides BSkyB with NBC's TV rights in the UK and Ireland. TV content includes *Law & Order: Special Victims Unit* and *Cold Case*. BSkyB is the largest pay-TV broadcaster in Britain and Ireland with 10 million subscribers, and is controlled by 21st Century Fox, NBC's rival in the USA. The contract also allows BSkyB to air Universal films, with exclusive access, after they end their UK theatrical runs, for a window of about a year until they also become available on other subscription services, such as Netflix. The financial terms of the agreement were not disclosed.[284] However, BSkyB spent about $3.5 billion per year on obtaining exclusive rights to first-run films from Hollywood film studios. The average for a Hollywood studio is therefore about $600 million for films, plus about $400 million for the licensing of TV series from NBC and Universal.

Other examples of outbound licensing are Universal's license to Netflix for television series from NBC Universal as well as from NBC's cable channels USA, Syfy, and so on. Through 2010, Universal received about $22 million from Netflix through its licensing contract. That figure grew to $275 million per year upon renewal of the contract in 2011. Universal also entered in 2011 into a movie-licensing contract with Amazon.com. Amazon paid NBC Universal an estimated $50 million for four to five years of the right to show many of its movies and TV shows. Another outbound licensing deal of NBC was with LOVEFiLM, Amazon's European online film operator that competes with Netflix for the streaming of video. LOVEFiLM received access to hundreds of US TV series.

NBC began selling TV shows on Apple's iTunes in 2010, but NBC was unhappy with the price for single downloads and with Apple's 30% take. As a result, NBC temporarily stopped selling TV shows on iTunes in 2010.[285]

Examples for NBC's inbound licensing are discussed further below.

7

Licensing by Cable TV Channels to Retailers: Cable TV Operators (MSOs)

Once the cable TV channels obtain inbound licenses, as described in the preceding case discussion, they aggregate these items of content into a bundle of programs. These channels, in turn, are offered to cable television and satellites operators who generally pay a licensing fee to the cable program channel provider. Some program channels may be carried without compensation and support themselves from the advertising they carry. Some may even pay an upfront fee to the cable platform company in order to be carried. But most non-subscription channels get paid by cable operators a licensing fee that varies from a few cents per subscriber per month to over $5.[286] In 2013, cable channels included[287]: ESPN, the sports network, was at the top, with $5.54 per cable subscription per month; Disney Channel got $1.15; Fox News $0.94; CNN $0.60; and Animal Planet $0.10. For pay-TV, where there is no advertising, the cable operators split subscription revenues with channel providers about 50:50.

Licensing by Syndicators to Retailers

First run syndications are programs sold by TV producers directly to smaller networks, cable channels, and local TV stations without being shown first on a major network. "Programming strips," shows, are slotted into the same time daily (e.g. *Entertainment Tonight* or *The Wheel of Fortune*), and are broadcast in first run syndication, especially game shows and cartoons. Shows can also be first run syndicated to cable channels when they fail to garner an audience on the major networks. Sometimes first run syndication proves more successful than broadcasting on network television. For example, *Baywatch* was unsuccessful during its first season on NBC in 1989, but was extremely popular as a first run syndicated show.[288] Second run syndication shows are programs that have already been shown on major TV or cable networks and are subsequently distributed over lesser channels.[289]

In barter syndication, a program is given by a syndicator to a TV station or channel without charge, but with several minutes of advertising controlled and sold by the syndicator. There are also mixed deals (cash-barter syndication), where a station pays a fee and will also set aside commercial slots for the syndicator. For those advertising slots to be interesting to advertisers and manageable for the syndicator, the syndicator typically must sell the show in over half of the country. There are barter advertising sales companies that sell advertising slots on behalf of the syndicators. For example, Camelot Entertainment Sales is the barter advertising arm of the syndicator KingWorld.[290]

284 Szalai, Georg. "U.K.'s BSkyB Extends NBCUniversal Movie Deal With Exclusive Window." *The Hollywood Reporter*. November 6, 2012. Last accessed June 4, 2013. ► http://www.hollywoodreporter.com/news/uk-bskyb-nbcuniversal-movie-tv-deals-exclusive-netflix-lovefilm-386837.

285 Tenny, Paul William. "NBC Screws up with Amazon Unbox Deal." *Mediapundit*. September 6, 2007. Last accessed July 15, 2013. ► http://www.mediapundit.net/2007/09/nbc-screws-up-with-amazon-unbox-deal.html.

286 Sports Business Daily. "Subscriber Revenue, Assets Give ESPN A Leg Up Against Competitors." November 25, 2008. Last accessed May 31, 2017. ► http://www.sportsbusinessdaily.com/article/125828; Pew Project for Excellence in Journalism. "Network TV: Economics." 2010. Last accessed May 31, 2017. ► http://www.stateofthemedia.org/2010/network-tv-summary-essay/economics/.

287 Bui, Quoctrung. "The Most (And Least) Expensive Basic Cable Channels, in 1 Graph." *NPR Planet Money*. September 27, 2013. Last accessed May 31, 2017. ► http://www.npr.org/blogs/money/2013/09/27/226499294/the-most-and-least-expensive-cable-channels-in-1-graph.

288 Fletcher, James. "Syndication." *Museum of Broadcast Communications*. June 21, 2005. Last accessed July 1, 2010. ► www.museum.tv/archives/etv/S/htmlS/syndication/syndication.htm.

289 Examples include *The Sopranos*, for which the channel A&E paid Time Warner's HBO $2.5 million per episode in 2006, after they were already repeatedly shown on HBO; *CSI: New York*, for which Spike TV paid CBS $1.9 million per episode in 2006; and *House*, for which NBC paid Fox $1.4 million per episode in 2008 to broadcast the show on its cable subsidiaries, USA Network, and Bravo. TV stations and cable networks keep broadcasting the entire series of successful old TV shows, from *I Love Lucy* of the 1950s to *The Gilmore Girls* of the 2000s. Warner Brothers, the production company for *Friends*, collected over $4 million per episode from syndicating the series to local TV broadcast stations.

290 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television*. (New York: Bill Board Books, 1998), 30–45.

Licensing in Video Games

In game licensing, IA owners such as game developers or game publishers receive a percentage of sales revenue. They may also receive an advance and a guarantee regardless of sales success. Other license fees are paid to the owners of films that are the basis of games. Such licenses will usually cost 5–7% of sales and 12–15% for blockbuster titles (sales greater than $5 million). In other instances, it is the game that precedes the film in positive recognition, and the licensing process goes in the other direction.

7.3.4.8 Compulsory Licenses

Compulsory Licenses for Copyrights

So far, we have mostly discussed the licenses among producers and distributors, or between distributors and retailers, for example. They are commercial transactions, with prices set by market forces and bargaining among the parties. Inevitably, various economic interests and constituencies will try to modify the commercial transaction through governmental intervention. Some parties will argue that they are being expropriated, overcharged, or excluded, or that consumers suffer, and in consequence that regulated license fees are necessary. In the USA, a compulsory license exists for most musical compositions. An artist may use someone else's composition in live performance or recordings. The artist must give notice to the copyright owner (or the copyright office if the owner cannot be found) and pay a royalty set by the governmental body in charge. Compulsory licenses exist for "cover songs," in which an artist plays another artist's song. An example is Jimi Hendrix's version of Bob Dylan's "All Along the Watchtower." To cover this song, Hendrix had to serve notice of intention to do so on Dylan and the copyright office. He had to pay the then-current royalty rate, which was 9.1 cents (or 1.75 cents per minute of playing time).[291] The compensation rate is set by bodies such as copyright tribunals (UK, Australia, and other countries) or the CRB in the USA. Artists and composers were often unhappy with the system. The late singer Prince complained: "A lot of times, people think that I'm doing Sinead O'Connor's song and Chaka Khan's song when in fact I wrote those songs … there's this thing called the compulsory license law, which allows artists, through the record companies, to take your music, at will, without your permission. And that doesn't exist in any other art form, be it books, movies—there's only one version of 'Law and Order.' But there are several versions of 'Kiss' and 'Purple Rain.'"[292]

There is also a compulsory license in the USA that permits cable MSOs and direct broadcast satellite (DBS) broadcasters to carry "distant signals" of local TV stations in other parts of the country (and local TV for DBS carriers), without requiring permission by the TV stations and networks, as long as a statutory licensing fee is paid to the broadcasters at the price set by the CRB.

The licensing fee is set by the CRB with a complex formula. It is based on the gross program receipts from the number of distant signal equivalents on the cable system. Twice a year, the cable operator files a statement about its system revenue and signal carriage, as well as the royalty fee payment.[293]

Cable and satellite operators are required to obtain a retransmission consent from TV stations; that is, to pay a license fee for the channel. Quite regularly, the two sides cannot agree on the compensation and the channels are then "blacked out," causing public inconvenience. For example, in 2013 Time Warner Cable, the second largest cable operator in the USA, blacked out all CBS-owned networks for a week. This led to calls for a governmental setting of prices. Retransmission consent (i.e. license fees) does not apply to public broadcasters, whose content is therefore free for cable distribution.

The CRB also sets the default rates that online music services must pay for their ability to carry music of their choosing. This was discussed earlier.

In 2018, the US Congress passed a "Music Modernization Act" that creates a mechanism for music and music publishers. It establishes a government-sanctioned mechanical licensing collective overseen by both songwriters and streaming services, and enables the latter to get blanket licenses rather than having to track down the rights holders. It would also create a database of rights holders so they would receive their license royalty payments.

Compulsory Licensing for Patents

Compulsory license may exist for patents. In the USA, the government authorizes defense contractors, in certain situations, to infringe patents, with the government assuming liability. These cases are rare, however.

Courts or governments have in the past mandated the sharing of patents ("compulsory licensing"). When AT&T was a near-monopolist in telecoms, it had to share its patents with others.[294] That 1956 consent decree greatly affected the microelectronics industry because it led to the diffusion of semiconductor technology. AT&T, which held a dominant

291 17 U.S.C. § 115 "Scope of exclusive rights in nondramatic musical works: Compulsory license for making and distributing phonorecords." The UK's copyright tribunal in 1991 set the record royalty rate for musical works at 8.5% of the dealer price (excluding VAT) of every record. This can alternatively be expressed as 6.5% of the retail price (excluding VAT).

292 Masnick, Mike. "Prince claims when someone covers your songs, the Original no Longer Exists." *Techdirt*. April 21, 2011. Last accessed February 27, 2012. ► http://www.techdirt.com/articles/20110420/13280113977/prince-claims-when-someone-covers-your-song-original-no-longer-exists.shtml.

293 Royalty rates are typically 89% of the gross receipts (GR) for non-network programming; 89% of the GR for the first distant signal equivalent; 56% of the GR for the second, third, and fourth distant signal equivalents; and 27% of the GR for each additional distant signal. If the GR paid by the subscribers is less than $146,001, then the GR equals: Actual GR – (Actual GR - $146000), but the GR cannot be reduced to less than $5600. The royalty fee is therefore 50%. If the GR paid by the subscribers is greater than $146,000 but less than $292,000, then the royalty fee is 50% of any GR up to $146,000 plus 1% of any GR in excess of $146,000 (but less than $292000).

Royalty rates for cable systems within the top-50 television markets are calculated differently. For the first distant signal equivalent, the royalty rate is 60% of the GR for the first distant signal equivalent. For the second, third, and fourth distant signal equivalents, the royalty rate is 38% of the GR. The royalty rate is 18% of the GR for each additional distant signal equivalents. In the second television market the royalty rate is 30% of the GR for the first distant signal equivalent; 19% of the GR for the second, third, and fourth distant signal equivalents; and 89% of the GR for each subsequent distant signal equivalents.

294 IBM, too, was forced to share some of its technology.

patent position in 1956, adopted a policy of licensing its semiconductor patents at nominal rates to all-comers. (e.g. its researchers developed the transistor.) AT&T, by the terms of consent decree, could produce only for its own network needs. It was required to cross-license its patents. As a result, virtually every important technological development in the industry was available to rivals and employees of AT&T, who went into business for themselves. This would sow the seeds for Silicon Valley.[295]

Countries that belong to the World Trade Organization (WTO) can attain compulsory licensing for pharmaceutical products, enabling that country to distribute a pharmaceutical product without explicit permission from the patent owner. The country may also import such drugs from a manufacturer without a license if the country does not have the capacity to manufacture drugs. In India, the first compulsory license (with a statutory license fee) was utilized by the domestic pharmaceutical firm Natco, which made and sold the cancer drug Sorafenibtosylate that had been patented by the German drug company Bayer. It paid Bayer the low statutory license fee.[296]

Inevitably, such rules that aim to help cancer patients were soon used to help out domestic manufacturers that do not like to pay license fees to foreigners. (And who does?) The Taiwan government granted in 2004 a compulsory license to the Taiwanese firm Gigastorage, a maker of office electronic storage devices, for the CD-R technology of five patents held by the Dutch company Philips.[297] Philips sought a higher license fee that Gigastore wanted to pay. In addition, Gigastore had cheated Philips in its past sales reports, and Philips, understandably, was not eager to do business with it. Gigastore then persuaded the Taiwanese government to force Philips to give it a compulsory and low-rate license based on "local need," even though it produced largely for the export market.

In 2002, the US Department of Justice settled a long-running anti-trust case against Microsoft. It required the company to license on reasonable and non-discriminatory terms IPR for several protocols that were required for applications software to be interoperable with Microsoft Windows. This led to the creation of "middleware" providers with access to Microsoft's operating system. The compulsory license was free.

In 2004, the European Court of Justice, in a ruling on compulsory licensing of IPR under European competition law, set four conditions in the case *IMS Health vs. Med*[298]:

- The IPR should constitute, upstream, an indispensable factor in the downstream supply of a (secondary) product.
- The potential licensee should intend to produce new goods or services not offered by the owner of the right, and for which there is a potential consumer demand.
- The refusal should not be justified by objective reasons.
- The refusal should be of such a nature that it reserves for the owner of the right the market for the provision of the product, by eliminating all competition on that market.

7.3.4.9 Creating Tradable Securities from Intellectual Asset Income Streams: Securitization

IAs are often illiquid, yet the assets may have a fairly predictable revenue stream. Often the owners of the IA, such as artists or their heirs, wish to borrow money to spend against future receivers. But traditional lenders do not consider IP as collateral. To deal with this, some financial institutions created a system of "securitization," in which the copyright holder issues securities (i.e. borrows money) and the buyers of the security (i.e. the lender) is paid back from annual royalties. Securitization allows the owner to keep 100% ownership of the assets being financed, though the IA could also be sold to a financial entity. The best-known example of this is the "Bowie bond" of the 1990s. The singer David Bowie (as well as Elton John, Sting, and others) issued publicly traded bonds using future album revenues to back the debt issuance. David Bowie received $55 million, repaid by subsequent royalty payments. Similarly, James Brown made $30 million through Bowie bonds. The securitization of IP has also been done for events, books, films, sports events, and video games.

Securitization offers several advantages, such as greater liquidity, diminished risk to the artist, and tax-advantages to the investor.[299] This is discussed in greater length in ► Chap. 6 Financing Media, Information, and Communication.

7.3.4.10 Sports Licensing

Traditionally, major sport rights have been controlled by industry cartels ("leagues") of content-producing companies ("teams"), or by event sponsors such as the International Olympic Committee (IOC) and the international soccer federation (FIFA). They operate through three legal mechanisms[300]:

- control of access to private location (e.g. stadium, racetrack);
- control of IP for distribution of the content (media rights);
- control of event partners (major advertising sponsorships and general sponsorship).

The laws are favorable to sports firms. For example, baseball is specifically exempted from the anti-trust laws in the USA.[301] Moreover, the sport content product is perishable, which reduces piracy.

295 Mowery, David C. *Science and Technology Policy in Interdependent Economies.* (Boston: Kluwer Academic, 1994), 217.

296 Estavillo, Maricel. "India Grans First Compulsory Licence, For Bayer Cancer Drug." *Intellectual Property Watch*. December 3, 2012. Last accessed May 31, 2017. ► http://www.ip-watch.org/2012/03/12/india-grants-first-compulsory-licence-for-bayer-cancer-drug/.

297 Love, James Packard. "Recent examples of the use of compulsory licenses on patents." *KEI Research Note 2, Knowledge Ecology International.* March 8, 2007, revised March 31, 2007. Last accessed May 31, 2017. ► http://www.keionline.org/misc-docs/recent_cls_8mar07.pdf.

298 Love, James Packard. "Recent examples of the use of compulsory licenses on patents." *KEI Research Note 2, Knowledge Ecology International.* March 8, 2007, revised March 31, 2007. Last accessed May 31, 2017. ► http://www.keionline.org/misc-docs/recent_cls_8mar07.pdf.

299 Ghent, Andra and Rossen Valkanov. "Advantages and Disadvantages of Securitization: Evidence from Commercial Mortgages." *SSRN*. March 1, 2013. Last accessed May 31, 2017. ► http://www.vgsf.ac.at/fileadmin/user_upload/P/SSRN-id2152703..pdf.

300 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012. ► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.

301 Weinberger, James D. "Baseball Trademark Licensing and the Antitrust Exemption: An Analysis of New York Yankees Partnership v. Major League Baseball Enterprises, Inc." 23 Colum. – VLA J. of L. & Arts 75 (Winter 1999).

The rights for particular commercial activities by the parties are granted through a variety of licensing contracts by the team, league, or event sponsors. In sports licensing, there are two principal types of rights[302]:

- media rights;
- sponsorship and franchising rights.

Although the categories are overlapping, the former is focused on copyrights and the latter on trademarks.

Media Rights Licensing

Media rights are typically sold to TV networks, cable channels, local television stations, and/or radio. Media rights are differentiated by time, territory, medium, and so on.[303] Successful teams in large media markets command the best prices for licenses. The duration of media rights deals can cover anything from a one-shot event to an entire league's matches over several years.

In the early decades of TV, the monopoly public services broadcasters in Europe claimed that they had the right to cover sports events just as the print press did. They paid trivial amounts to the event sponsors, just to compensate for the logistical arrangements. Until the 1980s, most TV in Europe consisted of public service broadcasters operating as monopolists in their countries. Hence there was no competition for sports rights and prices were low, despite sports programs attracting huge audiences.[304]

But when private commercial networks emerged in the 1980s and with them competition for viewers, sports events became a big attraction, and the leagues cashed in. Soon the individual team companies, too, claimed their share.[305] In 1999, Rupert Murdoch's News Ltd. went one step further and sought to buy a content producer itself – the world's most popular soccer team, Manchester United. But the UK regulators blocked the deal.

Under the old, non-competitive system, many sports rights were acquired by the European Broadcasting Union (EBU), the regional cartel organization for the national monopolies. This lowered the ability of the sports federations to play off countries against each other. For the Olympic Games of 1980, 1984 and 1988, the European rights accounted for 8%, 8%, and 10% respectively of the US fees, even though the EBU serviced a much larger population and audience. With competition, value migrated to the less competitive segment. It moved "upstream" from the conduit (TV networks) to the content (sports leagues).[306] In 1996, the EBU was challenged in Europe for the Olympic rights by Rupert Murdoch's News Corp., which bid $2 billion for the games from 1996 to 2008. The EBU had to increase its bid greatly, to a figure still $0.6 billion less than News Corp., but the IOC accepted the lower bid, mostly for political reasons. Domestically in the UK, licensing prices rose enormously after Murdoch's BSkyB offered much higher payments in 1992 for soccer broadcast rights.

In Australia, the growth of pay-TV channels in the 1990s led to the fear of the migration of sports broadcasts to pay-channels, so that many people would not be able to watch major sports events on free-to-air TV. This also raised the cost of sports rights to established private broadcasters. It led in the late 1990s to an Australian "anti-siphoning" law.

To reduce the financial clout of commercial broadcasters, the EU Commission empowered each member state to draw up a list of events, national or non-national, that the state considered to be of major importance for its society, which had to be shown on the free major channels.[307] Many countries have regulations such as TV "listed events" and anti-siphoning rules to move sporting events back to the "free" public domain sphere. In Ireland, for example, the Minister for Communication and Natural Resources may designate events that are considered to have a special general relevance for the people of Ireland and also have a generally recognized distinct cultural importance for them. The protected list includes[308]:

- the Summer Olympics;
- Ireland's games in the European Football Championship Finals;
- the European Football Championship Finals;
- the FIFA World Cup soccer tournament;
- Ireland's games in the Rugby World Cup Finals Tournament;
- the Irish Grand National and Irish Derby.

In the USA, no such government rules exist but they are often advocated. Instead, the National Football League (NFL) has an anti-siphoning policy of great complexity whose aim it is to maximize revenues, exposure, and political acceptability.[309] Most of the NFL's emphasis on free network TV is due to the experience with boxing, whose popularity greatly declined with its migration to pay-TV. Similarly, NASCAR stock car racing and golf declined in popularity after they moved to ESPN. In France, the dominant pay-TV operator Canal Plus made a €600 million a year deal for the French

302 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012.
► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.
303 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012.
► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.
304 Noam, Eli. *Television in Europe.* New York: Oxford University Press, 1992.
305 Thus, in 1998 a German court awarded the media rights to the clubs themselves. Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.
306 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.
307 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.
308 White, Andrew. "Broadcasting Rights for Sporting Events in the UK and the Republic of Ireland." *Centre for Media Research: Media Policy Briefing Papers* no. 3, 2012.
309 In 2014, all NFL regular season games, except two games each week, were broadcast by the free TV networks.
The two games that are each week on cable are the league-owned Thursday (Weeks 10–16 excluding Thanksgiving in 2014, plus two Saturday night games) and Disney's Monday night packages, except in Week 1 (two Monday Night games), Thanksgiving (Monday night only), Week 16 (Monday night only), and Week 17 (all games on Sunday). On Week 1 and Thanksgiving, the Thursday game is a broadcast network television game (NBC) and not on the NFL Network. On Week 1, ESPN has two Monday Night games. On Weeks 2–9, the NFL Network game is simulcast on all CBS affiliates. On Week 16, there is no Thursday night game. On Weeks 15–16 there is a Saturday night game on the NFL Network. On Week 17, all games air on broadcast network affiliates of Fox, CBS, or NBC.
The league's anti-siphoning policy states that the respective cable channel is blacked out in the markets of the two teams playing in the cable-channel games. The NFL sells a syndicated package to local stations within the regions of the teams involved for the Thursday (Weeks 10–16 except Thanksgiving in 2014), Saturday (same as Thursday), and Monday night package.

football league rights, much higher than in the past.[310] The European Commission let the exclusivity stand, even though a few years earlier it had blocked BSkyB's exclusive rights for the English Premier League. The EU Commission held that the league must award its rights to more than one broadcaster in the future. The second highest bid was €327.5 million. According to experts, Canal Plus would have to add more than 1 million subscribers to its 5 million to recoup the additional cost of the new contract, and this was not likely. The soccer federation had split the matches into four packages, but Canal Plus made the highest bid for each.

Some media rights deals include interviews with players and coaches at various times of the event, with the logo of the TV program's sponsor prominently displayed in the background.

In a constant enlargement of claims to property rights, sports leagues have expanded their claim of property to the sports scores themselves. This has led to legal fights over the rights to disseminate and profit from sports information, and the freedom of the press.[311]

Franchise Rights Licensing

For franchise licensing, the rights are administered by a branch of a league known by names such as the properties division. It approves licenses for products, polices the trademarks infringement, distributes licensing revenues among league franchises, and handles marketing and sponsorship efforts.[312]

National Football League Properties, Inc. (NFLP) is a company set up and owned by all the clubs of the NFL. Each club grants NFLP an exclusive license to act as a licensing agent for its trademarks, logos, etc. NFLP then negotiates with manufacturers for licenses to produce merchandise with the NFL and member club's trademarks. The royalty fee is set at 6.5% of all net sales of the licensed products, while 15% of NFLP receipts goes to the league itself.[313] NFLP maintains a quality control program of its licensees' merchandise, and investigates and enforces adherence.[314] The professional sports and collegiate franchise licensing revenues have declined, however, from a high in 2006 of $15.15 to $12.31 in 2011.[315] The following are statistics from some US properties divisions (Table 7.3):

Table 7.3 Product franchises by sport leagues

League	Licensees (in 2012)	Retails sales (in 2014)
NFL	150+	$3.2 billion
MLB	150+	$3.3 billion
NHL	200+	$1 billion
NBA	100+	$2.3 billion

Silcox, Scott. "List of NFL Licensees – National Football League Licensees." *Licensed Sports.* March 7, 2012. Last accessed May 31, 2017. ► http://licensedsports.blogspot.com/2012/03/list-of-nfl-licensees.html

Licenses can also be given by players themselves for their endorsements of products. A players' unions can administer this for its members, or a player's personal business representatives may do so. For example, the NFL Players Association issues annually about 100 licensees, for about $30 million.[316] It collected more than $35 million in royalties from the game maker Electronic Arts in 2008.[317]

For college sports, the National Collegiate Athletics Association(NCAA) has long enforced strict rules barring college athletes from cashing in on their celebrity status. Athletes, however, have challenged these restrictions in court for the right to control the use of their images.

For individual professional sports (as opposed to team sports), the athletes have agents who handle licensing agreements. For example, skateboarding champion Tony Hawk got $1.5 million a year for licensing and endorsements.[318]

All this is dwarfed by the fees collected by the sponsors of the Olympic Games and of the Football (Soccer) World Cup. The IOC, headquartered in Lausanne, Switzerland, set up a sponsorship arrangement called The Olympic Partner (TOP), program that included big sponsors such as Coca-Cola and McDonald's who paid many millions of dollars. These payments are shared between host cities that foot the bill for the venues and infrastructure, and the IOC. Sponsors are given exclusive rights to the Olympics trademark of five rings, and only their products can be sold at the Olympic venues.[319] For the 2012 London Games, these TOP sponsorship corporations paid the IOC over $100 million each. The next tier of sponsors each paid $40 million.[320] The London Organizing Committee of the Olympic, which did the actual staging of

310 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.

311 Freeman, Andrea. "Morris Communications v. PGA Tour: Battle over the Rights to Real-Time Sports Scores." *Berkeley Technology Law Journal* 20, no. 1 (January 2005): 3–21.

312 Mullin, Bernard J., Stephen Hardy, and William A. Sutton. *Sport Marketing.* 2nd ed. Champaign: Human Kinetics, 2000.

313 Friedman, Avi. "Protection of Sports Trademarks." *Loyola of Los Angeles Entertainment Law Review* 15, no. 3 (1995): 689–716.

314 The trademarked categories of NFLP are numerous, and include: NFL Pro Line (the league's most elite or prestigious label because it is the same product and apparel worn and used by players and coaches). NFL Fitness (a brand of equipment and apparel for letting fans work out like the pros), NFL Spirit (apparel for women), NFL Classic (for everyday use), NFL Kids, NFL Pro Line Kids, NFL Baby, NFL Back to School, NFL at Home (pillows, bedspreads, wallpaper, lamps), NFL Tailgate (coolers, tablecloths, barbecue grills), NFL Pet Shop, NFL Auto, NFL Quarterback Club, NFL Throwbacks (vintage replica items), NFL Trading Cards, NFL Collectibles, NFL Publishing, and NFL Films.

315 Olenski, Steve. "The Power of Global Sports Brand Merchandising." *Forbes.* February 6, 2013. Last accessed May 31, 2017. ► https://www.forbes.com/sites/marketshare/2013/02/06/the-power-of-global-sports-brand-merchandising/#10756c8176ac.

316 Mullin, Bernard J., Stephen Hardy, and William A. Sutton. *Sport Marketing.* 2nd ed. Champaign: Human Kinetics, 2000.

317 Thomas, Katie. "College Starts Sue Over Likenesses in Video Games." *New York Times.* July 3, 2009. Last accessed May 31, 2017. ► http://www.nytimes.com/2009/07/04/sports/04ncaa.html.

318 Covell, Daniel and Sharianne Walker. *Managing Sport Organizations: Responsibility for Performance.* New York: Routledge, 2013.

319 Peck, Tom. "Father of Olympic branding: my rules are being abused." *The Independent.* July 20, 2012. Last accessed May 31, 2017. ► http://www.independent.co.uk/sport/olympics/news/father-of-olympic-branding-my-rules-are-being-abused-7962593.html.

320 O'Reilly, Terry. "The ever-increasing cost of being an Olympic sponsor." *CBC News.* February 8, 2014. Last accessed May 31, 2017. ► http://www.cbc.ca/news/business/the-ever-increasing-cost-of-being-an-olympic-sponsor-1.2527993.

the summer games, raised another £700 million in sponsorship.[321] Beyond the sponsorships, the IOC raised $4.87 billion in broadcast fees and sponsorship for the London and Vancouver Olympics.

The Football World Cup in Brazil, sponsored by the international soccer federation FIFA, also headquartered in Switzerland, similarly generated about $4 billion in revenue, with $1.4 billion from sponsorship by 22 companies and $2.6 billion from TV rights to the matches. There were three sponsorship tiers with the top ($730 million combined) for 2014 by six companies (Adidas, Coca-Cola, Sony, Hyundai/Kia, Emirates, and Visa.) In addition, the various national teams and individual athletes had their own deals, sometimes also with Adidas and other major FIFA sponsors.[322] Nike, for example, sponsored the teams of Brazil, England, France, and Portugal. In some cases, an advertising agency itself, such as Dentsu in Japan, buys the rights to an event or season and then places advertisement spots of its various clients into the available slots.

Do sports sponsorships make business sense? It seems that sports licensing has a marketing impact owing to fan identification.[323] Sport provides a collective identity and solidarity, especially among young people.[324] Fans see themselves as members of the team, which leads to an elevation of their self-perception of status. A committed fan identifies with a team and therefore with the team's sponsors in retail settings.[325] Auto manufacturers with stock cars at its NASCAR circuit have long believed "Win on Sunday, Sell on Monday." On the other hand, the National Guard in the USA could not trace a single recruit to its NASCAR sponsorship in 2012. Yet in 2014 it again paid $32 million for NASCAR-related sponsorships. It also paid $12 million to sponsor one of the teams on the Indy Car circuit.

These racing and sports sponsorships make up 37% of the National Guard's marketing budget, with the aim of strengthening its "brand," not necessarily for direct recruiting. In contrast, the US Army dropped NASCAR sponsorship, stating: "Currently, only 5% of the NASCAR audience is made up of 18–24 year old males, NASCAR is the highest cost per qualified lead and cost per engagement property in our portfolio."[326]

Case Discussion

NBC Sports Licenses

Football
NBC aired NFL football games starting in 1939. It lost the NFL broadcast rights to CBS in 1998, but reacquired them again for 2006–2013. It then paid an annual fee of $603 million for a package that included the season kickoff, three preseason games, all Sunday night games, two Saturday playoff games, two post-season "wild card" games, two Super Bowls, and two Pro Bowls (2009 and 2012). NBC's contract was renewed for the seasons 2013–2022 for an annual fee of $1.05 billion, a 74% increase from the prior contract. The agreement was similar to the prior package, and included the rights to broadcast the Super Bowls in 2015, 2018, and 2021.

Soccer:
In 2012, NBC acquired the rights to broadcast English Premier League soccer in the USA for 2013–2014 for $250 million. Prior to that, Fox (News Corp.) had held the US rights for nearly two decades. With this deal, NBC became exclusive English- and Spanish-language media rights holder to all 380 Premier League matches across all platforms and devices in the USA. Its aim was, in particular, to reach the Latino audience in the USA.

Formula One Racing:
In 2012, NBC signed a four-year deal for exclusive US media rights to Formula One car racing for an undisclosed price. This deal provided NBC with more than 100 hours of programming, including the 2012 Grand Prix Monte Carlo. NBC aired four races—the Canadian Grand Prix and the final three races of the season—on its main network, and the remaining 16 races were shown on the NBC Sports Network.

Olympic Games
The Olympics have long been NBBC's signature programming event and part of its brand. NBC bought the rights to carry in the USA the six Olympic Games from 2022 to 2032 on all current and future distribution platforms. It paid $7.75 billion, $1.12 billion per Games (Summer as well as Winter Games, with the latter less valuable). This was vastly higher than in earlier years. NBC had paid $77 million, on average, for the 2004, 2006, and 2008 Olympics. In 1995, NBC made the first multiple-Olympics deals, for the 2000 and 2002 games, for $1.2 billion.[327] For the 2014 Winter Olympics in Sochi, Russia, it paid $775 million, for the 2016 games in Rio de Janeiro $1.23 billion, and for the 2020 games in Tokyo $1.45 billion.

321 The Economist. "Victors and spoils." July 21, 2012. Last accessed May 31, 2017. ► http://www.economist.com/node/21559326.
322 Wiesman, Tom. "FIFA World Cup Sponsorship: Is it Worth It?" *Analytic Partners.* March 10, 2014. Last accessed May 31, 2017. ► http://www.analyticpartners.com/news-blog/2014/03/fifa-world-cup-sponsorship-is-it-worth-it/.
323 Burton, Rick. "Teams as Brands: A Review of the Sports Licensing Concept." In *Sports Marketing and the Psychology of Marketing.* Eds. Lynn R. Kahle and Chris Riley. New York: Psychology Press, 2004.
324 One study (conducted by Sports Illustrated for Kids) found that 60% of boys and 37% of girls claimed to own NBA-branded apparel.
325 Burton, Rick. "Teams as Brands: A Review of the Sports Licensing Concept," in *Sports Marketing and the Psychology of Marketing,* eds. Lynn R. Kahle & Chris Riley. New York: Psychology Press, 2004.
326 Brook, Tom Vanden. "Army found NASCAR's price too high." *USA Today.* May 9, 2014. Last accessed May 31, 2017. ► http://www.usatoday.com/story/news/nation/2014/05/09/army-national-guard-recruiting-scandal/8908841/.
327 Sandomir, Richard. "All the Way to 2032, Come What May." *New York Times.* May 8, 2014. Last accessed May 31, 2017. ► http://www.nytimes.com/2014/05/09/sports/olympics/nbc-olympic-tv-deal-accounts-for-advances-in-technology.html.

7.4 Challenges to Intellectual Assets

7.4.1 Piracy

Immanuel Kant once asked: "Why does unauthorized publishing, which strikes one even at first glance as unjust, still have an appearance of being rightful?" Kant, the German philosopher living in the eighteenth century, wrote in *Of the Injustice of Counterfeiting Books* that expression, in other words the content, was an integral part of an author's persona, and could not be altered or used any more than his arms could be used by others against his will.[328] Digital technologies have made Kant's query more relevant than ever. Creators and copyright owners now face parties with new tools of copying for themselves and for distribution and commercialization to others.

Music, movies, television shows, software, and other media are pirated via various ways of physical and electronic copying, streaming, or distribution such as via peer-to-peer (P2P) networks.[329] In 2005, the music industry claimed that 37% of all CDs—or 1.2 billion of them—purchased globally were pirated, that is, manufactured without license.[330] The movie industry, too, saw a quick rise in piracy. Already in 2003, 60% of 312 popular movies were found in a study to be available on file-sharing networks (of those, 77% seem to have been released illegally by industry insiders).[331] In France in 2004, 31 million films downloaded each month were from non-commercial sites: 19% of French internet users had downloaded films but only 4% had paid for them. In 2006, 1 billion music tracks were downloaded but only 20 million were bought legitimately.[332]

In 2012 the Motion Picture Association of America (MPAA) estimated the damage to the overall economy caused by piracy to be a total of $58 billion in annual losses.[333] The computer software industry claimed over $50 billion in annual software piracy costs.[334] In developing countries piracy of IAs is prevalent, on the order of more than 50% of installed software in Latin America, Eastern Europe, and Asia Pacific, according to the industry. Nintendo claims that Chinese counterfeiting alone lowered its level of sales by $720 million in 2002.[335] A 2009 study sponsored by the Business Software Alliance and the Interactive Data Corporation found that piracy rates were highest in Armenia, Georgia (95%), Bangladesh, and Zimbabwe. In terms of lost revenue, piracy losses were claimed to be largest in the USA, China, Russia, India, and France (about $9.1, $6.7, $4.2, $2.8, and $2.8 billion respectively). The report estimated that "for every $1 of PC software sold in a country, there is another $3 to $4 of revenues for local IT service and distribution firms."[336] Thus it argued that an additional 400,000 jobs could have been created by reducing piracy, and over 12 million could have been created. Developing countries, in turn, complain that IP rights, whether copyrights or patents, inhibit their development by imposing an extra cost. On the other hand, the content and software industries in these countries have a much harder time to emerge if they must compete against high-quality imports at a zero price. One source, the Institute for Policy Innovation, found the costs of piracy to the US Treasury to be $291 million in lost personal income tax and $131 million in lost corporate income and other taxes.[337] The MPAA reports that the major studios lost over $6.1 billion—in 2005 through piracy activities—$2.4 billion through bootlegging, $1.4 billion through illegal copying, and $2.3 billion through internet piracy.

US bloggers and commentators disputed the industry reports as alarmist, citing the 2008 US Government Accountability Office report which cautioned that it is difficult, if not impossible, to quantify the economy-wide impacts of software piracy, though it noted that economic losses due to piracy are "sizable."[338] Estimating losses from piracy is indeed difficult and imprecise. Clearly, potential sales are lost because cheap, high-quality, illegal copies are available that reduce the demand for legal ones. Losses also include the impact of piracy on the prices of legitimate sales. However, most piracy users would not buy the music, at least not at the official price, and therefore part of the piracy usage does not represent lost sales. One study concludes: "[we] find that the availability of pirated content at the time of broadcast has no effect on post-broadcast DVD sales gains."[339] Several studies even show that pirated viewing or listening can actually *raise* sales because of the buzz effect of lots of people talking about a new release. One study looked at the impact of free showings of a film on television on the sales of home video versions of that film and concluded that "we find that [free] movie broadcasts on over-the-air networks result in a significant increase in both DVD sales at Amazon.com and illegal downloads for those movies that are available on BitTorrent at the time of broadcast." Other studies find that only about 20% of the decline in record sales can be explained by

328 Kant, Immanuel. "Of the injustice of counterfeiting books." *Essays and Treatises on Moral, Political and Various Philosophical Subjects*. Volume One (1798): 225–39.

329 The word "piracy" that is frequently used is a loaded term. But since it has been adopted proudly by some of those engaged in such use (who have even formed political "pirate parties" that have at times been remarkably successful in elections), we will apply this term to loosely refer to a use without permission by the holder of a valid IPR. The term is less pejorative than "theft," which the content industry uses, and less euphemistic than "sharing."

330 IFPI. "The Recording Industry 2006 Piracy Report." July 2006. Last accessed August 2, 2012. ► http://www.ifpi.org/content/library/piracy-report2006.pdf.

331 Byers, Simon et al. "Analysis of Security Vulnerabilities in the Movie Production and Distribution Process." *Telecommunications Policy* 28, no. 7–8. (August–September 2004): 619–644.

332 Sherwin, Adam. "France Condemned for Unlimited Download Law." *The Times*. February 3, 2006.

333 Cieply, Michael and Edward Wyatt. "Dodd calls for Hollywood and Silicon Valley to Meet." *New York Times*. January 19, 2012. Last accessed May 31, 2017. ► http://www.nytimes.com/2012/01/20/technology/dodd-calls-for-hollywood-and-silicon-valley-to-meet.html.

334 Business Software Alliance. "08 Piracy Study." May 2009. Last accessed on August 1, 2012. ► http://global.bsa.org/globalpiracy2008/studies/globalpiracy2008.pdf.

335 Anand, Bharat and Alexander Galetovic. "How market smarts can protect property rights." *Harvard Business Review* 82, no.12 (December 2004): 72–79.

336 Business Software Alliance. "08 Piracy Study." May 2009. Last accessed on August 1, 2012. ► http://global.bsa.org/globalpiracy2008/studies/globalpiracy2008.pdf.

337 Siwek, Stephen E. "The True Cost of Sound Recording Piracy to the U.S. Economy." *The Institute for Policy Innovation*. August 21, 2007. Last accessed August 1, 2012. ► http://www.ipi.org/ipi_issues/detail/the-true-cost-of-sound-recording-piracy-to-the-us-economy.

338 U.S. Government Accountability Office. "Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods." April 12, 2010. Last accessed August 1, 2012. ► http://www.gao.gov/products/GAO-10-423.

339 Smith, Michael and Rahul Telang. "Competing With Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy." *MIS Quarterly* 33, no. 2 (June 2009): 321–338.

piracy.[340] However, piracy may affect popular artists more severely. One study[341] finds that piracy has a stronger impact on popular artists, but other studies reach the opposite conclusion.[342]

7.4.1.1 Case Discussion

NBC Universal Losses Due to Piracy

According to one industry study, the motion picture industry suffered a $1.9 billion damage per year. If one accepts that number, Universal's damage would be about its market share of that, in other words about 13.6% or $258 million. There are also damages to NBC's numerous TV shows and a reduced potential for syndication. NBC currently airs 25 entertainment shows (excluding sports, news, talk, awards, and soaps.) We assume that its library of still desirable shows is double the number, that it holds the rights to half of them, and that the harm to NBC is equal the cost of one episode per season, about $2.5 million, this would add up to about $100 million per year, and to a total of $350 million per year for NBC Universal's combined film and TV productions.

7.4.1.2 File-Sharing of Unlicensed Music

Just about every new media technology has brought about new issues in piracy, whether the phonograph, the camera, the radio, the tape recorder, the computer, or the photocopying machine. The new technologies of internet and data file compression have also led to new copyright issues, especially for music distribution. In the late 1980s, WAV and .AU files emerged. But it still took hours to send a three-minute-song as a WAV file. The Moving Picture Experts Group (MPEG) was established to advance the technology. It generated a family of standards used for coding and compressing audio and video data, such as the MP3 compression software. Upload and download times were drastically reduced without sacrificing much sound quality. This allowed users to send and receive high quality music files over the internet more quickly. The compression for an MP3 file could go up to 12:1. The content could be broken up into pieces, with each piece still playable. This meant that MP3 files can be made to stream across the net in real time. MPEG-4 has a "lossy" compression factor of up to 200,[343] and H.264 (AVC), another compression system, probably up to a factor of 1000. H.265 (HEVC) doubles that again.[344] Another audio compression format is AAC, developed by Bell Labs, Dolby, Sony, Nokia, and Fraunhofer Institute. No licenses and payments by content distributors are required, in contrast to MP3. It is used on devices by Apple, Nokia, Sony, BlackBerry, Samsung, Microsoft, and others.

A newer algorithm, H.265 (HEVC) was rolled out in 2016. It is not royalty free. The algorithm developers are charging a royalty to use the codec, 0.5% of content owners' attributable gross revenue for each HEVC video type. In contrast, the preceding H.264 (MPEG-4 AVC), one of the most popular video codecs, was royalty free. The HEVC Advance consortium charges a per device based on the type of device. This device fee ranges from $0.80 for a mobile phone, to $1.10 for "other devices" such as Blu-ray players, streaming boxes, cable set-top-boxes, game consoles, Blu-ray players, digital video recorders, digital video projectors, digital media storage devices, personal navigation devices, and digital photo frames, to $1.50 for UHD (4 K) devices and TVs. At a million devices per year, this is a significant number.[345]

The consortium also charges video rights holders for using the codec. Originally it had been 0.5% of all revenue generated from using the HEVC codec. For instance, if Netflix used the codec to stream video to its subscribers and generated thereby $100 million a month, it would have to pay $500,000 per month as a royalty rate. Owing to the pushback, and because other codecs did not charge this licensing rate, the consortium subsequently (in 2016) changed the royalty rates. Subscription services (such as cable or satellite TV, or OTT services such as Netflix) will pay $0.005 per subscriber per month to license the codec; at a $10 monthly rate, this comes to 0.05%). There would also be a yearly cap of $5 million. Similarly, physical media providers such as the distributors of a Blu-ray disk would have to pay a license fee of $0.025 per disk sold. For on-demand/pay-per-view rentals of video the same license fee is charged. The content industry was not used to paying these kinds of fees for using a codec, and it caused a lack of adoption of the H.266 codec. As of 2017, it was still not widely used.

With the MP3 technology came the portable digital music players that could make use of music compression. The first was the Diamond Multimedia Rio in 1998. This and subsequent devices were clunky to use, and this left a big opportunity for Apple, whose iPod quickly became dominant and was supported by the Apple iTunes Music Store. That digital download site, now called iStore, also addressed another issue, which was the difficulty that internet users have to

340 Hong, Seung-Hyun. "The Effect of Napster on Recorded Music Sales: Evidence from the Consumer Expenditure Survey." *Stanford Institute for Economic Policy Research Working Paper No. 03–18*. Stanford: Stanford University, January 30, 2004. Last accessed May 31, 2017. ► http://www-siepr.stanford.edu/papers/pdf/03-18.pdf; Peitz, Martin and Patrick Waelbroeck. "The Effect of Internet Piracy on Music Sales: Cross-Section Evidence." *Review of Economic Research on Copyright Issues* 1, no. 2 (2004): 71–79.

341 Blackburn, David. "The Heterogeneous Effects of Copying: The Case of Recorded Music." *National Economic Research Associates.* June 1, 2006. Last accessed May 31, 2017. ► http://www.davidjhblackburn.com/papers/blackburn_fs.pdf.

342 Bhattacharjee, Sudip et al. "The Effect of Digital Sharing Technologies on Music Markets: A Survival Analysis of Albums on Ranking Charts." *Management Science* 53, no. 10 (September 2007): 1359–1374; Rob, Rafael and Joel Waldfogel. "Piracy on the High C's: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students." *Journal of Law and Economics* 49, no. 1 (April 2006): 29–62.

343 Vatolin, Dmitriy et al. "Lossless Video Codecs Comparison 2007." March 10, 2011. Last accessed May 31, 2017. ► http://compression.ru/video/codec_comparison/lossless_codecs_2007_en.html.

344 Rodrigues, Ana. "H.264 vs H.265—A technical comparison. When will H.265 dominate the market?" *Medium.* June 8, 2016. Last accessed March 20, 2017. ► https://medium.com/advanced-computer-vision/h-264-vs-h-265-a-technical-comparison-when-will-h-265-dominate-the-market-26659303171a#.nqibcfbst; Digiarty. "H.265 vs H.264: Comparison between H.265 (HEVC) and H.264 (AVC)." Last accessed March 20, 2017. ► https://www.winxdvd.com/resource/h265-vs-h264.htm.

345 Rayburn, Dan. "New Patent Pool Wants 0.5% Of Every Content Owner/Distributor's Gross Revenue For Higher Quality Video." *StreamingMediaBlog.com*. Last Accessed March 20, 2017. ► http://blog.streamingmedia.com/2015/07/new-patent-pool-wants-share-of-revenue-from-content-owners.html.

legitimately buy and pay for music. The absence of a legal alternative had attributed to the emergence of file-sharing users.

Before such a way to buy music became available, users were largely on their own. Music software enabled P2P storage of MP3 files. This led to the emergence of communities of participating users who shared their MP3 libraries. The first major file-sharing website, Napster, became a sensational success, but was shut down in the courts after furious challenges by the music industry in 2001. In 2005, the Supreme Court found StreamCast and Grokster liable for inducing and encouraging copyright infringement.

A related question was the liability of "innocent bystanders" to the dispute. As more internet users downloaded media content, the question arose of who bears responsibility if a copyright is violated by a use of a website or transmission facility run by an ISP. Content holders tried to make ISPs liable in order to induce them to block such usage. The ISPs' defense was that they were not "copyright police." After some legal back and forth, an arrangement emerged in which ISPs and search engines are protected under "safe harbor" provision, which limits their liability for information posted by users.[346] Safe harbor provisions apply so long as the ISP and search engine do not have notice of the issue. Once they receive notice, they must "expeditiously" remove the material. "Expeditiously" has not yet been determined by the courts, but for a large ISP or search engine such as Comcast or Google it should be less than 24 hours.

However, court cases stripped away some of those protections and held the cable TV and ISP company Cox liable for piracy because it had been too lax.[347] Cox failed to shut down accounts that repeatedly downloaded music illegally and thus the safe harbor did not apply. On the other hand, many ISPs and cloud content providers had a quick trigger finger and terminated content as a violation of copyright just on the say-so of a rival provider.

Another approach was taken by the French government, which for a while legalized unlimited P2P sharing of music and film files. The French plan, rushed through a half-empty parliament, would have enabled internet subscribers to pay €7 per month for a "global license" to download unlimited music for personal use through P2P websites. The money raised through this license would be shared between copyright holders, reimbursing musicians and record companies that receive nothing from illegal downloading.

7.5 Protection Strategies

Given the growing problem of unlicensed use of content for producers and distributors, what then can they do? It is difficult for media companies to protect against piracy. An effective IA protection strategy against the constantly changing challenges requires a wide array of measures. These strategies include technological counter-measures, enlisting government, engaging in litigation, executing "counter-attacks," and revising business strategies. All actions must be balanced against the harm from inconveniencing and alienating potential customers.

7.5.1 Moral Appeals

The first protection strategy to use is moral appeals. This approach has been largely unsuccessful because users tend to feel that they do not impose marginal cost on the copyright holder and that they are therefore not really "taking." Other users engage in an anti-corporate justification or argue that they would not have bought the music or video anyway.

7.5.2 Enlisting Government

Firms seeking protection from piracy lobby for stronger laws, better enforcement, and diplomatic pressure on other governments. At one point, US government representatives tried to restrict the doctrine of first sale internationally, even though it is legal in the USA.

The international WIPO Copyright Treaty (1996) requires all signatory countries to enact laws against the circumvention of protective measures. The US Congress enacted laws to enforce IP rights domestically or to sanction other countries that did not sufficiently protect American IPs.[348] In France, the 2009 HADOPI law provided for a mandatory termination of any internet connectivity to a user who violated copyrighted materials for the third time. After 1 million warnings had been sent out by the government, and after significant public opposition, the law was dropped. Other developed countries take relatively similar protection positions. For China to become a member of WTO required its commitment to protect other countries' IAs.

In 2008, the US Congress passed a law aimed at protecting IAs, which created an IP Enforcement Division under the President. The law created US prosecutors specializing in IP enforcement and international IP specialists based in US embassies worldwide, and added money for state IP enforcement programs. It also revised the law to increase statutory

346 Lumen. "DMCA Safe Harbor." Last accessed March 20, 2017. ► https://www.lumendatabase.org/topics/14.

347 Such as BMG Rights Management (US) v. Cox Communications 149 F. Supp. 3d 634 2015. On the other hand, in 2013, another court held that the file sharing website Veoh was not liable for a copyright infringement by its users. Although Veoh profits from the traffic to the infringing music on its website by selling advertising, the court found that it had no "substantial influence" over its users copyright infringement, and that it had been complying with takedown notices from copyright holders that alerted the company to alleged violations. In Europe, online liability led to the EU E-Commerce Directive in 1999, according to which the provision of facilities by an ISP that enable a message or transaction is not unfair use.

348 The examples include the Caribbean Basin Economic Recovery Act of 1984, the Computer Software Protection Act, the No Electronic Theft Act of 1997, the Trademark Anti-Counterfeiting Act of 1984, the Semiconductor Chip Protection Act of 1984, Copyright Infringement Act, Computer Fraud and Abuse Act, Economic Espionage Act of 1996, Copyright Felony Act of 1992, the Counterfeit Access and computer Fraud and Abuse Act of 1986, and the National Information Infrastructure Act of 1996. Additionally, each US state has enacted corresponding legislation offering additional statutory IP protections.

damages and penalties in counterfeit cases, and prohibited the export of counterfeit or pirate goods from the USA.

In the USA, the most important law to protect IAs has been the Digital Millennium Copyright Act (DMCA) of 1996. This prohibits the circumvention of technological protection measures such as encryption used by copyright owners to control access to their work. It also outlaws the manufacture, sale, and distribution of tools that make circumvention possible.[349] The DMCA shields ISPs from copyright infringement liability as long as they have no actual knowledge of the infringement, have not financially benefited, have established a system for dealing with infringement complaints, and comply with "takedown" standards for removing copyright material.[350] ISPs are expected to remove material from users' web sites that violates copyright or they face liability.[351]

In interpreting a website's or ISP's liability, courts will consider the existence of "red flags." The website cannot be "willfully blind" and look the other way.[352] Website owners have no liability when they spell out in their user agreement that repeat infringers will be dropped, that they co-operate with "standard" technical measures by copyright owners to identify and protect copyrighted works, and that they provide contact information.[353] The EU has enacted similar principles as part of its European eCommerce Directive in 2000 and the 2001 Directive on Copyrights. But DMCA is far stricter than copyright statutes in other countries. First-time violators of the DMCA can face up to five years in prison, and subsequent offenders up to ten.[354]

The DMCA has been severely criticized as being overprotective of the industry and as jeopardizing fair use, competition, and innovation. Critics allege that the DMCA has been used to block aftermarket competition in laser printer toner cartridges, garage door openers, and computer maintenance services.[355]

Coordination of the U.S. Federal activities is through the Office of Management and Budget (OMB) and its IP Enforcement Co-ordinator. For the international dimension, the US Immigration and Customs Enforcement (ICE) has taken a major role in the enforcement of IP rights. For example, in 2010 ICE shut down nine websites offering free downloads of the films *Toy Story 3* and *Iron Man 2* that drew a combined 6.7 million users per month.[356]

7.5.3 Litigation

A third strategy for media companies is to sue violators of their copyrights. Litigation over innovation is nothing new. Johannes Gutenberg was intensely engaged in it in the fifteenth century. Abraham Lincoln litigated disputes over his patented creation.[357] Today, the music industry has been suing unauthorized users, or threatening to do so, to deter illegal downloading. The Recording Industry Association of America (RIAA) had sent 1.8 million notifications of file-sharing violations to individual users by 2010,[358] including over 270,000 to students. In 2003, it sued 261 people, including a 12-year-old girl living with her single mother in public housing. By 2008, it had filed, settled, or engaged in legal action against 30,000 people. The RIAA documents illegal file usage by logging P2P users' IP addresses.[359] This information is obtained from ISPs and others. As interpreted in a 2003 case against Verizon, the DMCA compels ISPs, universities, and other networks to reveal the identities of those suspected of illicit file-swapping without court order.

In addition to filing lawsuits against individual users, the RIAA also brought lawsuits against file-sharing providers and ISPs themselves, both in the USA and abroad. It won important cases against Napster in 2000 and against Grokster in 2005.[360] The CEO of Universal Music, Doug Morris, called MP3 players "repositories for stolen music" and brought legal claims against YouTube, MySpace, Yahoo, and others.[361] Many cases against P2P networks have also been brought in non-US legal venues, often by local music companies. A Japanese court found the file-sharing company MMO guilty of copyright infringement and ordered it to pay fines of $350,000. There have also been lawsuits against the Taiwanese companies Kuro and EzPeer, injunctions against Weblisten, a Spanish company, and legal actions against Kazaa and related Australian services.[362] A 2010 legal action against the founders and host server-owners of Sweden's Pirate Bay also involved a criminal complaint. In addition, the music companies have sued telecoms providers to block access to file-sharing sites in an effort to combat overseas piracy.

349 Electronic Frontier Foundation. "Unintended Consequences: Twelve Years under the DMCA." March 3, 2010. Last accessed August 1, 2012. ► https://www.eff.org/wp/unintended-consequences-under-dmca/.

350 Wallis, Rosemary and Thomas Huthwaite. "ISP liability for copyright infringement: are dodgy subscribers worth the risk?" *Lexology.* April 12, 2013. Last accessed May 31, 2017. ► http://www.lexology.com/library/detail.aspx?g=e466d7dc-e24e-4f6d-bba3-bb33bba46b53.

351 Smith, Breana C., Don Ly, and Mary Schmiedel. "Intellectual Property Crimes." *The American Criminal Law Review* 43, no. 2 (Spring 2006): 963–714; UCLA Online Institute for Cyberspace Law and Policy. "Digital Millennium Copyright Act." February 8, 2001. Last accessed July 8, 2010. ► http://www.gseis.ucla.edu/iclp/dmca1.htm.

352 A web host loses its "safe harbor" immunity when it should have known that someone was putting copyrighted content on its site—even if the content owner cannot show that the host had actual knowledge. A host may not have "actual" knowledge but have "apparent" knowledge. Roberts, John Jeff. "The YouTube Decision: What it means and what happens next." *Gigaom.* April 5, 2012. Last accessed May 31, 2017. ► https://gigaom.com/2012/04/05/the-youtube-decision-what-it-means-and-what-happens-next/.

353 Cooley Godward's Information Technology Group. "Website provider liability for user content and actions." *Eric Goldman.* ► http://www.ericgoldman.org/writings/websiteliabilityalert.htm.

354 Smith, Breana C., Don Ly, and Mary Schmiedel. "Intellectual Property Crimes." *The American Criminal Law Review* 43, no. 2 (Spring 2006): 963–714

355 Electronic Frontier Foundation. "Unintended Consequences: Twelve Years under the DMCA." March 3, 2010. Last accessed August 1, 2012. ► https://www.eff.org/wp/unintended-consequences-under-dmca/.

356 Verrier, Richard. "Feds Shut Down Nine Websites in Movie Piracy Crackdown." *Los Angeles Times*. July 1, 2010. Last accessed August 1, 2011. ► http://articles.latimes.com/2010/jul/01/business/la-fi-ct-piracy-20100701.

357 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." *Journal on Telecommunications & High Technology Law* 7, no. 2 (Spring 2009): 167–216.

358 Riley, Jason L. "Copyfight." *Wall Street Journal*. November 26, 2005, A.10.

359 Chaffin, Joshua. "Young gun." *FT.com.* September 8, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/0/d2a8d0c6-3e31-11db-b4de-0000779e2340.html#axzz22JUkqjUP; Gorski, Eric. "File Sharing Fight Returns to US Campuses." ► CSMonitor.com. July 1, 2010. Last accessed August 1, 2012. ► http://www.csmonitor.com/From-the-news-wires/2010/0701/File-sharing-fight-returns-to-US-campuses.

360 Mann, Charles C. "The Heavenly Jukebox." *The Atlantic Monthly* 286, no. 3 (September, 2000): 39–59.

361 Mnookin, Seth. "Universal's CEO Once Called iPod Users Thieves. Now He's Giving Songs Away." *Wired*. November 11, 2007. Last accessed August 1, 2012. ► http://www.wired.com/entertainment/music/magazine/15-12/mf_morris?currentPage=all.

362 IFPI. "Digital Music Report 2005." January 2005. Last accessed May 31, 2017. ► http://www.ifpi.cz/wp-content/uploads/2013/03/Digital-Music-Report-2005.pdf.

The RIAA also sent universities waves of "pre-lawsuit" letters, demanding they forward to them names of students who used the university's network for piracy. Facing the prospect of thousands of dollars in legal costs and settlement payments to avoid a lawsuit, many universities took some actions to prevent the illegal downloading by their students. UCLA imposed a one-semester suspension for repeat piracy offenders, and Ohio University banned access to P2P networks. Stanford fined students against whom a complaint was brought by charging escalating "reconnection fees." On the other hand, several universities refused to co-operate with RIAA, such as Kansas, Maine, and Wisconsin.

Not all in the music industry believe that such litigation—"suing one's customers"—is a good business practice. Rather than for an individual company to expose itself to a targeted backlash, it is usually better for the industry to operate jointly through its association. But for joint action a common perspective is needed, and care must be taken not to violate antitrust laws.

7.5.4 Case Discussion

Universal's Anti-Piracy Actions

In 2009, Universal Studios and other film studios sued the file sharing site Pirate Bay for copyright infringement. The court ruled in Universal's favor, finding the site operators guilty. They were sentenced to one year in prison and fined $3.5 million, but Pirate Bay continued to operate, and Universal Studios and 12 other firms launched a lawsuit to shut down the site. Later that year, Universal, along with several other entertainment companies, won a decision in the Swedish courts that ordered ISPs in 14 countries to block access to the website. As a result, Pirate Bay had to find a new ISP to handle its servers.[363]

Four men linked to Pirate Bay were originally sentenced to one year in prison and fined $4.8 million. An appeals court later reduced the prison sentences, but raised the fine to $6.9 million. Despite the Swedish crackdown the website is still functioning, and is now registered in the Seychelles. But the company's founder, after being on the run for nearly two years,[364] was arrested in southern Sweden, and sent to serve an outstanding jail sentence of eight months for copyright violations.

In 2008, Universal and 33 other film studios alleged that thousands of users of the Australian internet service provider iiNet had shared copyrighted content via BitTorrent. They had informed iiNet of the infringements, but iiNet had not responded. The companies sued iiNet for authorizing its customers to infringe copyrights of many titles by sharing them. The court ruled in iiNet's favor, stating that the company had no technical power to prevent customers from using the BitTorrent system. The case was dismissed in 2012.

7.5.5 Counter-Attacks

Another strategy is to make piracy inconvenient and frustrating to users. To that purpose, music companies distributed decoy copies of songs on file-sharing networks with altered or no content. Users may spend time downloading a file to get a movie or songs, but then discover in mid-listening that they have got a corrupted file. On the Kazaa platform, for some songs more than 50% of all files were found to be polluted. (By one test, 76.8% of copies of the song "My Band" and 68.9% of "Naughty Girl".) Through the sharing of corrupted files, it spreads from one user to the next, like a virus.[365] There are service providers who provide blocking and counter-attacks such as MediaDefender.[366] Such actions by media companies raised legal questions since they could also negatively affect innocent users. A bill was introduced in Congress that would have insulated music firms who attack file sharers electronically from liability.

7.5.6 Technology Fixes

"Technology fixes" include a large array of technical anti-piracy measures designed to make unauthorized copying of copyrightable material difficult or impossible. Together, these measures are known as digital rights management (DRM. An example is the "broadcast flag" inserted into an audio-video file that instructs devices not to redistribute files. Other techniques include:

- file access restrictions;
- encryption;
- watermarking;
- fingerprinting;
- access control;
- digital signatures;
- marking and monitoring;
- metadata processes;
- sniffer technologies;

363 The Pirate Bay. "Wireless TPB." August 24, 2009. Last accessed July 16, 2013. ► http://thepiratebay.se/blog/171.

364 Reuters. "Pirate Bay co-founder arrested in Sweden to serve copyright violation sentence." May 31, 2014. Last accessed May 31, 2017. ► http://www.reuters.com/article/2014/05/31/us-sweden-piratebay-idUSKBN0EB0XF20140531.

365 Liang, Jian et al. "Pollution in P2P File Sharing Systems." Presented at IEEE INFOCOM, Miami, Florida. March 13–17, 2005.

366 Chaffin, Joshua. "Young gun." *FT.com* September 8, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/0/d2a8d0c6-3e31-11db-b4de-0000779e2340.html#axzz22JUkqjUP.

- copying function alerts;
- the "cable card";
- non-copying embedded passwords;
- source identification (SID) codes
- virus seeding;
- graphics that do not photocopy well;
- documents printed on colored paper;
- microdots for secret identification.

Each of these technologies can be defeated ("hacked"). The questions are how much effort a pirate would have to expand and how great the benefit would be. Spending months to download a song for free? Economically that makes no sense for media productions—except for some blockbuster movies, which can also be copied by a simple camcorder in a movie theater—but the incentive might be the challenge to break the protection. Safeguards can be strengthened; yet making them too formidable might degrade the content and be inconvenient for regular users, and they will be turned off. The key to successful anti-piracy technical programs is to use a diverse mix of measures, and to vary protection measures from product to product and from release to release.

In one technology initiative, the five major record companies jointly devised in 1998 "SDMI-compliant" (Secure Digital Music Initiative) music players. They set out specifications for how manufacturers' players should and should not read digital music files. These players were supposed to refuse to play songs that had been converted to MP3 without authorization, and limited copying to a few copies. For example, a DVD released in the USA (region 1) would not play on equipment sold in Japan (region 2).[367] The SDMI system was dropped in 2001 owing to a "lack of consensus" on proposed technologies.[368] It had also not been able to provide full protection against hacking without a small degradation in quality.

Some software allows users to make a specified number of copies of purchased MP3 tracks and not more. For example, Apple used to limit the copying of songs to seven times through its FairPlay DRM. That system was dropped in 2009 for music, but it is still used for video and iOS apps.[369] Video game providers developed a technology called "fade." If "fade" detects that a game has been pirated, it initially allows users to play the game normally, but gradually disables game features over time.

Similar problems exist for e-books, though at a lesser magnitude. Early online book media tried encryption. In 2000, the best-selling author Stephen King released the new book *Riding the Bullet* online in a protected format. Within days, the format was cracked. Apple's iPad was the target of hackers in 2010.

DRM tries to control media access, and the sharing, saving, printing, and altering of content. It can be in the system operating software, in the program software, the content, or the hardware itself. DRM also prevents perfectly legal fair-use copying, and it can be used by authoritarian governments to block content for political reasons.[370] The main types of DRM are marking, which uses watermarks or other tags to instruct the devices that the content is copy-protected, and containment, where encryption excludes unauthorized users.[371]

Watermarking adds a pattern of bits to a file to identify the file's copyright status. ASCAP, BMI, and SESAC put watermarks on music to enable tracking of use. A "robust" watermark identifies that the recording is protected music that can only be played on devices compliant with the blocking requirements. Watermarks cannot be readily used for small-sized files, such as text, and they can be tampered with.[372]

Encryption uses an algorithm to scramble the content and requires a key to unlock or lock the content. There are two main types of encryption: symmetric and asymmetric. Symmetric encryption is like a physical key to a door. An example is the Data Encryption Standard algorithm.[373] But the key needs to be changed periodically, and it requires direct communication and transfer of information. If millions of users are involved, it is hard to contain this information. Asymmetric encryption operates by using two keys: one to lock, which is public; and one to unlock, which is private. Some examples are the RSA system. Asymmetric encryption requires much computing power. DRM often uses both symmetric and asymmetric encryption. For example, asymmetric encryption is used for the symmetric key, which, once obtained, then controls access to content.

For advanced video DVDs, a DRM system known as AACS was developed by major studios and tech companies. However, this was quickly hacked and widely distributed. Other companies use Microsoft's PVP. Sony uses the copy-protection chip MagicGate, which is embedded in players and recorders. All content is transmitted and stored in encrypted format, using a public-key system.

Other approaches are the "cable card," which restricts the content that a cable TV subscriber can feed through the television set top box, and the "broadcast flag" mentioned earlier, where the FCC required that all broadcasts embed a signal which identified whether they could be recorded by the users. This requirement was struck down in 2005 by a court. A related approach had better luck in Europe, where it was adopted in 2007 for video content protection, as DVB-CPCM.

Over-zealous DRM can backfire painfully. In 2004, Sony added the DRM to its music CDs to prevent copying and theft. When attempting to play Sony music CDs on a Windows PC, a Sony "rootkit" software was automatically

367 Epstein, Edward J. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

368 Mann, Charles C. "The Heavenly Jukebox." *The Atlantic Monthly* 286, no. 3 (September, 2000): 39–59.

369 Cohen, Peter. "iTunes Store goes DRM-free MacWorld." *Macworld*. January 6, 2009. Last accessed May 31, 2017. ► http://www.macworld.com/article/1137946/itunestore.html.

370 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

371 Electronic Privacy Information Center. "Digital Rights Management and Privacy." March 29, 2004. Last accessed August 1, 2012. ► http://epic.org/privacy/drm/.

372 Averkiou, Melinos. "Digital Watermarking". January 1, 2010. Last accessed May 31, 2017. ► https://www.cl.cam.ac.uk/teaching/0910/R08/work/essay-ma485-watermarking.pdf.

373 Rouse, Margaret. "Date Encryption Standard (DES)" *TechTarget*. November 2014. Last accessed May 31, 2017. ► http://searchsecurity.techtarget.com/definition/Data-Encryption-Standard.

installed on the PC without the permission of the user. A rootkit is a type of spyware that goes undetected in normal scans and is hidden in the computer operating system. This spyware then delivers information from the user's computer to Sony without the knowledge of the user. The software cannot be safely removed without computer crashes and loss of memory, and was then impossible to uninstall.[374] What made it worse is that some hackers took advantage of the hidden aspect of the Sony software, which created a vulnerability to certain attacks, installed malware on the computers, and spread viruses etc.

Even if it was possible and safe for the user to uninstall the Sony software, this would be illegal under the DMCA law. A public outcry resulted from Sony's altering its customers' computers without their knowledge or consent. Sony had sold around 3 million of the CDs containing the software. Because of the bad publicity, Sony agreed to stop using the system and released software and security patches to uninstall it from infected computers.[375] It also offered customers as compensation a choice between $7.50 in cash and one free album download, or three free album downloads.

Universal Music Group used DRM on music until around 2007, but then it started to sell DRM-free digital downloads through digital outlets (Amazon, Rhapsody, etc.), except for iTunes.[376] In 2009, iTunes started to offer only DRM-free downloads. Other technical protection techniques use metadata, where the content file includes information on the buyer and content file. If the original buyer's file is copied by others, it can be traced. Apple's iTune's store, though DRM-free for music since 2009, takes this approach.

The fundamental problem of most technology fixes using one-way digital protection is the "analog hole": to be useful, the protected digital stream must ultimately be translated into an analog version that can be viewed or heard by human eyes and ears. And once outside its digital DRM cocoon, the content can be captured by pirates.[377]

7.5.7 Business Responses

The prevalence of these legal and technological strategies against illicit copying and file-sharing may obscure that often the best response by media companies is through new business strategies.

There are multiple approaches. Perhaps most obviously, content providers can lower the price. The incentives for piracy drop if the legitimate price of the content is lowered. For example, magazines and paperback books are rarely pirated, because their price is low enough to make the effort of piracy less worthwhile. A common response by media companies is that "you cannot compete with free," in other words, even a low price is too high. But many commercially-marketed goods and services disprove this and successfully offer for-pay versions where free versions also exist: bottled water, pay-TV, and commercially purchased music in the presence of free radio. Pay products win when they provide a value added, such as convenience, immediacy, quality, or reliability.

A business response related to a lowering of the price is to use more differentiated pricing models. One example is pay per use. Fee payment models have emerged. For example, music companies may allow a customer to pay each time they want to hear a song or just buy one song instead of the whole album. Pay per use payment models exist for music, TV shows, films, books, newspapers, magazines, and games. In these models, success depends on the provider's ability to control post-sale copying.

An alternative approach is to rely on an advertising-based content service. This has traditionally been the case for commercial television. Here, there are several pricing models. Some content is premium—paid and on-demand—while other content is based on a channel subscription; still others are on the basis of a subscription to a large bundle of channels; and still others are entirely "free" and advertising-based.

Users may be given the option of different quality versions. There may be a free lower-end product, whose limitation encourages add-on purchases of higher tiers of quality. The music service Pandora allows users to listen to a certain number of hours of free, ad-supported music per month, and charges them to listen to unlimited additional songs without advertising interruptions. Hulu is free in its basic service but HuluPlus, which offers a library of previous seasons of certain shows or the entire current season, with high definition content and content viewable on tablets and gaming devices, cost $10 per month. The kinds of arrangements that combine a basic and free version and a premium pay-version are known as "freemium" offerings.

Some newspapers and magazines offer a free look at the first part of a story. If the reader wants to continue she must pay. Others provide a limited number of free stories per month. Beyond that number the reader must pay. The *Wall Street Journal* and *The Economist* offer free full-text searching of archives but charge a fee to download articles. Some print-media companies offer complementary products for subscriptions, such as Elsevier, which provides free tables of contents for each of its journals on the web as well as a push service called Contents Alert.[378]

Differentiated pricing offers many other approaches. Songs could be offered for a limited number of plays at a low price before repurchasing. Repeat or long-term customers could receive incentives and pay less than those charged to the general market.

374 Pournelle, Jerry. "Beware of Sony's DRM." *Dr. Dobb's Journal* 31, no. 2. (Feb 2006): 74–75.

375 Edgecliffe-Johnson, Andrew. "Sony BMG settles suits over 'flawed' music CDs." *FT.com*. January 2, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/2/963aaecc-7bb1-11da-ab8e-0000779e2340.html#axzz22JUkqjUP; Butler, Susan. "Sony BMG Agrees to DRM Settlement." *Billboard*. December 29, 2005. Last accessed May 31, 2017. ► http://www.billboard.com/biz/articles/news/1401496/sony-bmg-agrees-to-drm-settlement.

376 Sandoval, Greg. "UMG Chief on iTunes, DRM, and Android." *CNET News*. January 12, 2009. Last accessed October 5, 2010. ► http://news.cnet.com/8301-1023_3-10140244-93.html.

377 Two-way content, in contrast, can be better controlled because it must continuously pass through a communications link and through routing.

378 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

Will consumers pay for content? Surveys indicate that the majority of students, for example, will pay for compelling content at a good technical quality and without annoying limitations. For movies, price has to be comparable to or be lower than a DVD rental ($3–$5). TV episodes must be less than 99 cents and $5 for a series.

Companies can also quicken the pace at which they release new versions of their products, staying a step ahead of mass piracy. Another strategy is to connect the online content with the physical product and human interaction, such as manuals and tech support.[379] The goal is to make the product into a service, with users connected to content providers. Companies can create additional incentives by offering periodic access to enhancements. This improves the quality of service, a benefit which rarely exists for illegally pirated goods.[380]

Going one step further, some content might shift from digital back to physical. In music, the move to concert tours rather than sales of recordings is an example. In the past, a band's tour promoted its record. Now, the record may promote the tour. In 2015, 24 artists grossed more than $40 million each at the concert venue box office, while CD sales stagnated or dropped.[381]

Alternatively, the physical device becomes the source of revenue. Apple changed the music industry's physical business model with another physical product: the iPod. Apple offered drastically discounted media content in order to sell its mobile devices (the iPod, then the iPhone, and then the iPad). On top of it, its players were built to be able to download music preferentially from Apple's site.

Another approach is customization, which reduces mass copying. Where that is not feasible, the creation of smaller groups through site licensing is another strategy. It is easier to monitor such a site's license compliance and detect and go after organizations instead of individuals. This leads some content companies to provide licenses to organizations instead of individuals. These organizations are in a position to comply with IP laws and license agreements. For example, most universities have site licenses that allow any user on their network to access online libraries.

Some companies give away their products rather than seek to limit it, with the goal of widespread usage. This has been the model of "free" radio and TV broadcasting for almost a century. Beyond the aim of getting advertising revenues, the strategy creates a large user community which generates high network externalities, and high switching costs for users. It enables companies to introduce a complementary, non-free product. This, too, was the original goal of free radio and TV, when NBC aimed to encourage the sale of its patent RCA's radio sets. A similar goal led initially to the creation of the BBC in the UK.

In free distribution, firms depend on upgrades and auxiliary products and services for revenues. Examples might include free access to online newspapers in exchange for demographic and personal data. Free distribution of some music enhances the sales of the goods and services associated with the artist.

Companies may give away free samples. This method allows users to experience the product before making a purchase. Companies can break up products into components, some being given away and others sold. Some companies give away initial products and then sell upgrades. One example is anti-virus software: the revenue-generating product is the subsequent updates and support service. Companies may give away complements to the original product. The availability of a book's texts and additional materials online may increase the sales of hard-copy versions.[382] Another form of free distribution is tying and bundling, or giving away one product to create a market for another. For example, Adobe's Flash Player and Acrobat Reader are free to download, creating a market for Flash and Acrobat.

Offering incomplete or time-limited "demo" versions of products, called shareware in the software market, is another common free distribution model. Shareware is particularly popular in internet-distributed software and smartphone apps, such as products for Apple's mobile devices and video game demos. Companies offering such services position their products for low-priced, mass-market distribution from consumers upgrading to non-free versions. Similar to shareware, freeware allows for free distribution but requests payment from users. US public broadcasting uses such a model. Wikipedia is following a similar model by soliciting donations.

7.5.7.1 The Life-Cycle of Piracy

At least in some cases, media companies might view file-sharing not only as negatively disrupting markets but actually as a positive enabler of new types of products and markets.

P2P file sharing is part of a larger family of economically valuable media activities which grew from the grassroots. Commercial radio emerged in the 1920s on the basis of the radio amateur community that laid the groundwork. In the 1970s, Citizens' Band radio in cars and trucks was widespread and served as a precursor to cellular telephones. Amateur microcomputer builders in the 1970s led to the PC. The internet and world wide web originated in non-profit research organizations, which laid the foundation for highly profitable commercial operations. Today we have an open software movement which generated the operative software Linux, and Wikipedia as a community effort. Why do such grassroots activities exist?

379 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

380 Barlow, John P. "The Economy of Ideas," *Wired*. March 1, 1994. Last accessed August 1, 2012. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

381 Surowiecki, James. "Hello, Cleveland." *The New Yorker*. May 16 2005. Last accessed May 31, 2017. ► http://www.newyorker.com/magazine/2005/05/16/hello-cleveland.

382 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

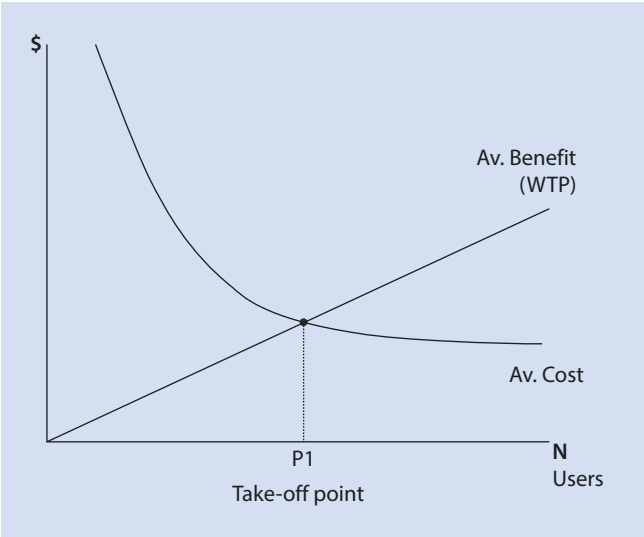

Fig. 7.7 Evolution of networks to take-off

Consider the schematic model (Fig. 7.7) of a new networked application. The horizontal axis shows the number of users. The vertical axis shows average benefits to a user, as well as the average cost per user. The curve sloping down to the right is the average cost per user, and it is declining with the number of users because the fixed costs are distributed over more participants. In the early stages of adoption, average cost is high (high upfront cost, low number of users). The curve that is rising to the right is the average benefit per user. It is rising because of the positive externalities of being connected to many others—the network effects. Users would be willing to pay up to the amount of the benefit they receive. In the early stages of a network, the benefits to users are low, since they can interact only with few other users. Thus, below the network size P_1, costs are higher than revenues, and the activity cannot support itself. At P_1 there is a breakeven. Beyond it the activity is self-sustaining. But how does one get to this take-off point, after which the activity becomes self-supporting?

To reach this "critical mass," the activity or service may need either government subsidies or regulations to force a price below cost to raise demand, or a business which underwrites the deficit. The latter is unlikely to be at the optimal level where competitive entry is probable once the product is viable, because the first entrant ends up subsidizing its competitors. A fourth alternative is the community approach.

Community can play a legitimate and useful role as an entrepreneurial element in the innovation process. Suppressing sharing because it facilitates piracy can be short-term thinking, for once a user base is large enough it will provide the foundation for market-based transactions. If established media business firms took the long view, they would often value the community efforts that create the user base for their own subsequent expansion.

Joseph Schumpeter's famous "creative destruction of capitalism" focuses on the undermining of an existing oligopoly by competitive innovators. People tend to lionize the business-based disrupters as creative entrepreneurs; however, the community-based disrupters, such as the pirates, also make a significant contribution by generating a user base that is large enough to sustain commercial production.

7.5.8 Reform Proposals for Intellectual Assets

7.5.8.1 Ideas for Reform

Many media companies argue that existing IP laws do not adequately respond to challenges such as piracy. Since this undermines the incentives for innovation, a strengthening of the laws is being advocated. Others support the opposite response because they believe that the copyright system is too restrictive to innovation and freedom.

One proposal by Professor William Fisher at Harvard Law School is for internet content to be free, but that there would be a tax on internet access and on the electronic hardware that uses digital content. All content would be watermarked and downloads could be measured. The tax revenues would then be distributed to content providers according to usage. This would be similar to the system that compensates composers for free-to-air radio broadcasts of their music, except that instead of radio stations it would be the government that did the paying through its tax collectors.[383] The prerequisites to make this scheme work are tough to design and difficult to implement. Fisher also proposes to replace patents by offering a one-time monetary reward for innovative inventions from a government fund. However, how would one determine the value or differentiate it from other innovations?[384] And how would one keep this system from being gamed, politicized, and bureaucratized?

Another Harvard Law professor, Lawrence Lessig, suggests that if a copyrighted content is not offered to the public anymore it must be licensed to someone who will offer it. But in an age where everything can be offered online for pay, this is unlikely to be effective. Lessig also champions a shortening of copying to five years. Others have similarly advocated a shortening of patents.

7.5.8.2 The Open Source Movement

Another direction of reform is more practical than legislative in nature. The open source movements, as mentioned, is a loose community of volunteer developers who collaboratively create software known as freeware.[385] The movement

383 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

384 Fisher, William W. "Property and Contract on the Internet." *Chicago-Kent Law Review* 73 (1997–1998): 1203–1256.

385 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

challenges the notion that people will not invent or create without the profit incentive of patents and copyrights. Users of the software "pay" by contributing improvements. This creates a higher-quality product than programmers could afford to develop on their own. Furthermore, because open-source software is peer reviewed, it is more dependable than closed or proprietary software.[386]

A general public license was developed by Richard Stallman, founder of the Free Software Foundation. It uses developers' copyrights to issue licenses that guarantee rights to all future users. These rights include copying the free software, the right to study and modify the source code, and the right to freely distribute versions to others.[387]

Prominent open-source projects include the Linux operating system, the internet protocols Mozilla Firefox and Thunderbird, and various developer tools (e.g. WinSCP). Linux, started by Linus Torvalds at the University of Helsinki in 1991, is a free computer operating system that encouraged the development of compatible software as an alternative to Microsoft's pricy Windows operating systems.

Commercial companies can also profit from open source software. What is free is the software product itself but not its distribution, branding, and after-sale service. This has led to companies such as Red Hat and Cygnus. In "widget frosting," the core software product is free and the profit is in add-ons. Another profit opportunity is in selling and servicing compatible hardware and complete systems, with the open-source software preinstalled.

An alternative copyright arrangement is called a "copyleft." It allows users to redistribute, modify, and use the software freely, but also gives creators some of the legal protections of copyright over their own and derivative works. Copyleft says that anyone who redistributes the software, with or without changes, must in turn pass along to others the freedom to further copy and change it.

In 2002, inspired by the copyleft license, an organization called Creative Commons (CC) created a set of license templates that make it easy for a creator to release particular rights under clearly specified conditions.[388] It allows use of digital files as long as proper credit to the originator is given.[389] The creator retains ownership, allowing others to use the work but not steal it. It also means that no other company can claim ownership rights. A CC license could be a good way to build a fan base for a relatively unknown artist or software developer.[390]

7.5.8.3 Case Discussion

GE Open Innovation

GE used an innovative way to deal with some of its non-essential patents.[391] GE partnered with Quirky—a new invention platform company in which GE invested $30 million-- to offer the wider public a licensed use of about 1000 of its 20,000 patents. Inventors and start-ups submit ideas and concepts to Quirky, which reviews the ideas and takes votes from its user community about which ideas to take forward. The innovators then prototype and release the products that incorporate the GE patents without the fear of being sued. However, they have to pay a license fee on items made and sold.

7.6 Case Discussion: Conclusion

7.6.1 Case Discussion

How Much of GE's Value and Profits Are Based on IA?

In 2007 *Business Week* estimated that GE's intellectual assets were valued at $50 billion. GE was ranked fourth in terms of global brand value and second in terms of global market capitalizations.[392] GE's financial statements are more conservative. Its total property, plant, and equipment was valued at $70 billion in 2012. Intangible assets, including goodwill, were valued at only $12 billion. Hence the company booked the total of its intangible assets as constituting about 17% of its assets.

How can one estimate the value of GE's IAs? We estimate the share of IAs in GE's overall value by using the "residual approach" described earlier in the section on valuation.

GE had seven major lines of business, including capital, home and business

386 Open Source Initiative. "Open Source Case for Business." Last accessed August 1, 2012. ► http://opensource.org/advocacy/case_for_business.php/.

387 Von Krogh, Georg. "Open Source Software Development." *MIT Sloan Management Review* 44, no. 3 (Spring 2003): 14–18.

388 Kay, Russell. "Quick Study: Creative Commons." *Computerworld*. May 22, 2006. Last accessed August 1, 2012. ► http://www.computerworld.com/s/article/111316/Creative_Commons?taxonomyId=70&pageNumber=2.

389 Rohter, Larry. "In Digital Age, Advancing a Flexible Copyright System." *New York Times*. June 26, 2006. Last accessed May 31, 2017. ► http://www.nytimes.com/2006/06/26/arts/26crea.html.

390 Creative Review. "Made for Sharing." June 5, 2006. Each of the six model Creative Commons licenses contains a combination of four license conditions: "attribution" (abbreviated "by"), "Share Alike" ("sa"), "non-commercial" ("nc"), and "no derivative works" ("nd"). "Attribution," the most common condition among the CC licenses, states that works can only be used if credit is given to its original creator; "non-commercial" that works can be used freely only for non-commercial purposes; "no derivative works" that works can only be used in "verbatim" form (i.e. new works based on the CC original are not allowed); and "Share Alike" that others can only distribute an original work if the subsequent work has an identical license.

391 Aguilar, Mario. "GE Frees Up 'Thousands' Of Patents To Fuel Your Imagination." *Gizmodo Australia*. April 11, 2013. Last accessed June 5, 2013. ► http://www.gizmodo.com.au/2013/04/ge-frees-up-thousands-of-patents-to-fuel-your-imagination/.

392 General Electric. "Statement of Financial Position." *GE 2012 Annual Report*. 2012. Last accessed July 16, 2013. ► http://www.ge.com/sites/default/files/GE-AR2012-Statement-of-Finacial-Position.pdf.

solutions, energy infrastructure, aviation, healthcare, transportation, and media.[393] We proceed with a valuation methodology based on the "imputed value" approach discussed earlier. Given the reported respective revenues of various divisions one can estimate the profits of these divisions. Using an estimate of the tangible assets one can calculate earnings attributable to tangible assets. The residual earnings are then attributable to intangibles and IAs. One can then calculate the value of the IAs and the share of IA in the overall assets of that division. The results are shown in ◘ Table 7.4.

The results show, in the right-hand column, that for three of GE's seven main divisions, imputed IA value was about half that of overall assets, that is, similar in magnitude to the tangible assets. For media IA constituted 44.7%. For financial services it was 46.7%, and for aviation 41.3%. IA is a less important part of value in transportation and energy. Overall, the value of IA for GE can be totaled to be almost $47 billion, a figure similar to that of *Business Week*. This is about four years' worth of earnings. Given such large contribution to earnings and value, and to GE's future, the creation and management of IAs needs to be one of the company's top priorities.

◘ **Table 7.4** Intellectual asset value in GE's divisions

Imputed $ value of intellectual assets ($)		% of imputed intellectual asset value in total assets of division
Energy	5.7	12.3
Aviation	5.9	41.3
Healthcare	8.4	29.1
Home	3.6	24.5
GE capital	21.1	46.7
Transportation	0.9	9.8
Media	3.4	44.7
Total	46.8	28.8

7.7 Outlook

Intellectual property was once the domain of lawyers. Now it has become an essential input into its management and output. It is a vital component in strategy, mergers and acquisitions, operations, and investment. Protection and exploration of IA is a critical management task. What is the point of developing and producing creatively and efficiently if the subsequent licensing and protections are ineffective?

For firms in the media and information sector, IAs are the main assets and the core of their value. Protection of these assets from infringement is important, but their exploitation and commercialization are still more valuable. Yet the markets for IA transactions are still fairly imperfect—there are information problems and arbitrage.

The future of IA management will be defined by several conflicting forces:

- In an information society and economy, IAs are more valuable than ever before and their incentive value is important.
- However, legal restrictions to protect IAs slow everyone down.
- More information is produced with a shorter shelf-life, and with more commodity characteristics.

We conclude that the management of IAs is just as important as its legal protection. It is also a complex function to run. Yet it is a key profit activity for successful information and media firms in the digital economy, and its mastery is an essential business tool.

7.8 Review Materials

Issues Covered

In this chapter we have covered the following issues:

- What the characteristics of IA are.
- How IA developed over years and its positive and negative effects on society.
- What the options are for a media and information firm to create and protect its innovations.
- How a firm optimizes the benefits from its IAs.
- How to organize the management of IA.
- What the reasons are for business method patents.
- What trade secrets are and how to protect them.
- What the benefits and risk are of patents.
- How companies solve patent infringements.
- What the requirements to file patents are.
- What trademarks are and how to obtain them.
- How copyright is created and protected.
- What the roles of international treaties and organizations are for IA.
- How to value IAs.
- Why companies cross license.
- How IA are treated in a company's balance sheet.
- What the advantages and disadvantages are for strategic licensing.
- How patent pools reduce litigation risk and intentional blocking.
- How PROs works
- How compulsory licenses work.
- What kind of protection strategies can be used against piracy.
- How digital rights management operates.
- How the open source system works.
- How the value of IAs is calculated.
- How to create contractual protection of IAs.
- How sports organizations license media and franchise rights.

393 MSN. "General Electric Co." *GE Company Report, Financial Results, Key Ratios, Income Statement*. Last accessed 6 June 6, 2013. ► http://investing.money.msn.com/investments/company-report/?symbol=ge.

Tools Covered

We described tools to address some of the above issues:

- Patent filing.
- Patent infringement suits.
- Trademark requirements.
- Copyright and trademark registration.
- Contract-generated IP rights.
- Protecting trade secrets.
- Fair use criteria.
- Identifying patent "parents" and "children."
- IA audit map.
- Valuation techniques for IAs.
- Residual approach of IA valuation.
- Optimal licensing rates.
- Cross-licensing pools.
- Sport licensing.
- Piracy protection strategies.
- Copyleft and open source.
- Patent search.
- Analysis of technology velocity.
- IAM software.

7.8.1 Questions for Discussion

1. Practically speaking, how can a company check for infringement of its copyrights?
2. How would a media company account in its books for a patent before it has created any tangible item based on it?
3. Contrast the sale of IP with the open source movement. Can open source be more useful to a media firm?
4. How can an inventor check sales of his invention, for royalty purposes, after he has licensed it to a large company?
5. How does an interactive internet radio firm need to negotiate licenses differently from a passive internet radio station, such as the online streaming edition of a local FM radio station?
6. If a manufacturer has developed a new audio technology that produces better sound at a lower bit rate, contrast the method of keeping this information as a trade secret versus applying for a patent.
7. Explain how a firm can best protect itself from having its product reverse engineered.
8. After a company independently develops a new product or technology, describe the process a company can take to ensure that no other firm or individual already has a patent on the same process.
9. Describe the differences between a patent, a trademark, and a copyright. For which assets would a company want to obtain these protections?
10. How should companies respond to the "intellectual commons" movement?
11. How should a record company respond to challenges to its IP?
12. Discuss how the concept of fair use applies to universities and start-ups.
13. When should a company join a patent pool? And when is it a bad idea?

7.8.2 Quiz

1. Company XYZ sells music CDs online. For the past two years, music CD sales have slipped dramatically. Instead, music downloads have increased significantly. A bad idea for company XYZ would be to:
   A. Direct its focus to an area less vulnerable to competition;
   B. Undercut competitors by selling its CDs much cheaper;
   C. Enforce its IPRs;
   D. Further advertise CDs with the hope that CD sales will eventually reemerge.
2. All of the following are IPR benefits of larger firms except:
   A. Usually greater protection from piracy and P2P users;
   B. Less costly to protect patent rights;
   C. Usually have greater resources when dealing with litigation;
   D. Have larger portfolios, therefore cross-licensing can be an alternative to litigation.
3. All of the following are true concerning the NATPE and MIPCOM shows except:
   A. Allows for bidding between producers and creators of products;
   B. Only permits the viewing of shows that are seeking syndication;
   C. Proves a valuable channel for marketing and purchasing of television programs;
   D. Serves as a promotional venue for producers and potentially viewers.
4. Each of the following can be used to determine the value of a company's IAs except:
   A. The number of times it is cited or referenced in other patents/patent filings;
   B. Usage of "royalty methodology" such as tax-generated revenue from deals resulting from cross-licensing;

C. Consideration as to the length of the patent description as filed with the Patent Office;
D. Whether it is in existing use versus liquidation value.

5. Which of the following is an important consideration in developing business practices which will protect a trade secret?
   A. The ingredients in your secret hamburger sauce can be determined by chemical analysis;
   B. The turnover rate of your employees is high;
   C. The process for making your product was published in a 1968 government report;
   D. A, B, and C;
   E. None of the above.

6. Which of the following is important in choosing to apply for a patent over using trade secrets to protect your business?
   A. The process for making your product was published in a 1968 government report;
   B. Your chief technology officer has a drinking problem and leaked confidential information about your product to a friend three weeks ago;
   C. Your product is a method for doing business;
   D. All of the above;
   E. None of the above.

7. Which of the following cannot be patented?
   A. An idea;
   B. An organic compound;
   C. A mathematical algorithm;
   D. A business process;
   E. An improvement on an existing patented process.

8. The proprietor of Bill's Duck Farm wants to launch a new product line of orange-colored duck eggs. Which of the following would give Bill the strongest competitive advantage?
   A. Labeling each egg "patent pending";
   B. Getting a servicemark for the slogan "If it walks like a duck, and talks like a duck; it must be a wild Duck.";
   C. Getting trade-dress protection for orange-colored duck eggs;
   D. Launch a massive advertising campaign emphasizing his new patent for a process for making sure the eggs are orange;
   E. Selling his eggs under the brand name "Wild Duck Eggs";
   F. Labeling each egg "© Duck Bill, 2000".

9. Which of the following would make a piece of information the most valuable?
   A. How old it is;
   B. When the information has been reproduced;
   C. The number of people who believe it;
   D. The distance the purchaser is from where the information is produced;
   E. How easy it is to stop from being spread.

10. Which is not a problem with encryption?
   A. It hinders criminal investigations;
   B. Early reliance on copy protection led to the notion that cracking into a software package somehow "earned" one the right to use it;
   C. Once something has been unscrambled by a legitimate licensee, it can be widely reproduced;
   D. New subscriptions to various commercial satellite TV services skyrocketed after their deployment of more robust encryption of their feeds.

11. Jason is the General Counsel for Axis Travel Agents, Inc. The company has been using that name as a registered trademark for nine years. Axis programmers are now building their e-commerce website and want to use the domain name ► http://www.axis.com. However, the programmers have found that Axis Telecom has registered that domain name, although it is not currently using the address. Axis Telecom has been in business for 11 years, but has never registered the name as trademark. Reuben, Axis Travel's CEO, asks Jason to develop an IP strategy to handle the problem.
Jason should recommend that Axis Travel:
   A. Sue Axis Telecom for cybersquatting;
   B. Sue ICANN for issuing an infringing domain name;
   C. Purchase the domain name outright from Axis Telecom;
   D. Sue Axis Telecom for trademark infringement;
   E. License the domain name from Axis Telecom;
   F. Register ► http://www.axis.net.

12. Which element(s) are required in a proper copyright notice?
   A. The symbol ©, the word "copyright" or the abbreviation "copr.";
   B. The year in which the copies of the work were first published;
   C. The name of the copyright owner;
   D. All of the above are required;
   E. Only A and B are required;
   F. None are required, only recommended.

13. Which of the following is not an example of open source software?
   A. Springboard OS;
   B. GNU;
   C. Redhat Linux;
   D. UNIX;
   E. None of the above.

14. What of the following cannot be copyrighted?
    A. Dance choreography;
    B. Computer software;
    C. Motion pictures;
    D. Business operation process.

15. What does "fair use" mean for copyright holders?
    A. Central parts of the total work can be used as long as they have an educational purpose;
    B. Educational institutions have to acquire licenses in order to copy copyrighted work;
    C. Their copyrighted work can under certain circumstances be copied for research, teaching, etc.;
    D. Profit can be made by implementing the knowledge acquired from copyrighted work.

16. Which of the following anti-piracy strategies is most effective once a copied version of a film is already available on the internet?
    A. Technology fixes;
    B. Enlist government;
    C. Counter-attacks;
    D. Litigation.

17. What is not a suitable strategy for managers to counteract piracy?
    A. Slower introduction of new versions to reduce the advantages of a pirate offering the "newest version";
    B. Slower introduction of new versions to increase the advantages of a pirate offering the "newest version";
    C. Faster introduction of new versions to reduce the advantages of a pirate offering the "newest version";
    D. Competitive pricing in order to adapt more to inexpensive, high-quality illegal copies.

18. What is/are a disadvantage(s) of the cost approach as a valuation method?
    A. Often leads to overvaluation;
    B. Includes development cost that did not lead to successful inventions;
    C. Inflation can be overcome;
    D. Inadequate correlation of cost with value;
    E. All of the above.

19. Why is the real options approach as a valuation method for patents useful?
    A. Managers do not understand the underlying calculations and thus cannot judge the results;
    B. Valuation methods, such as decision tree analysis or the Black-Scholes formula, can fully describe the options value;
    C. It models the uncertainties of the underlying IAs;
    D. Uncertainty can be easily described by a normal distribution.

20. What are valid reasons for the licensing of a technology?
    A. Shape market structure;
    B. Deter entrance of competitors;
    C. Select competitors after patent expires;
    D. All of the above.

21. Which of the following are considered a type of Intellectual Asset (IAs)?
    A. Trade Secret Protections;
    B. Contract-Created Intellectual Assets;
    C. Copyrights;
    D. All of the above;
    E. A and C only.

22. Which of the following statements about Intellectual Assets is correct?
    A. By estimations, 90% of commercial value in IA is found in trade secrets;
    B. Copyrights are less frequent than contract created rights and trade secrets;
    C. Patents are less frequent than trademarks and trade secrets;
    D. All of the above;
    E. None of the above.

23. Typically, how long does it usually take to obtain a patent?
    A. Six months;
    B. One year;
    C. Two to four years;
    D. Five to ten years.

Quiz Answers

1. D
2. B
3. B
4. C
5. D
6. D
7. D
8. E
9. D
10. A
11. D
12. C
13. A
14. D
15. C
16. C
17. A
18. D
19. C
20. D
21. D
22. D
23. C

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_8

8.1 Introduction: Non-market Competition

8.1.1 The Reality of Non-market Competition

This chapter deals with the governmental rules under which media and communications companies operate. But perhaps more importantly it discusses how media companies manage the legal and regulatory environment for competitive advantage. What are the tools? What are the techniques? And how must these functions be budgeted and run?

These governmental rules differ from country to country. We will cover general models and strategies from around the world. We will also use examples from other countries, but most illustrations will be American.

When firms compete with each other, they do so in the marketplace but also in a "non-market" sphere. Competition in a market encourages companies to lower prices, innovate products, and improve quality. In contrast, non-market competition is rivalry not for customers but for favorable treatment by governments, courts, standards committees, industry associations, and advocacy groups. Non-market strategies are actions that influence regulation, legislation, and standards as part of competing with rivals.[1] Non-market strategies have become increasingly important even though they usually do not generate revenues directly. The more government affects firms' opportunities, the more important non-market strategies become.[2] Thus, for companies and their managers, performance depends on how effectively they deal with governments and the public at large. Yet managers are typically not trained to navigate the non-market environment.

Dealing with government is not limited to established firms in traditional media industries. Innovator firms in the tech sector do so too. Originally, internet pioneers held a libertarian attitude, favoring a hands-off role for government. In that spirit, in 1994 several of its early thought leaders issued a ringing "Charter for Internet Liberties" that proclaimed, among other things: "Government, leave us alone, we did not call you, we don't need you." But soon this perspective faded as those engaged in the internet, whether commercial or non-profit, developed a long wishlist for the US government (and similarly in other countries) to protect, subsidize, and exempt their activities and companies:[3]

- extend (or reduce) copyright protections;
- restrict class-action shareholder lawsuits against venture capitalists;
- ease restrictions on encryption software;
- loosen export-controls on hi-performance computers and encryption software;
- stop the mergers of Comcast with Time Warner Cable, and of AT&T with DirecTV, to reduce their market power;
- promote transparency with regard to the "last mile," the connection between ISPs and consumers, and to points of interconnection in the telecommunication backhaul;
- prevent regulations that restrict data use in order to protect user privacy;
- prevent legal requirements of censorship of controversial speech and sexually explicit materials.

8.1.2 Case Discussion

Non-market Competition: Comcast Versus Google Overview

Comcast is the world's largest US cable operator, with almost 35% of US cable users subscribing to its Xfinity branded service. Its cable franchise territories include much of the Mid-Atlantic, Bay area, Seattle, Chicago, and Florida regions, plus big territories between the two coasts. It also owns NBC Universal, one of the major producers and distributors of TV and film programs (Universal) and operator of multiple broadcast and cable channels (NBC). Comcast has also moved into the voice telecom (VoIP) and broadband ISP market, where it is the platform over which online providers such as Google (and its YouTube subsidiary) reach their customers and users.

Google is the world's largest search and advertising placement company. It owns YouTube, which offers video content, with an increasing number of specially produced exclusive programs. Its service uses the infrastructure platforms of ISPs, of which Comcast is the largest in the USA. But Google has also aggressively entered the infrastructure and ISP market itself, by building local fiber-to-home market, first in Kansas City and then in several other cities. On these networks, it offers broadband at 1 gigabit per second, as well as video channels and phone service.

Google and Comcast compete in both the market and non-market spheres. Google must obtain licenses from the Federal Communications Commission (FCC) and local or state franchise permits in order to offer video and telecom services, and conform to their regulations and conditions, for example in digging up streets. Comcast is trying to prevent or at least slow down Google's ability to become a video and ISP platform provider. Google, on the other hand, is seeking protection by the FCC and state utility commissions to provide its content services over the Comcast network without being disadvantaged by Comcast discriminating against it through pricing and technical quality. While the two companies are rivals, they also share common goals such as low taxes, protection of IP, and weak anti-trust enforcement.

Google's regulatory issues are numerous and worldwide. They include:

1 Holburn, Guy L.F. and Richard G. Vanden Bergh. "Policy and process: A game-theoretic framework for the design of non-market strategy." In *The New Institutionalism in Strategic Management (Advances in Strategic Management, Volume 19)*. Eds. Paul Ingram and Brian S. Silverman. (Emerald Group Publishing Limited, 2002): 33–66.

2 Baron, David P. "The Nonmarket Strategy System." *MIT Sloan Management Review* 37, no. 1 (Fall 1995): 73–85.

3 Birnbaum, Jeffrey H. "Washington & the Web." *Fortune.* October 11, 1999. Last accessed June 17, 2017. ► http://archive.fortune.com/magazines/fortune/fortune_archive/1999/10/11/267047/index.htm.

- antitrust and market power issues in Brussels and Washington;
- merger issues in Washington;
- copyright issues, especially with book and newspaper publishers;
- privacy legislation in many countries, in particular Europe;
- censorship and compliance with national content rules around the world;
- potential liability for hate speech, violence, and explicit materials on YouTube;
- tax issues in the USA and Europe.

Comcast's issues are similarly varied, and include:

- TV station ownership restrictions
- content restrictions on broadcast TV
- copyrights and piracy
- foreign cultural quotas
- price regulation for cable service
- access by cable and TV channels and payments to cable platforms
- local and state franchising regulation of cable operations.

Comcast and Google must decide how much to "invest" in their regulatory activities and in measuring their "productivity," and in how to "market" their interests most effectively to governmental bodies and the public. How should Comcast and Google conduct and manage their non-market competition? How much should Comcast and Google "budget" for regulatory policy, the political process, and public relations (PR)? How should they "produce" positive outcomes?

8.1.3 The Relationship of Government and Media

Government, law, and litigation have always played a major role in media. In 1455, Johannes Gutenberg invented movable print and immediately became the subject of several lawsuits. Most of what we know about Gutenberg actually comes from the record of the several court cases in which he was embroiled. Soon the Catholic Church began to regulate printing and publishing. In 1501, Pope Alexander issued a bull (decree) that required the licensing of such activity. In 1559, the Vatican created the *Index Expurgatorius* with a list of banned books. Other countries, such as England and France, also tried to control print. In 1637, the Star Chamber in England limited the number of printers to two and required approval by the official publications and censor. Newspapers had to be licensed. In France, over 800 authors, printers, and book dealers had been imprisoned in the Bastille before the 1789 revolution. Under Napoleon, printers required a license, and newspapers were strictly censored.

The 19th century witnessed media inventions followed by governmental interventions. After the Morse telegraph emerged in the 1840s, the government postal monopolies in most countries took control of the new medium. Private operators were banned (in Germany) or nationalized (in Britain). In 1876, Alexander Graham Bell's telephone immediately triggered major lawsuits over patents. Here, too, most governments quickly assumed ownership. In the 1900s, after Guglielmo Marconi invented wireless communications, many countries established state control over this new invention and banned private telegraphy and broadcasting.

There are many roles that governments play in media and IT:

- allocating frequencies, including for broadcasting and mobile devices;
- regulating prices of phone and cable companies;
- granting and protecting of patents and copyrights;
- applying anti-monopoly and ownership controls;
- funding and supporting technical innovations;
- creating and enforcing obscenity and privacy laws;
- establishing network interconnection and connectivity rules;
- censoring certain content such as hate speech;
- creating advertising rules;
- setting an enforcing a system of unionization and collective bargaining;
- financing of public service television;
- setting of technology standards;
- allocating orbital slots for satellites;
- providing tax incentives for various types of investments;
- setting and negotiating tariffs and other rules affecting trade;
- regulating financial securities, stock markets, and brokers;
- adjudicating disputes in the courts;
- setting immigration rules;
- procuring technology equipment, and services as an early and major customer;
- regulating mergers, market structure and companies' competitive behavior;
- supporting and protecting diversity in media content and ownership;
- supporting the arts, creation, and national culture;
- supporting or owning telecom networks and services for low income and rural areas;
- supporting or running public service television;
- taxing cable TV and telecom networks, and, in some countries, TV viewing.

Government has also played an important role in the creation of many technology innovations. These include:

- computers;
- semiconductors;
- communications satellites;
- the internet;
- mobile technology;
- packet switching data transmission;
- spread spectrum;
- microwave transmission.

Why, generally, is government involved in an industry? There are three major reasons: the protection of the public interest, the protection of powerful private interests, and bureaucratic

and political self-interest. Regulation usually exists as a mix of all three.

What are the reasons for government intervention in the media and media technology sphere, which go further than they do in almost any other sector?

Media are important, essential, influential, and often controversial. They affect culture, politics, commerce, and technology. They also exhibit certain fundamental economic characteristics, which may result in a media system societal shortcomings in terms of ownership concentration and viewpoint diversity. At the same time, free speech guarantees enshrined in a nation's constitution give content media substantial protections from governmental regulation in a way that no other industry or activity does. However, that special status applies only to the content of media and its creation, not to regular media business activities such as mergers, pricing, technical infrastructure, consumer protection, health effects, and employment conditions.

As noted, the nature of media is such that there is a high fixed cost for initial creation of content and of distribution networks but a low marginal cost to duplicate content or add network users. This leads to economies of scale, which, together with the positive "network effects" that users have on each other, favor the emergence of large firms with market power. It also creates an economic incentive to price discriminate in order to offset a high fixed cost. The low marginal cost also incentivizes piracy, leads to price wars, and creates market instability. The government's role as an economic regulator is to reduce some of these tendencies.

But media issues go vastly further than business and economics; they include politics, culture, national identity, and societal roles. Contrasting with the realm of the market is the public sphere. This concept was popularized by the German sociologist Jürgen Habermas. The public sphere is "the space within which ideas, opinions, and views freely circulate."[4] Media is central to the public sphere, making public discourse possible. In this sphere, people are not just consumers but citizens. Under the public sphere concept, government is needed to assure a diverse and responsible media. This implies that government has no self-interest, which is a strong assumption.

There has been a general trend toward deregulation, and advances in technology have made many markets more competitive. And yet the role of government in the digital economy has been rising. There have been a number of factors and constituencies.

- demand by the internet community itself for regulatory actions, such as net neutrality protections;
- the emergence of digital activism, for issues such as privacy;
- protection of the losers in the digital economy: traditional firms under pressure, employment that is outmigrating to offshore locations, and a rising volatility of the economy;
- fundamental economics of digital activities, such as economies of scale and network effects, which favor large firm size and market power;
- demands for support of R&D, innovation, and investment;
- societal values such as child protection;
- consumer protection in activities on the new platforms.

All of this suggests that government will continue to play a major role in the new media environment, as it has done in the "old media" environment.

8.2 The Legal and Public Affairs Functions in Media Firms

Corresponding with the multifaceted role of government, the legal and public affairs functions in media firms have become increasingly important and complex, and they require significant management responsibility. Start-ups are rarely able to be able to afford the legal talent internally, even as they might have the greatest need in the early stages of their business life. A typical organizational chart for this function in a large company is illustrated in Fig. 8.1.

Public affairs departments manage regulatory affairs, legislative affairs, and press relations, and Public Relations (PR). The legal activities of a company deal with contracts, transactions, Intellectual Property (IP), employment, compliance issues, tort liability, advertising, competitor behavior, and real estate. Legal departments also create corporate entities, distribution agreements, license acquisitions, and labor agreements. They screen content for libel and rights infringement, protect trademarks, initiate legal action and defend against such actions by others.

The left-side branch of this chart may be thought of as dealing with "private law," mostly commercial-type transactions, while the right branch deals with "public law," mostly involving government.[5]

Entertainment law is a collection of sub-specialties that apply to media activities. It is an umbrella term that incorporates several legal specializations. Law schools often offer a set of courses in entertainment law and IP law. There are several loosely defined and overlapping areas of legal specialization that are directly relevant to media and communication—the legal fields of contracts, patents, copyrights and trademarks, constitution, administrative process, regulation, public utilities, employment and labor, libel, advertising and fair-trade practices, anti-trust, corporations and partnerships, securities, and taxation.

Entertainment lawyers can be part of an artist's team of agents, assistants, and personal managers. They can function

4 Croteau, David and William Hoynes. *The Business of Media: Corporate Media and the Public Interest*. (Pine Forge Press, 2001), 13–38.

5 Public and private law in media are not clearly demarcated and often overlap. Public regulatory issues can be fought through private litigation of one company against another, for example in the anti-trust field. The court decisions in private lawsuits then often become precedents for similar case in the future and hence become something resembling laws and regulations. Conversely, public law proceedings lead to regulations that directly affect commercial transactions.

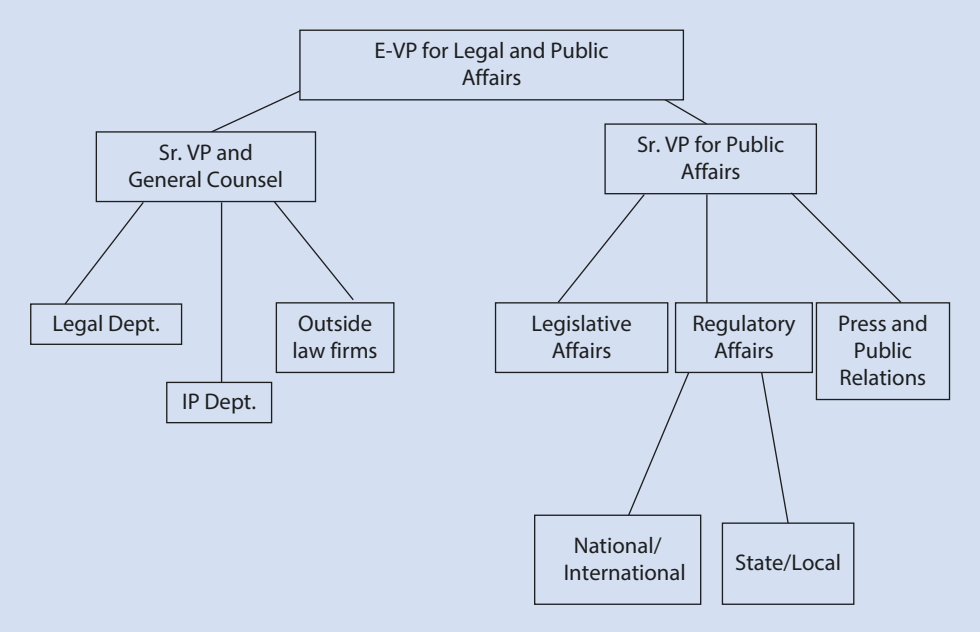


Fig. 8.1 Organizational chart of a corporate legal and public affairs function

primarily as attorneys in a traditional legal setting but also act as promoters, agents, and counselors, depending on the circumstances. In the theater world, entertainment lawyers help secure rights to perform plays and help in renting performance spaces. For television media, they negotiate rights to music, programs, and advertising.[6] In the film and music sector, they deal with financial transactions, copyrights, and contracts with the talent. For online media, they are involved in trademark infringement, database protection, privacy protection, and cyber-security. Film projects tend to have a production counsel. Even for an independent film, the costs of preparing and negotiating agreements range between $10,000–30,000 or higher. There also is a significant tax angle to media deals and this becomes an important part of the lawyering responsibility.

Like entertainment law, publishing law is not a discrete legal field but rather a combination of traditional areas of intellectual property (IP), contracts, torts, and free speech constitutional law.[7] It involves literary option agreements, writers guild registration, rights acquisition to life stories, and so on. Whether in entertainment or publishing, the two sides in transactions are usually media companies and creatives, and lawyers tend to work for one side or the other. At times, however, the talent and the media firms work together.

IP law is a distinct area, involving the acquisition, protection, and licensing of patents, copyrights, trademarks, and trade secrets. Some top IP firms are boutiques that only do IP-related work.

Among the legal specializations in the media field, patent attorneys are the most clearly defined, and they require special certification by the national patent offices of different countries.[8] Such patent lawyers, in additional to a legal qualification, must also have backgrounds or degrees in technology.[9] IP law is discussed in more detail in ► Chap. 6 Financing Media, Information, and Communication.

8.2.1 General Counsel: Head of Legal Department

The general counsel (GC) or in-house counsel, is the head of an organization's internal legal department and monitors the outside lawyers. The legal department sees itself as the sword, the shield, and the conscience of a company. It is also an often-sprawling bureaucracy requiring management, budgeting, and performance measures. In the past, it was not essential for the general counsel to have management skills because it was assumed that legal ability was more important. More recently the internal law department may employ several hundred attorneys and staff, and the general counsel also acts as a manager. She must control cost and quality of internal and external legal services, oversee lawyers serving in various business units, and supervise the training of other lawyers and employees in their compliance with legal and regulatory requirements.

In 2016, the 100-highest paid general counsels in the USA earned at least $1.4 million plus stock options and bonuses. Google's Chief Legal Officer David Drummond

6 Henslee, William D. *Entertainment Law Careers*. (Chicago: American Bar Association, 1998), 11.
7 Note that this meaning of IP is different from the acronym for internet protocol.
8 United States Patent and Trademark Office. "Office of Enrollment Discipline." Last accessed June 17, 2017. ► https://www.uspto.gov/about-us/organizational-offices/office-general-counsel/office-enrollment-and-discipline-oed.
9 Without the latter qualifications they may be "Patent agents" as non-lawyers. United States Patent and Trademark Office. "General Requirements Bulletin for Admission to the Examination for Registration to Practice in Patent Cases before the United States Patent and Trademark Office." Last accessed June 17, 2017. ► https://www.uspto.gov/sites/default/files/OED_GRB.pdf.

earned $664,367 in 2016. Comcast's Arthur Block's salary in 2010 was reported as $4.23 million.

8.2.1.1 Compliance Management

A company is liable when an employee commits a violation while acting within the scope of employment and for the company's benefit. Therefore, the firm must ensure that its employees are not going to get it in trouble, whether by ignorance of the law or by recklessness and negligence. To ensure that laws and regulations are followed is called "compliance," and this is a process that must be managed. Clear violations are relatively easy to define in terms of institutions and employees. The problems are the gray zones that are subject to interpretation and depend on circumstances and patterns. To deal with this process requires the setting up of a corporate compliance program with a senior manager in charge, typically from the GC's office, the HR department, and so on. Lower-level managers must be familiarized with the code of acceptable behavior and an oversight system established. Staff, in turn, must be trained, sometimes through programs, and the company must develop mechanisms for corrective action.

Special compliance management problems exist for companies that operate globally. There are different regulations in different countries, and the company has to make policies to ensure that they are complying with a variety of regulations, even across countries, and at times when they are contradictory.[10]

In the USA, compliance management is especially important in the securities area. The Sarbanes-Oxley Act (2002) requires companies to ensure employee compliance with securities law and accounting principles. Section 302 of this law requires the chief executive officer (CEO) and chief financial officer of publicly traded companies to certify that the company has established and maintained an effective system of internal control.[11]

The list of legal restrictions can be quite long. The firm must decide how to best address the most serious issues and generate compliance. This includes employee incentives, monitoring, and control. Establishing and managing a compliance program costs money.[12] There is a management question about the lengths a firm will go to in order to comply. Over-compliance is a risk-avoidance behavior and is costly in terms of direct and indirect cost. Conversely, under-compliance imposes costs by causing fines, delays, and negative publicity. Uncertainty about what it is exactly that must be done or not done will slow down decisions and raise costs. There are different perspectives on this question. The "Law and Economics" school of thought in legal scholarship postulates that "sometimes" it is cost effective to violate a contract or more generally, the law. The question is one of both ethics and economics. Is knowingly violating a legal rule a moral issue or simply a cost of doing business, like paying an occasional parking ticket which might be cheaper than seeking a parking garage? This is known as an "efficient breach" of the law. Many others condemn such a perspective as cynical, unethical, and anti-social. A violation of a business regulation requires a sufficient moral reason, and profit and productivity goals are not enough. Flagrant violations undermine the social fabric. Officially, the legal profession claims to support the moral view. In practice, however, a policy of efficient breach is often followed.

To deal with regulations, an active compliance industry has arisen to help firms set up efficient programs to cope with mandates. These specialized consultancies and operators were helped, in the USA, by the passage of the Federal Sentencing Guidelines. These identify, as a mitigating factor in the sentencing of companies and top managers found guilty for a corporate violation, the existence of a legal compliance program. Prior to the Guidelines, about 40% of the largest 500 US companies had compliance programs; after the Guidelines were issued, this number shot up to 100%.[13]

8.2.2 Outside Counsel

The general counsel is also responsible for hiring independently practicing lawyers. Firms hire such outside counsel to benefit from specialization, personal contacts, and economies of scale. Outsourcing to outside counsel is used for specialized and complex matters such as anti-trust battles or proxy fights, but also for routine matters such as bill collection or lease agreements. Some outside law firms are hired to deal with governments and legal systems of other countries. The percentage of legal matters assigned to outside counsel by major US companies is for litigation 69%; for labor and employment 55%; for IP 52%; but for tax only 17%.[14]

It takes time and money to manage outside professionals. The external counsel may have less incentive to keep costs low and may strive for an expensive perfectionism. In addition, outsiders may be less knowledgeable about the business and the deal itself than the company's in-house attorneys are.[15] There are also cost disadvantages to going outside. In 2015, corporate staff lawyers made about $150,000 in salary, plus benefits, which translates into roughly $80 an hour, plus overheads. Outside lawyers are more expensive. In 2015, the rate for top firms' partners was between $300 and $600, but often much more, and the rate billed for associates' time was $200–350 per hour. In other words, external lawyers are often three times as expensive on an hourly basis.

10 Rikhardsson, Pall et al. "Business Process Risk Management, Compliance and Internal Control: A Research Agenda." Presented at the Proceedings Second Asia/Pacific Research Symposium on Accounting Information Systems. University of Melbourne. 2006. ► https://ideas.repec.org/p/hhb/aarbma/2006-005.html

11 Cannon, David M. and Glenn A. Growe. "SOA Compliance: Will IT Sabotage Your Efforts?" *The Journal of Corporate Accounting & Finance* 15, no. 5 (July/August 2004): 31–37.

12 Ostas, Daniel T. "Legal Loopholes and Underenforced Laws: Examining the Ethical Dimensions of Corporate Legal Strategy." *American Business Law Journal* 46, no. 4 (Winter 2009): 487–529.

13 Ostas, Daniel T. "Legal Loopholes and Underenforced Laws: Examining the Ethical Dimensions of Corporate Legal Strategy." *American Business Law Journal* 46, no. 4 (Winter 2009): 487–529.

14 "ACC 2011 Census Report" *Association of Corporate Counsel* Mar 27 2012 ► http://www.acc.com/legalresources/resource.cfm?show=1306363.

15 Sheldon, Michael. "Pros and Cons of In-House Counsel." *The Hartford*. Last accessed June 17, 2017. ► https://www.thehartford.com/business-playbook/in-depth/in-house-counsel-pros-cons.

Entertainment law firms are usually based in major media centers and capital cities. There are two kinds of entertainment law firms: those that represent the entertainment companies, which are generally national law firms, and those that represent the talent, which are generally boutique or "plaintiff" law firms. The Beverly Hills Bar Association alone includes about 1250 entertainment lawyers as members, with the tone set by a few influential boutique firms and the entertainment law departments of several major firms.[16] It is typical for a company, media or otherwise, to use several different firms for its legal needs. This is because different firms have different specialties and cost structures.

Outside counsel use several billing arrangements. They may have an hourly charge or a contingency fee, a flat fee (which is becoming more popular), or they settle on an alternative fee arrangement such as being paid with equity stock in the client company. Large law firms that represent media companies are less flexible with fees than small firms representing the artists. They typically have hourly rates. When lawyers manage several aspects of the client's career, they might take their fee as a percentage of a client's income, typically 5%.

Legal work has been increasingly sent offshore in order to reduce the cost of the lengthy and expensive research. The hourly fee of a New York lawyer is in the range of $750 (and in most cities around $400), whereas a similar level of experience might cost only $30 in India.[17] In 2007 the offshore legal business was $60 to $80 million, which would have paid for about 1000 lawyers including their overheads, but by 2015 the number of lawyers and legal assistants in India performing work for US clients was estimated at 80,000.[18]

8.2.3 Case Discussion

Comcast Versus Google: Legal Representation

Google uses many law firms in America and in other countries. Its main corporate law firms include Cooley LLP, which has 750 lawyers, and Wilson Sonsini Goodrich & Rosati, which has 670 lawyers.[19] Other law firms that work for Google are:

- Potter Anderson & Corroon (91 lawyers), for corporate reorganization;
- Cleary Gottlieb, Allen & Overy (1200 lawyers) for EU representation;
- Quinn Emanuel Urquart & Sullivan (700 lawyers) for IP.

Comcast similarly employs large law firms. They include:

- Davis Polk & Wardwell, its main law firm for FCC-related case, with 740 lawyers and a New York City base;
- Ballard Spahr Andrews & Ingersoll (500 lawyers, headquarters in Philadelphia);
- Dechert (1000 lawyers, headquarters in Philadelphia).

In addition, both companies are represented in numerous state and local law firms that specialize in their state's regulatory environment or can deal with local real estate matters such as tower siting or rights of way. Altogether, each company can field thousands of highly qualified lawyers who are ready to do legal battle at any time. Their deployment is co-ordinated and led by the companies' GC's office.

8.2.4 Litigation Management

8.2.4.1 How to Control the Costs of Outside Counsel

Outside counsel can be effective but costly. There are several ways in which a company can try to control costs:

- require a budget in advance;
- pursue alternative fee arrangements, such as flat fee or contingency payments;
- create competition between several firms for its legal work;
- maintain tight control of the billed time;
- increase the size and quality of its own law department;
- Outsource work to low-cost countries such as India.[20]

How should a company determine how much to spend on legal expenses? First, we will address litigation. Statistically, the typical US company with a size of $1 billion plus in annual revenues faces 556 lawsuits per year, ranging from employment disputes and consumer injuries to copyright violations and contract performances. It spends more than $12 million per year on litigation alone. It spends another $19.8 million on settlement payments and adverse judgments.[21] It also spends, on average, millions on insurance against tort liability and incurs major internal transaction costs in avoiding situations that lead to litigation, including taking less risk in designing products or in developing and releasing them.

Litigation management means that a company needs to actively decide how to set budgets for individual cases and whether to initiate, settle, or fight. It must require law firms (whether inside or outside) to plan for the various stages of a case, with an itemized budget of expected cost. Outside law firms tend to resist setting a litigation budget because it may

16 Parisi, Paula. "Power Lawyers." *The Hollywood Reporter*. July 26, 2005.
17 Bach, Pete. "Outsourcing has its Boundaries." *The Post-Crescent*. January 2, 2007. Last accessed June 17, 2017. ► http://sinobpo.blogspot.com/2007/01/outsourcing-has-its-boundaries.html.
18 Naha, Abdul Latheef. "It's India for legal services." *The Hindu*. Last updated July 25, 2011. ► http://www.thehindu.com/todays-paper/tp-features/tp-educationplus/its-india-for-legal-services/article2266364.ece.
19 The Legal 500. "United States>Litigation." Last accessed April 2, 2017. ► http://www.legal500.com/c/us/litigation.
20 Vosper, Robert. "Size Matters: The Hazards, Rewards and Challenges of Managing a Large Legal Department." *Corporate Legal Times* 13, no. 139 (June 2003): 53.
21 Reason, Tim. "U.S. Companies Spending a Fortune in Court." *CFO*. October 12, 2006. Last accessed June 17, 2017. ► http://ww2.cfo.com/risk-compliance/2006/10/u-s-companies-spending-a-fortune-in-court/.

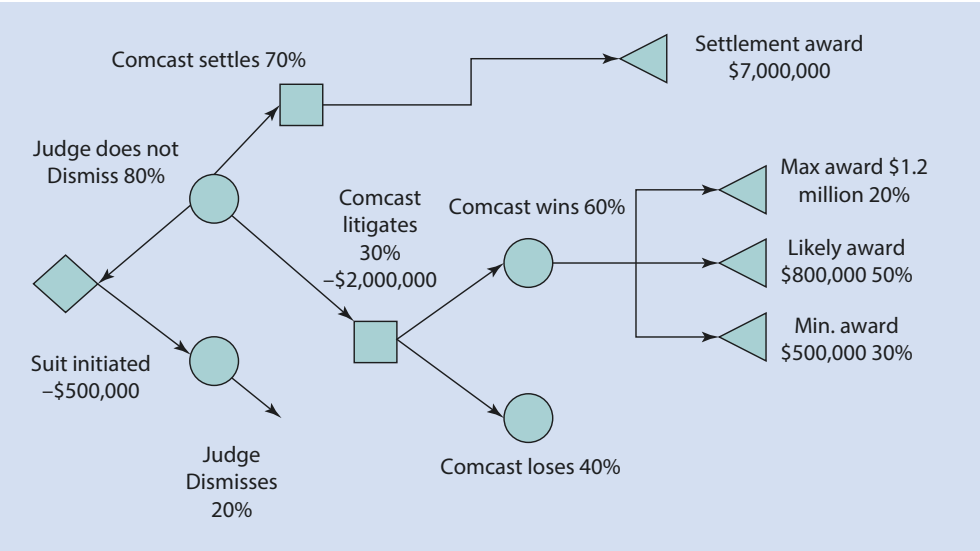


Fig. 8.2 Decision tree for decision to litigate

constrain them and because cases are often unpredictable. But the client company must consider how it can win a case at a reasonable cost, what the potential benefits are, and how risky the case is. Since 90% of cases settle and never make it to trial,[22] it is important for managers to define a settlement range at all stages of litigation. Settlements help to achieve litigation goals within a reasonable budget. Settlement strategies are an important part of risk-management. The best time for settlements to occur is during the outset of a case, or at the close of discovery when all the facts are known before trial preparation.[23]

In order to determine its strategy, a company may arrange the various options and probabilities in a "decision tree,"[24] as depicted in Fig. 8.2. After identifying uncertainties, lawyers should provide numerical risk assessments for each possible outcome. All final outcomes, on the right side, have financial consequences, such as penalties and legal expenses. Multiplying the probabilities with the monetary values of each outcome generates the expected value.[25] The sum of all the expected values is the value of the entire case. Decision trees are useful, but become cumbersome if too many variables and stages are involved.

How does one know the probabilities and magnitudes of outcomes for this methodology and, similarly, others? It is here that a company's lawyers need to provide reasonable estimates based on their experience, the outcome of similar cases, and other facts. These estimates must be realistic, neither painting a rosy picture in order to entice a potential client nor too gloomy in order to make the lawyer's subsequent achievement look good.

It should be noted that legal experts tend to be reluctant to estimate probabilities. "It all depends" will often be said, and it is the manager's responsibility and challenge to coax out these estimates. The willingness and the track record of lawyers in providing realistic estimates should be factors in retaining them. Their ability to judge costs and likelihoods is just as important to a company as their skill in writing legal briefs.

Case Discussion

Should Comcast Sue Google?

Suppose Comcast considers suing Google, accusing it of anti-trust behavior in the ad service market. How can Comcast estimate the expected value of the case? Comcast might create a decision tree outlining the costs and expected benefits from the suit and probabilities of outcome.

Assume the following hypothetical numbers. If Comcast brings the lawsuit, its upfront costs will be $500,000. The judge, with an 80% probability, will not dismiss the case. It is then up to Comcast if it settles (a 70% likelihood) or fights back (30%). If the latter is the case, it will cost it $2 million, with four possible outcomes: a total loss (40% probability), or a win (60%) where there are three possible outcomes with equal probability: a high win, a more realistic one, or a minimal one.

Q: Should Comcast sue?

The expected value of the case for Comcast is: (−500,000) +(0.2)(0)+(0.8)[(.7)(7,000,000) + (.3){−2,000,000 + .4(0) + (0.6)[(0.2)(12,000,000) + (0.5)(8000,000) + (0.3)(5000,000)]}] = $4,240,200

Comcast should bring the case, because its expected value, after subtracting the cost of bringing the case, is $4.24 million. But if the probability of winning drops from 60% to 30%, and if the expense rises from $2 million to $4 million, then the expected value is negative $-0.13. The case then should not be brought by Comcast.

22 Forrest, Kirk G. "In Litigation, Consider Outcome and Cost." *Business Insurance* 30, no. 37 (September 1996): 20.

23 Fogel, Richard A. "Settlement Negotiations and Strategy." *Risk Management* 50, no. 2 (February 2003): 18.

24 Poltorak, Alexander and Paul J. Lerner. "Introducing litigation risk analysis." *Managing Intellectual Property* no. 109 (May 2001): 47.

25 A conceptually better approach would be the "real options" approach to a decision process of stepwise investment. See Chapter 4 Technology Management. However, the practical application is no easy task.

8.2.4.2 How to Analyze Dynamic Spending?

The decision tree approach is a static analysis, with static probabilities and set costs and rewards. However, the real question is often an incremental one: how much to invest in a case to improve the odds, and how to respond to one's rival's corresponding efforts.

The optimization solution of any non-market spending by Firm A is to invest until marginal cost equals marginal benefits. This requires an estimation of the probability of success with several levels of investment by the firm, given an estimated level of spending by the opposing firm.

To conclude: managers need to manage their legal activities as a business function and to use litigation as a strategic tool, both defensively and offensively. As business tools these activities are subject to the regular analyses of net present value (NPV), return on investment (ROI), cost benefit, option value, brand management, and so on, and the general managers should not cede overall decision-making to the lawyers or specialists.

Case Discussion

Marginal Analysis: Comcast Versus Google

Google will have to consider the impact of its spending. Assume that the value to Google of success of a particular case is $1,000,000, and also assume that its competitor Comcast spends $100,000 on that case.

For each investment by Google in the case, there is a certain result in terms of probability of outcome and its expected value (Table 8.1).

How much should Google spend? The answer is between $300,000 and $400,000. In that range, the incremental spending ($100,000) achieves a result worth between $30,000 and $150,000 (right-most column). If Google spent more it would not achieve enough of a difference to justify the added cost; and if it spent less, it could have bought an extra expected value for less than the cost.

However, this presumes that Comcast's own legal spending is static at $100,000. Yet it is more likely that Comcast would respond to Google's spending by upping the ante itself. If, for example, it was to raise its own investment in the case to $200,000, there would be a different optimal spending number for Google, in turn.

Thus, for every investment level by Comcast there is an optimal spending level—a "reaction function" — by Google. In Fig. 8.3, this is shown schematically by the line denoted "Google optimal spending as a function of Comcast's." The more Comcast spends, the higher Google's optimal spending point must become. Comcast, too, will also do the same calculation for Google's spending level, and thereby set its own "reaction function" of optimal spending.

Comcast and Google will raise each other's spending until some equilibrium point E is reached. In other response configurations, there may be no such equilibrium point E, and Comcast and Google may try to outspend each other in an "arms race" to the top, continuously increasing their spending. That is possible when the expectations of probabilities and rewards differ widely. But it is more likely that both sides will then conduct a cost-benefit analysis for the spending and consider settlement parameters based on the decision calculus discussed previously.

Table 8.1 Cost benefit of investment in litigation

Investment by Google in $	Δ Investment	Probability of success for Google (est.)	Expected value *E*(V) of outcome	Δ*E*(V)
0	0	0.20	200,000	
100,000	100,000	0.50	500,000	300,000
200,000	100,000	0.65	650,000	150,000
300,000	100,000	0.80	800,000	150,000
400,000	100,000	0.83	830,000	30,000
500,000	100,000	0.86	860,000	30,000
1,000,000	100,000	0.88	880,000	20,000

8.3 Influencing Government and the Public

We now move from private litigation law to public regulatory law and policy. There can be three basic responses by a company to public policy:[26]

1. passive reaction—take policy as given and static;
2. anticipation—factor potential changes in government policy into planning;
3. shaping—pro-active effort to achieve specific policy objectives.

To anticipate changes, companies often have staff functions in their strategy group to identify and track such policy developments and incorporate them into the firm's plans. Often such early warning comes from a firm's outside lobbyist and lawyers, its internal public communications group, and from trade associations.

26 Hillman, Amy and Michael A. Hitt. "Corporate Political Strategy Formulation: A Model of Approach, Participation, and Strategy Decisions." *Academy of Management Review* 24, no. 4 (October 1999): 825–842.

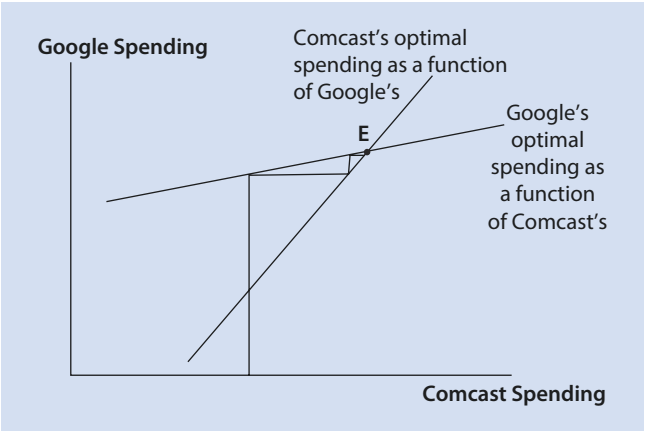


Fig. 8.3 Two-company reaction curve for optimal investment in litigation

8.3.1 Lobbying

The third type of response, that of shaping the policy, requires the greatest effort but offers the prospect of greatest impact. Robert Galvin, the head of the wireless firm Motorola for more than three decades, described his company's non-market strategies as "writing the rules of the game" to shape Motorola's market environment.[27] Here, "lobbying" is the major tool. Basic lobbying techniques include:[28]

- direct lobbying of policy makers;
- coalition-building;
- generating grassroot lobbying;
- political finance;
- public communications and advocacy efforts;
- impacting key government personnel appointments.

Trade associations and small firms often co-ordinate collective action, while larger or stronger firms generally prefer individual action. Small firms prefer collective action because they have neither the resources nor the connections that larger firms have.

When choosing a political strategy, companies must make three decisions on how to proceed:[29]

- *Transactional versus Relational.* The transactional approach is issue by issue as they come up, and involves short-term relationships with policy-makers. This may describe the situation of large diversified firms with many diverse policy interests. In contrast, the relational approach involves the development of long-term relationships with policy-makers and an investment in co-operation and trust. A relational strategy works better for more focused firms who have a major stake in the way their industry is regulated, such as telecom firms or cable companies.
- *Individual versus Collective.* A company works on the case on its own or in alliance with the industry through trade associations or other stakeholder coalitions. The individual strategy may work better for large companies that have deep pockets and have a major stake. A collective strategy may be better for controversial issues because it reduces the company's negative exposure. Creating a broad coalition may also get better results, and may be more affordable for smaller firms.
- *Informational versus Financial versus Constituent-Based.* A constituent-based strategy aims to create pressure on policymakers by generating voter support. It might work best in the early and more general stages of a regulatory debate. Then, to generate access, a financial strategy with campaign contributions may generate a sympathetic hearing. For the phase in which specific rules are written, an informational strategy might work best, including briefing policy-makers, commissioning reports, and shaping media coverage.

Lobbying targets are usually legislators and their staff, officials and staff of regulatory agencies, and government decision-makers at the local, state, national, and international levels.

A company must deal with several organizational issues in organizing its lobbying function:[30]

- how to choose the right person;
- whether lobbyists should be in house or retained;
- how much should be spent on lobbying.

Effective lobbyists are politically sophisticated, experienced, and persuasive. They must be able to network and create coalitions and connections. They must be capable to function as advisors, advocates, intelligence collectors, policy analysts, political campaigners, alliance builders, negotiators, collection agents, publicists, courtiers, party hosts, unpaid assistants, and fundraisers.[31]

One question is whether a lobbyist should be the company's employee or a hired independent professional. For a long-term, repetitive, or continuing issue it is better to use an in-house lobbyist. However, for short-term or unique issues, retaining a lobbying firm is more cost effective. They typically charge by hour or day, with an upfront retainer payment for a basic service level.

Companies must consider how much to spend (Table 8.2). For example, in 2014, the television, music, and movie industries in the USA reported spending $115 million on lobbying in total.[32] How do we know the figures? In the USA, companies and trade associations must report them, and all lobbyists must register and report their clients. Many other countries have weaker disclosure requirements.

27 Baron, David P. "The Nonmarket Strategy System." *Sloan Management Review* 37, no. 1 (Fall 1995): 73–85.
28 Mack, Charles S. *Business, Politics, and the Practice of Government Relations*. Westport: Quorum Books, 1997.
29 Hillman, Amy and Michael A. Hitt. "Corporate Political Strategy Formulation: A Model of Approach, Participation, and Strategy Decisions." *Academy of Management Review* 24, no. 4 (October 1999): 825–842.
30 Mack, Charles S. *Business, Politics, and the Practice of Government Relations*. Westport: Quorum Books, 1997.
31 Watkins, Michael, Mickey Edwards, and Usha Thakrar. *Winning the Influence Game: What Every Business Leader Should Know About Government*. New York: John Wiley & Sons, Inc., 2001.
32 OpenSecrets. "TV/Movies/Music: Lobbying, 2016." Last accessed June 17, 2017. ► https://www.opensecrets.org/industries/lobbying.php?cycle=2016&ind=B02.

Table 8.2 Lobbying expenses by major media and information sector organizations ($ million, 2016)

Total TV/movies/music sector[a]	**$60.2**
National Association of Broadcasters	$16.4
National Amusements Inc. (Viacom)	$8.4
21st Century Fox	$5.4
Recording Industry Association of America	$4.4
iHeartMedia	$4.4
Time Warner	$2.9
Motion Picture Association of America	$2.6
Sony Corp.	$2.0
Vivendi	$1.8
Broadcasting Media Partners	$1.0
Total Internet and computer sector[b]	**$58.2**
Alphabet Inc. (Google)	$15.4
Amazon.com	$11.4
Facebook Inc.	$8.7
Yahoo! Inc.	$2.5
eBay Inc.	$2.2
Pandora Media	$1.3
SalesForce.com	$1.3
Internet Association	$1.2
Alibaba Group	$1.0
Spotify USA	$1.0
Total telecommunications sector[c]	**$64**
Comcast	$14.3
NCTA (cable TV association)	$13.4
CTIA (mobile telecom association)	$11.0
Deutsche Telekom	$8.0
Charter	$7.2
Cox	$3.6
SoftBank	$2.3
DISH	$1.8
Harbinger Capital Partners[d]	$1.5
Motorola	$1.5

[a]OpenSecrets. "Industry Profile: Summary, 2016." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/indusclient.php?id=B02&year=2016
[b]OpenSecrets. "Industry Profile: Summary, 2017." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/indusclient.php?id=B02
[c]OpenSecrets. "Telecom Services Industry Profile: Summary, 2016." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/indusclient.php?id=B09&year=2016
[d]Harbinger is a private equity company whose holdings include Ligado Networks, SkyTerra, and Lightsquared

8.3.1.1 Case Discussion

Lobbying

Comcast maintains 128 federal lobbyists on its payroll, 105 of whom are former governmental officials, including six former members of Congress.[33] In 2013, Comcast had the seventh largest lobbying expenditure of a US company or organization, spending $18.8 million.[34] It was one of the largest financial supporters of Barack Obama's presidential runs. One of Comcast's vice presidents raised over $2.2 million between 2007 and 2012 for Obama's campaign and for the Democratic National Committee.[35] In those years, the company greatly expanded through a series of mergers steered through government approval.[36] In 2015 it increased its lobbying budget by 50%, to $18.5 million. In that same year, Google spent $22 million on lobbying.

In addition to direct lobbying, Comcast controls the and NBC Universal Political Action Committee (PAC), which is among the largest PACs in the USA. It raised over $3.7 million in 2011/2 for various candidates.[37] Comcast is also a major backer of the National Cable and Telecommunications Association (NCTA) PAC, which raised $2.6 million. NCTA represents Comcast, as well as other cable companies, and in 2013 was the fifth largest lobbying organization in the USA, spending nearly $20 million.[38]

While the majority of its lobbying is at the federal level, Comcast also backs lobbying on a local level. Regional organizations, such as the Tennessee Cable Telecommunications Association and the Broadband Communications Association of Washington PAC, receive funding from Comcast to represent their interests in local

33 Celniker, Jared and Russ Choma. "Net Neutrality." *OpenSecrets.* April 2015. Last accessed June 17, 2017. ► https://www.opensecrets.org/news/issues/net_neutrality/.
34 OpenSecrets. "Lobbying Top Spenders: 2013." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/top.php?showYear=2013&indexType=s.
35 New York Times. "Obama's Top Fund-Raisers." September 13, 2012. Last accessed June 17, 2017. ► http://www.nytimes.com/interactive/2012/09/13/us/politics/obamas-top-fund-raisers.html.
Sink, Justin. "Comcast, Time Warner Execs Have Been Big Obama Supporters." *The Hill.* February 13, 2014. Last accessed June 17, 2017. ► http://thehill.com/policy/technology/198350-comcast-time-warner-execs-have-been-big-obama-supporters.
36 Lipton, Eric. "Comcast Recruits Its Beneficiaries to Lobby for Time Warner Deal." *New York Times.* April 5, 2015. Last accessed February 17, 2017. ► https://www.nytimes.com/2015/04/06/business/media/comcast-recruits-its-beneficiaries-to-lobby-for-time-warner-deal.html.
37 Federal Election Commission. "Top 50 Corporate PACs by Receipts January 1, 2011-December 31, 2012." Last accessed June 17, 2017. ► http://classic.fec.gov/press/summaries/2012/tables/pac/PAC5a_2011_12m.pdf.
38 Proportionally, Comcast's share would have been about $6 million. NCTA data from OpenSecrets. "Lobbying Top Spenders: 2013." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/top.php?showYear=2013&indexType=s.

and state government.[39] In the past decade, cable companies, including Comcast, have lobbied state governments, with varying degrees of success, to restrict or ban cities from offering municipal broadband service.[40] By 2014, such restrictions were passed in 20 states.[41] At that point the FCC intervened and preempted the states by permitting municipal broadband. That issue went to the courts, which overturned the FCC.

Comcast's outside-hired lobbyists and consultants included at least 12 US firms. Examples:[42]

- Tony Podesta, former counsel to Senator Ted Kennedy and brother and partner of President Clinton's chief-of-staff and Hillary Clinton's campaign manager John Podesta. (Democrat);
- Ed Gillespie, former Republican Party chairman;
- Alfonse M. D'Amato, former New York Senator (Republican);
- Rudolph W. Giuliani, former New York Mayor (Republican);
- Jack Quinn, former White House Counsel under President Clinton (Democrat).

It should be noted that use of these actions is unlawful for a large corporation in the USA.

Facing Comcast in the net neutrality debate, the greatest lobbying effort came from Google, which spent $16.8 million on lobbying in 2014 alone. It was the ninth largest spender on federal lobbying of any organization, but still behind Comcast and the NCTA. In 2013, 36 members of Congress held shares of Google's stock. In 2014, it employed 98 lobbyists, including 79 former government officials and two former members of Congress.[43]

8

8.3.1.2 Campaign Contributions

One of the tasks of lobbyists is to advise firms how to target their campaign contributions. Contributions are an important way in which companies can gain political support for their interests. This connection may be most active in the political culture of the USA, but corporate money is deployed for political impact in most countries, though often more hidden from public view. Listed in ◘ Table 8.3 shows the campaign contribution by media companies during one election cycle. These numbers are based on contributions from PACs,[44] soft money donors, and individuals giving $200 or more. Companies cannot donate directly; rather, the money came from the organization's employees and shareholders contributing to a company's or industry's PAC, or from its individual employees or owners in direct contributions, and those individuals' immediate families. The company totals include subsidiaries and affiliates.

In the election cycle 2011–2012, individuals and PACs associated with the communications and electronics industries spent a total of $198 million, of which 63% went to Democratic candidates and 37% to the Republicans.[45] In 2014, a non-presidential election year, that number dropped to $116 million (Democrats: 59%; Republicans: 40%). In the election cycle 2016, total contributions by the communications and electronics industry almost tripled to $295 million. Of this, Democrats received 69% and Republicans 31%).

◘ Table 8.3 show a strong preference for Democrats in the high tech firms (except for Cisco) and in several major media firms; and a leaning toward Republicans in AT&T and from the trade associations for cable TV and broadcasting.

8.3.1.3 Lobbying Strategies

There are two different types of lobbying strategies: inside and outside strategies. Inside strategies contribute to a candidate's campaign directly or through intermediaries such as Political Action Committees (PACs).[46] The influence of PACs is somewhat constrained because the maximum gift it can give to a single candidate during an election cycle is $10,000.

Outside strategies generate public pressure on policy-makers to support a group's agenda. There need not be direct access to specific policy-makers for an impact to be made. This is a good tactic to use with politicians who are sitting on the fence of an issue. Groups with large and ideologically cohesive memberships are best able to use such "grassroots" tactics. They are able to leverage a large membership to provide resources, infrastructure, and volunteers.

"Astroturf" campaigns try to create the appearance of a grassroots movement. They pay contractors to generate phone calls, letters, and emails to politicians to make it appear that a particular opinion represents public opinion. The internet has created many new ways to generate such activities.

39 Sher, Andy. "Lobbyists had busy year in Nashville." *Times Free Press.* May 30, 2011. Last accessed June 17, 2017. ► http://www.timesfreepress.com/news/news/story/2011/may/30/lobbyists-had-busy-year-nashville/50827/.
Peterson, Andrea. "Comcast is donating heavily to defeat the mayor who is bringing gigabit fiber to Seattle." *Washington Post.* October 31, 2013. Last accessed June 17, 2017. ► https://www.washingtonpost.com/news/the-switch/wp/2013/10/31/comcast-is-donating-heavily-to-defeat-the-mayor-who-is-bringing-gigabit-fiber-to-seattle/.

40 Badger, Emily. "How the Telecom Lobby is Killing Municipal Broadband." *Citylab.* November 4, 2011. Last accessed June 17, 2017. ► http://www.citylab.com/tech/2011/11/telecom-lobby-killing-municipal-broadband/420/.

41 Brodkin, Jon. "ISP lobby has already won limits on public broadband in 20 states." *ArsTechnica.* February 12, 2014. Last accessed June 17, 2017. ► http://arstechnica.com/tech-policy/2014/02/isp-lobby-has-already-won-limits-on-public-broadband-in-20-states/.

42 Collaborative Research on Corporations. "Company Profile." November 2009. Last accessed June 21, 2010. ► http://www.crocodyl.org/wiki/news_corp.

43 Celniker, Jared and Russ Choma. "Net Neutrality." *OpenSecrets.* April 2015. Last accessed June 17, 2017. ► https://www.opensecrets.org/news/issues/net_neutrality/.

44 Only those groups giving $5000 or more need to report and are listed here.

45 All data from various pages of ► https://www.opensecrets.org/industries.

46 Hemson, Paul. *The Interest Group Connection: Electioneering, Lobbying, and Policymaking in Washington.* Washington, D.C: CQ Press, 1998.

Table 8.3 Campaign contributions by policial action committees and employees, ($ million, Election cycle 2016)[a]

Industry/Company	Total contributions ($ million)	Percentage of contributions to Democrats (Balance to 100% went to Republicans) (%)
TV Production	23.7	90.0
TV/Radio Stations	8.7	51.0
Music Production	5.3	89.0
NCTA (cable TV association)	2.7	43.0
Cable/TV Production	2.6	62.0
NAB (broadcaster association)	2.1	45.0
Newsweb Corp.[b]	37.8	99.8
Asana[c]	18.0	99.0
Saban Capital	16.1	99.0
Comcast	12.6	73.0
AT&T	11.6	33.0
Alphabet (Google)	9	63.0
Microsoft	8.4	56.0
Oracle	6.7	50.0
DreamWorks SKG	5.4	45.0
Facebook	4.6	67.0
Qualcomm	4.4	81.0
Disney	4.3	39.0
Cisco	3.7	28.0
Allied Wallet[d]	3.4	64.0
Duchossois Group[e]	3.3	0.0
Verizon	3.2	47.0
Time Warner	2.4	87.0
Apple	2.3	89.0
21st Century Fox	2.1	53.0
Bad Robot Productions[f]	1.9	48.0
Hubbard Broadcasting	1.9	2.0
Cox Enterprises	1.8	40.0
Intel	1.8	57.0
National Amusements (Redstone)	1.5	68.0
Escription[g]	1.1	39.0

[a] All data from various pages of ► https://www.opensecrets.org/industries
[b] Minority media company which owns newspapers, radio stations, and TV stations, formed by Fred Eychaner
[c] A company started by a co-founder of Facebook which focuses on worker productivity and tracks their work
[d] A company that provides credit card processing on websites (i.e. payments online)
[e] A holding company which invests in other companies as well as owns subsidiaries that own racetracks, manufacture security, lighting, and other products. It is a private company valued at over $3 billion
[f] JJ Abrams' film production company
[g] Owned by Nuance Communications which makes the Dragon Naturally Speaking and other items. Escription offers medical dictation services to doctors and therapists etc.

In 2008, a public FCC hearing on net neutrality was so packed that many activists and reporters were turned away. Comcast had quietly sent employees on work time to cheer for its side.[47]

The campaign by the music industry against file-sharing by users is an example of deftly spinning an industry interest into a public interest.[48] The Recording Industry Association of America organized a coalition of about 60 artists to persuade key senators to hold hearings to publicize the perspective of artists, and sponsored ads featuring these performers. The goal was to change the debate from one of big media companies' profits being challenged by college students to one of being fair to beloved artists.

8.3.1.4 Regulations on Lobbying

There are several types of restrictions on lobbying. In the USA, individuals who devote at least 20% of their working time to lobbying activities must register as lobbyists.[49] Lobbying firms and in-house lobbyists must file quarterly reports of their activities. Companies that pay more than $5000 for a trade association's lobbying activities and participate in that association's lobbying activities must be listed. Lobbyists and companies must report financial contributions to or on behalf of a public official, including contributions to third parties who make a public official an honoree.

There are other restrictions in the USA. Recipients of federal funds, such as grants, contracts or co-operative agreements, cannot use government money to lobby the government. Furthermore, recipients of federal funds, such as a public television station, that uses non-federal funds for lobbying purposes must report those activities to the awarding agency.

Lobbyists are prohibited from intervening during the period in which an agency is engaged in a decision. For example, rules ban contact between lobbyists and the FCC during "blackout periods" when a case is being decided.

There are also limits on the "revolving door," that is, the way in which government employees move to jobs in an industry which they previously regulated. A former government employee is forever banned from representing another person or organization before a Federal agency on matters in which she participated personally and substantially while working for the government. For 2 years, a former employee may not lobby on matters which were pending under the employee's supervision in government service.[50] There is concern that a former government employee may influence his ex-colleagues. But such restrictions may be bypassed by the former official by merely advising the company or law firm without directly representing them before the agency. On the other hand, overly strict prohibitions have problems, too. It may not be fair to limit the job prospects of qualified people after they leave government service. This would deter talented people from working for the government in the first place, or to leave it to make room for new blood. Should a top tax accountant who once worked for a tax authority be restricted from doing tax work in the future after leaving government service?

8.3.1.5 Case Discussion

Comcast Local Lobbying: A Hypothetical Case

How to set an optimal lobbying budget? The analysis is similar to the one we used for litigation. Suppose that a municipality considers providing free municipal wi-fi service for people to connect to the internet and that Comcast wants to influence the city councilors to forgo their plan. How much should it invest in these efforts?

Based on market surveys and experience in other localities, Comcast estimates that one-third of its broadband customers will drop its service in favor of the free wi-fi service. There are 100,000 home broadband customers and their customer value to Comcast is $40 a month in revenues. Assuming (hypothetically and for simplicity) the profit margin is half of the revenue, the loss to Comcast would be total margin revenue times the profit, divided by the number of lost customers: $40 million/2/3 = $8 million. The NPV of this loss at a 12% discount rate is about $64 million over 30 years. How would Comcast counter this potential loss?

Comcast's government relations experts estimate that each $10 million of lobbying would reduce the probability of the municipal wi-fi proposal to be adopted by another 20%. Therefore, Comcast may invest in lobbying efforts and spend money according to ◘ Table 8.4.

That table shows that Comcast should spend about $20 million on lobbying. Beyond that, the additional cost of lobbying by $10 million exceeds the NPV of improvement ($8.2 million).

47 Jansen, Dean. "Comcast Secretly Pays People to Fill Seats at FCC Hearing." *Miro Internet TV Blog*. February 26, 2008. Last accessed July 11, 2013. ► http://www.getmiro.com/blog/2008/02/comcast-secretly-pays-people-to-fill-seats-at-fcc-hearing/.

48 Watkins, Michael, Mickey Edwards, and Usha Thakrar. *Winning The Influence Game: What Every Business Leader Should Know About Government*. New York: John Wiley & Sons, Inc., 2001.

49 United States Senate, Secretary of the Senate and Clerk of the House. "Lobbying Disclosure Act Guidance." January 1, 2008. Last updated December 15, 2011. Last accessed July 31, 2012. ► http://www.senate.gov/legislative/resources/pdf/S1guidance.pdf.

50 Dunbar, John. "The FCC's Rapidly Revolving Door." *Center for Public Integrity*. February 19, 2003. Last accessed June 17, 2017. ► https://www.publicintegrity.org/2003/02/19/6581/fccs-rapidly-revolving-door.

Table 8.4 Illustration for cost and value of lobbying

Total cost of lobbying ($ million)	Δ Cost of lobbying ($ million)	Probability of adoption (%)	Δ Probability of adoption (%)	Value of Δ probability ($ million)
0	0	100.00		
10	10	80.00	−20.0	12.8
20	10	64.00	−16.0	10.24
30	10	51.20	−12.8	8.2
40	10	40.60	−10.2	6.5
50	10	32.77	−8.2	5.2
60	10	26.22	−6.6	4.1
70	10	20.98	−5.2	3.3

8.3.2 Public Relations Management

Public relations are a set of communications activities to create a positive image for an organization and its goals. Unlike advertising, no money is spent on the outright purchase of time and space to relay the company's message.[51]

Publicity is a sub-set of PR effort, the effort to create positive news about a person, product, or organization. Publicity is typically a short-term strategy, while PR is a long-term organized program.[52]

In the 19th century, generating publicity was limited to press agents getting newspapers to mention products or events. A few masters of the art, such as P.T. Barnum, would stage pseudo-events to attract reporters. The goal was to gain visibility. But in time PR emerged with a more ambitious aim: to shape public opinion.[53] The main elements of PR include press relations, product publicity, corporate communications, lobbying, and counseling.[54] Relevant target audiences are employees of the firm, stockholders and investors, the media, civic and business organizations, governments, and financial groups.

One of the tools of effective PR is to understand public perceptions about companies, issues, and trends. There are various techniques and tools for this. They include longitudinal analysis of public opinion polls, interviews, and surveys.[55] More recently, online communications have enabled new tools and software services that help to analyze and identify topics and trends.[56] There are various indicators—such as the number of retweets, mentions, or likes.[57]

8.3.2.1 Managing Unfavorable Publicity

The internet provides great PR opportunities to spread a company's perspective and news, but it offers the same opportunities to rivals and critics. It also allows for untrue statements,[58] that criticize a company's products, actions, and leadership.[59]

Companies often monitor the internet for comments about them, using employees or specialized internet monitoring firms.[60] In some cases, such people aim to provide positive comments without identifying themselves as paid by the company. This can seriously backfire. Moreover, if employees misrepresent information about the company's performance, they could violate the anti-fraud rules of the securities laws, which may expose the company to civil and criminal liability. In some cases, negative comments about a company might be made by outside short-sellers in order to drive its share price down. Even in such situations, the rules of stock exchanges often require that a firm respond to rumors, even those made anonymously on the internet. A terse "no comment" will often not suffice.

Companies that are subject to of online criticism—whether true or false—may bring lawsuits against the websites that

51 Henry, Kenneth. "Perspective on Public Relations." *Harvard Business Journal* 45 (July/August 1967): 14.

52 Belch, George and Michael Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

53 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

54 Lamb, Charles W., Joe F. Hair, and Carl McDaniel. *Marketing*. Mason, OH: South-Western, 2013.

55 Taylor, Andrea L., Suraje Dessai, and Wändi Bruine de Bruin. "Public Perception of Climate Risk and Adaptation in the UK: A review of the literature." *Climate Risk Management* 4–5 (2014): 1–16.

56 Examples are Trendsmap, Hashtags.org or Neo Reach, a Stanford start-up that helps managing campaigns with influencers in social media. Chapdelaine, Rachel. "7 Marvelous Resources for Researching Trending Twitter Topics". *Inbound Marketing Blog.* January 29, 2014. Last accessed August 19, 2015. ► http://www.inboundmarketingagents.com/inbound-marketing-agents-blog/bid/333604/7-Marvelous-Resources-for-Researching-Trending-Twitter-Topics.

57 Cha, Meeyoung et al. "Measuring User Influence in Twitter: the Million Follower Fallacy." *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media* (May 23–26, 2010): 10–17.

58 Casarez, Nicole B. "Dealing with cybersmear: how to protect your organization from online defamation." *Public Relations Quarterly* 47, no. 2 (July 2002): 40–45.

59 van der Merwe, Rian et al. "Stakeholder Strength: PR Survival Strategies in the Internet Age." *Public Relations Quarterly* 50, no. 1 (Spring 2005): 39–49.

60 Ernst, Marcia M. and John C. Ethridge Jr. "Corporate Strategies for Combating Cybersmear." *Trust the Leaders* no. 4 (Summer 2003). Last accessed June 17, 2017. ► http://www.sgrlaw.com/ttl-articles/920/.

publish it. Their main objective is not primarily to fight the website but rather to force it, by a legal subpoena, to reveal the identity of the person who posted the comment. Many websites that receive such a subpoena give a user who posted the comment two weeks' notice before they comply. This enables the user time to go to the court to cancel the subpoena.[61]

Companies can use several methods to "crisis manage" unfavorable publicity. The key goal is not to allow rivals or critics to define the issue.[62] A wise course is to confess, apologize, and present a plan of how to fix the problem.[63] The company should offer refunds, write to critics privately, and try to get the discussion out of the public space.

8.3.2.2 Case Discussion

Google Versus Comcast: PR

When Google aimed to buy its rival Yahoo, it expected a fast approval, partly based on its positive image. However, it soon faced the likelihood of being charged with monopolistic practices, threatening a positive brand image that had been defined by its "Don't be evil" slogan. Its opponent circulated a critical document entitled "Google Data Collection and Retention" that depicted Google as a "Big Brother" gobbling up private data. Google's rival Microsoft spent much money in order to derail the merger. It pushed bills in New York and Connecticut to regulate the collection of data. It orchestrated a letter campaign and got Congress to hold hearings. It persuaded non-profit groups to publicly object, and it induced large advertisers to oppose the deal. Google was increasingly seen as abusing its market dominance and as commercializing private and personal data. It was also seen as evading payment of its fair share of taxes.[64] As a result Google lost the aura of public-spirited start-up. And once the shine was off others jumped in too. When Google applied to the FCC to license unused portions of the radio spectrum, it was opposed by broadcasters. When it pushed for "net neutrality," the telecom and cable companies fought it. When it wanted to digitize libraries, the publishing industry fiercely opposed the plans. When it moved data, the EU Commission targeted its privacy practices.

Facing such reverses and opposition, Google ramped up its PR team—Global Communications and Public Affairs—to 130 people in 2008, and it has grown since then.[65] Google launched a PR campaign beyond just invoking its mantra of "Don't be evil," and company managers were sent out to talk to reporters, academics, politicians, and law-makers to explain why Google should be loved rather than feared.[66] Google CEO Sundar Pichai was not a big fan of press interviews, but those he gave were used by the PR department to provide insights into the working life at Google and the goals, projects, and vision of the company. Google engaged in good-citizen PR activities beyond those for direct marketing activities. For example, there were meetups for Women in Tech. The company focused on environmental sustainability with Google Green, and announced that it would solely use renewable energies by 2017.[67] Google supported non-profit causes, gave out Global Impact Awards, and hosted impact challenges to encourage entrepreneurs to tackle global societal issues.[68] In the process, Google aimed to establish a public image of a company that cares not only about its own success but also for the world.

Google's rival Comcast listed 59 professionals as press contacts in 2017.[69] They included 21 at Comcast corporate itself, 24 at its cable operations, and 14 at its NBC Universal division. PR operations also include support staff and top managers. They had to deal with several PR disasters. On the customer relations level there were offensive and rude phone treatment of customers that were recorded and went viral. A practice of billing subscribers for services that were never provided was revealed. On the regulatory level, Comcast launched a PR campaign to support its attempted merger with Time Warner Cable. But it ultimately failed. Other PR campaigns dealt with its acquisition of NBC Universal (successful), with the abolition of neutrality rules (successful), and with offers to buy 21st Century Fox and SkyTV.

Tools of Comcast's PR department include a website with blog posts, features stories, videos, employee stories, and regular press releases. To improve its image and be a good corporate citizen, Comcast, like many other firms, used philanthropic engagement through several corporate foundations. The company sought and received the GreenCircle Sustainability Award in 2016. It offered Internet Essentials, a connectivity service targeted at low-income customers.[70] It used sponsorships to develop a broad reach and local engagement.

61 Ernst, Marcia M. and John C. Ethridge Jr. "Corporate Strategies for Combating Cybersmear." *Trust the Leaders* no. 4 (Summer 2003). Last accessed June 17, 2017. ► http://www.sgrlaw.com/ttl-articles/920/.

62 Thompson, Nicholas and Fred Vogelstein. "The Plot to Kill Google," *Wired*. January 19, 2009. Last accessed June 17, 2017. ► https://www.wired.com/2009/01/ff-killgoogle/.

63 Berman, Craig. "How Should Firms Respond to Negative Publicity?" *Chron*. Last accessed June 17, 2017. ► http://smallbusiness.chron.com/should-firms-respond-negative-publicity-69,199.html.

64 Warner, Jeremy. "Google's Public Relations Disaster." *The Telegraph*. January 30, 2016. Last accessed June 17, 2017. ► http://www.telegraph.co.uk/technology/2]\016/02/01/jeremy-warner-googles-public-relations-disaster/.

65 Ciarallo, Joe. "Google Founder to PR Department: You Have Eight Hours of My Time This Year." *Adweek*. November 17, 2017. Last accessed February 17, /2017. ► http://www.adweek.com/digital/google-founder-to-pr-department-you-have-eight-hours-of-my-time-this-year/.

66 Orey, Michael. "Google's PR Campaign." *Bloomberg*. April 29, 2009. Last accessed June 17, 2017. ► http://www.bloomberg.com/news/articles/2009–04-28/googles-pr-campaign.

67 Torkington, Simon. "Google to run on 100% renewable energy in 2017." *World Economic Forum*. December 6, 2016. Last accessed February 17, 2017. ► https://www.weforum.org/agenda/2016/12/google-green-renewable-energy-in-2017/.

68 Google. "Global Impact Awards." Last accessed February 17, 2017. ► https://www.google.org/global-giving/global-impact-awards/.

69 Comcast. "Press & Industry Analyst Contacts." Last accessed February 17, 2017. ► http://corporate.comcast.com/news-information/press-industry-analyst-contacts.

70 Kang, Cecilia. "Comcast is trying to improve its image with a program for low-income consumers." *The Washington Post*. May 9, 2014. Last accessed February 17, 2017. ► https://www.washingtonpost.com/business/technology/comcast-is-trying-to-improve-its-image-with-a-program-for-low-income-consumers/2014/05/09/cab489cc-d231-11e3-937f-d3026234b51c_story.html.

8.3.2.3 How Much PR Spending?

The question is how a company can measure the effectiveness of its PR activities. It may count news clips, conduct surveys, or monitor the internet.[71] Media impressions are audited by adding up the circulation, TV audience ratings, and online links. One can also measure the total number of media impressions on specific audiences.[72] One can also do a content analysis of what has been written and broadcasted about the company. This consists of looking at the percentage of positive/negative articles by publication, reporter, subject, or target audience.[73] One can also measure a company's exposure compared with that of rivals.

The oil company Shell developed a so-called Content Engagement Index to quantify the effectiveness of its posts on social networks such as Facebook, Twitter, and so on. This also allows tracking the improvement of messages over time. Shell calculates the index in this way:

$$\text{Number of Visits} + (\text{Number of Likes} \times 20) + \frac{(\text{Number of Comments} \times 50)}{\text{Intended Audience}} \times 100$$

In measurements to quantify effectiveness of PR one distinguishes between reach and impressions. Impressions are the number of media mentions times their circulation. In contrast, reach does not count multiple impressions on the same individuals. It is thus a smaller number.

Metrics for measuring PR effectiveness are:

- total number of impressions over time;
- total number of impressions on the target audience;
- total number of impressions on specific audiences

To develop these measures, one can use content analysis and track what has been written, broadcast,[74] and so on. The search can follow several dimensions:

- positive and negative key words;
- percentage of positive articles over time;
- ratio of positive to negative articles;
- percentage of positive/negative articles by publication or reporter;
- percentage of positive/negative articles by subject;
- percentage of positive/negative articles by target audience;
- coverage compared with rivals;
- covered issues and messages.

Measuring exposure is one step in determining success. The next question is how much these efforts cost and how much the firm should spend. How does one answer this question, given the vagueness of inputs and outputs? There are several ways in which to proceed.[75]

1. *Past budgets.* Matching the past year or for a similar recent project. But this assumes projects that are indeed similar and that the earlier project or year deserves to be imitated.
2. *Competitive parity.* Spending attempts to match those of a rival. This involves educated guessing. Furthermore, companies may have different backgrounds, visibility, image, problems, and goals, thus making comparisons difficult or irrelevant.
3. *Affordability.* This approach—spend as much as the company can comfortably afford—may be realistic during hard times, but that may be exactly the time when the company's public image needs most help.
4. *Downside Calculation.* How costly to the firm will be inaction? Such an estimate is difficult.
5. *Stage of Lifecycle.* Start-up projects, for example, require more public communications than mature projects.
6. *Rate of return analysis.* The cost relative to the estimated value of expected results.
7. *Marginal net analysis.* Incremental PR benefit should equal incremental PR cost. This is conceptually a good procedure, but in practice hard to calculate. One would have to assign the value per message of the audience reached. This could be a value similar to the price of a paid advertising message to the same audience. After that step, one must estimate the impact of PR spending on such audience reach. This could be estimated by the number of favorable press mentions following the PR efforts.

A study sponsored by the PR industry shows that the PR spending of the "Most Admired" companies from 1999 (as identified by *Fortune* magazine) correlates positively with their standing in terms of admiration rank. In 1999, the average spending on PR of the top 200 companies based on reputation was around $6 million. The firms with the best reputation had a larger PR staff size.[76] The spending of the bottom 200 was significantly lower at around $2.8 million.

8.4 The Regulatory Process

We have so far discussed three major tools of non-market competition: litigation, lobbying, and PR. We now discuss a fourth one: dealing with regulation. Such regulation comes in two major flavors: governmental regulation (by local, state, national, and international agencies) and industry-self-regulation.

71 Paine, Katie D. "How to measure your results in a crisis." *The Institute for Public Relations*. 2002. Last accessed June 17, 2017. ► http://www.instituteforpr.org/wp-content/uploads/Crisis_2002.pdf.

72 Belch, George and Michael Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

73 Lindenmann, Walter K. "Guidelines and Standards for Measuring the Effectiveness of PR Programs and Activities." *The Institute for Public Relations*. 2003. Last accessed June 17, 2017. ► http://www.instituteforpr.org/wp-content/uploads/2002_MeasuringPrograms.pdf.

74 Lindenmann, Walter K. "Guidelines and Standards for Measuring the Effectiveness of PR Programs and Activities." *The Institute for Public Relations*. 2003. Last accessed June 17, 2017. ► http://www.instituteforpr.org/wp-content/uploads/2002_MeasuringPrograms.pdf.

75 Smith, Ronald D. *Strategic Planning for Public Relations*. 2nd ed. Mahwah: Lawrence Erlbaum Associates, 2005.

76 Harris, Thomas L. and Impulse Research. *Corporate communications spending & reputation of Fortune 500 companies*. Los Angeles: Impulse Research Corporation, 1999.

8.4.1 Self-Regulation

Self-regulation can be beneficial to companies because it is usually more expert-driven, speedy, and flexible than government regulation. The rules set better match the problems. Moreover, it is less expensive for government because the industry is responsible for developing and enforcing its rules and punishments.[77]

Self-regulation can be done within a single company or by agreement among a group of companies. Major TV and cable networks have their own Standards & Practices departments that check programs and advertising to ensure that the materials in compliance with regulations, that the material is not offensive to audiences or other advertisers, and that "viewer discretion" warnings are provided where necessary.[78] The Standards and Practices department at the ABC TV network alone used to have 35 people.[79] In addition to review by the major TV networks, local TV stations that retail the content may also check it because of content concerns in their community.[80] Furthermore, advertisers may have their own standards to meet for advertising to be acceptable.[81]

Self-regulation by powerful companies can have far-reaching effects. When home video rental was all pervasive and dominated by one major chain that refused to stock films rated above R, the noted film critic Roger Ebert observed: "Blockbuster in effect exercises censorship over American movies by making it economically prohibitive for studios to consider NC-17 films." Later, the content standards of online firms such as Google YouTube, Facebook, and Netflix had a similar effect.

The newspaper industry also self-regulates. Most newspapers have internal codes to set standards on the behavior of journalists, including standards on privacy or breach of trust. Some newspapers have internal ombudsmen officers to provide aggrieved objects of stories an avenue for complaint. But in 2004, only 30 to 40 of the 1400 US newspapers had such a system, allegedly for financial reasons, though probably more for reasons of avoiding unfavorable publicity. After years of resistance and following a major plagiarism scandal, the *New York Times* hired an ombudsperson, titled a "Public Editor," who also writes a column.[82] The paper also issued a 54-page manual as a code of conduct, "Ethical Journalism".[83] It states that "staff members must obey the law in pursuit of news." The manual provides 155 situations that newspapers and journalists might have to deal with. Among other things, it discusses protecting the newspaper's neutrality, the staff's civic performance and journalistic activities outside the paper, and conflicts of interests. It deals with advertisers, marketing and production, and with contributions and gifts. It discourages the use of anonymous sourcing but does not prohibit it.

While individual newspapers will try to police themselves, industry-wide efforts to self-regulate newspapers have been resisted in the USA.[84] In many other countries, however, press boards self-police newspapers. In Britain, there is a Press Complaints Commission (PCC). The PCC investigates complaints about content, such as the accuracy of an article. It also regulates press activity through a Code of Practice.[85] The PCC defines privacy standards and identifies groups whose anonymity must be preserved, including victims of sex crimes and medical patients.[86] The PCC cannot impose fines on newspapers, but it requires that all breaches be publicized by them.

Similarly, the Swiss Press Council tries to enforce a Declaration of Duties and Rights of Journalists.[87] It cannot sanction journalists but its decisions are made public and are posted on its website. Important decisions are released to news agencies, major editorial offices, and so on. In Sweden, Denmark, and Ireland, only an "affected person" can bring forth a complaint to a Press Commission or Board. In contrast, in Finland, Germany, and Australia, anyone who feels offended by a mass media publication can make a complaint, whether directly affected or not.[88]

Industry-wide self-regulation may have drawbacks, both for the public at large and for companies involved in the process:

- Codes of conduct set by competitors among themselves often lead to price collaboration and cartel behavior, such as the prevention of aggressive moves by new rivals. This has often been the case with codes of professional ethics that prohibited advertising by lawyers or doctors, and made it harder for newcomers to enter and compete.
- Self-regulation affords only limited due process to aggrieved parties.

77 Campbell, Angela J. "Self Regulation and the Media" *Federal Communications Law Journal* 51, no. 3 (May 1999): 711–771.

78 Dessart, George. "Standards and Practices." *The Encyclopedia of Television*. Last accessed July 23, 2012. ► http://www.museum.tv/eotv/standardsand.htm.

79 The Museum of Broadcast Communications. "The Encyclopedia of Television." Last accessed May 31, 2007. ► http://www.museum.tv/archives/etv/; U.S. House of Representatives (108th). Hearings on H.R. 3717, the 'Broadcast Decency Enforcement Act of 2004.' February 26, 2004. Last accessed June 1, 2007. ► http://republicans.energycommerce.house.gov/108/Hearings/02262004hearing1216/hearing.htm.

80 U.S. House of Representatives (108th). Hearings on H.R. 3717, the 'Broadcast Decency Enforcement Act of 2004.' February 26, 2004. Last accessed June 1, 2007. ► http://republicans.energycommerce.house.gov/108/Hearings/02262004hearing1216/hearing.htm.

81 Berger, Robin. "The Importance of Being Decent." *TVTechnology*. June 8, 2005. Last accessed July 23, 2012. ► http://www.tvtechnology.com/news/0110/the-importance-of-being-decent-/184683.

82 Overholser, Geneva. "Budding Relationships." *Global Journalist.* April 1, 2004. Last accessed July 23, 2012. ► http://www.globaljournalist.org/stories/2004/04/01/budding-relationships/.

83 The New York Times Company. "Ethical Journalism." September 2004. Last accessed July 23, 2012. ► http://www.nytco.com/pdf/NYT_Ethical_Journalism_0904.pdf.

84 Press councils exist in the USA in several states, such as in Minnesota until 2014. Silverman, Craig. "Last press council in U.S. will close next month." *Poynter*. April 10, 2014. Last accessed June 17, 2017. ► https://www.poynter.org/2014/last-press-council-in-u-s-will-close-next-month/247192/.

85 Press Complaint Commission. "Welcome to the Press Complaints Commission Website." Last accessed August 1, 2012. ► http://www.pcc.org.uk/.

86 Press Complaint Commission. "Welcome to the Press Complaints Commission Website." Last accessed August 1, 2012. ► http://www.pcc.org.uk/.

87 Media Wise. "Switzerland - Press Council (1999)." June 15, 2011. Last accessed July 11, 2013. ► http://www.mediawise.org.uk/switzerland-2/.

88 Fielden, Lara. "Regulating the Press: A Comparative Study of International Press Councils." Oxford: Reuters Institute for the Study of Journalism, April 2012. Last accessed July 11, 2013. ► https://reutersinstitute.politics.ox.ac.uk/fileadmin/documents/Publications/Working_Papers/Regulating_the_Press.pdf.

- The setting of the self-regulation usually does not include parties outside the companies' own interest.
- Self-regulation may be pushed on an industry by government when it has no legal rights to do so directly, for example because of constitutional protections of free speech from direct governmental intervention.
- The self-regulation mechanisms have no powers to enforce sanctions against violators.[89]

8.4.1.1 Self-Regulation in the Film Industry

There is no government regulation of the film industry in the USA. Instead, the Motion Picture Association of American (MPAA) self-regulates the sector. As early as 1907, the city of Chicago passed a law allowing the precensorship of movies. In 1915 the US Supreme Court upheld the right of local government to censor movies, deeming them as being solely "entertainment."[90] In consequence, throughout the 1920s and 1930s, local politicians, religious organizations, and protectors of decency claimed a right to censor movies in each town where they had influence. In response, in 1924, the studios decided to set up a common standard setting, headed by former postmaster general William Hays, in order to undercut the local censorship boards. He negotiated a "production code" among the studios. The "Hays Office" set principles, monitored films, and at times proposed script changes and censored films. For example, the code said that in films, lawbreakers could not escape justice, even married couples had to sleep separately, and divorce had to lead to bad results.[91] In the Great Depression the Hays Office even criticized films that focused on social problems such as poverty.

More recently, the MPAA ratings system for their movies, such as G or PG-13 (Parental Guidance for Children under 13), has given advance warnings about the content of movies and its advertising. The rating process has been described as secretive, with unclear standards, and favoring films from the big studios that fund the system.[92]

8.4.1.2 TV Self-Regulation

The TV industry's self-regulation in the U.S. is similar to that of the film industry. The National Association of Broadcasters (NAB) established a code for content and for the types of products that could be advertised and how. Drinking alcohol, for example could not be shown explicitly.[93] There were many no-nos such as hypnotism, occultism, astrology, ridiculing people with disabilities, and of course obscene, profane, or indecent material. To ensure compliance, the individual networks created their internal divisions of network standards and practices. In 1982 the code was held to violate anti-trust law in one of its economically central provisions, which limited, by joint agreement, the supply of advertising minutes and hence raised their price.

In 1990, the NAB issued a new "Statement of Principles in Radio and Television Broadcasting," which was much more unregulated and flexible. Instead of the long list of prohibitions, it advised (instead of mandated) that member stations and networks should use responsible and careful judgment when it came to violence, drugs, and sexually related content.[94]

In the 1980s parents started suing networks for their children's injuries or deaths when they attempted to imitate something they saw on one of the network's shows. Several of these cases went to the Supreme Court.[95] Stung by the negative publicity, the networks instituted self-regulation. In 1997, most of the TV and cable networks (except for NBC) "voluntarily" agreed to rate their own programming according to a system that provided ratings for V (violence), S (sex), and L (language). These TV ratings ("Parental Guidelines") were established to be used with the so-called "V-chip," which was mandated by law to be built into all new television sets. A 2007 poll said that only 27% of all parents could figure out how to program this.[96]

Even without industry-wide specific regulations, most radio and TV stations conduct themselves in a similar fashion in order not to alienate their audiences and advertisers. Based on its own set of standards, the largest US radio broadcaster, Clear Channel Radio (later renamed iHeartRadio), suspended the popular, nationally syndicated *Howard Stern Show* for its indecency in terms of topics and language. Stern had ignored Clear Channel Radio's standards.

Another form of content-based self-regulation under governmental pressure has been the "family viewing time" between 8 and 9 pm, where networks are supposed to avoid violent and controversial content.

8.4.1.3 Cable TV Self-Regulation

Each cable company has its own "code of conduct." The rules are publicly available. When it comes to industry-wide standards, in response to a US Senate bill to regulate customer service, the cable TV industry instituted self-regulatory policies with regards to customer service. Cable companies agreed to answer all calls from customers in 30 seconds, restore interrupted service in 24 hours, and give 30 days' notice to consumers when changing prices or channel line-ups.

89 Ewart, Brian J. "The Law and Economics of the FCC's Decency Standard." *Selected Works*. May 26, 2009. Last accessed July 5, 2012. ► http://works.bepress.com/brian_ewart/1/.
90 Epstein, Edward J. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
91 Epstein, Edward J, *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
92 See the documentary *This Film is Not Yet Rated*.
93 Limberg, Val E. "Ethics and Television." *The Museum of Broadcast Communications*. Last accessed July 23, 2012. ► http://www.museum.tv/eotvsection.php?entrycode=ethicsandte.
94 Limberg, Val E. "Ethics and Television." *The Museum of Broadcast Communications*. Last accessed July 23, 2012. ► http://www.museum.tv/eotvsection.php?entrycode=ethicsandte.
95 Thompson, Robert J. and Steve Allen. "Television in the United States." *Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition*. July 31, 2012. Last accessed July 5, 2012. ► http://www.britannica.com/EBchecked/topic/1513870/television-in-the-United-States.
For example, Niemi v. National Broadcasting Company, Zamora et al. v. Columbia Broadcasting System, and DeFilippo v. National Broadcasting Company.
96 Labaton, Stephen. "F.C.C. Moves to Restrict TV Violence." *The New York Times*. April 26, 2007. Last accessed June 17, 2017. ► http://www.nytimes.com/2007/04/26/business/media/26fcc.html.

Additionally, the cable industry has often self-regulated itself on issues such as customer privacy, billing practices and disputes. Most cable networks also restrict nudity and profanity, at least until late at night. Premium subscription networks such as HBO do not abide by these rules.

8.4.1.4 Self-Regulation in the Advertising Industry

In many countries, there is self-regulation by the advertising companies. In the USA, several trade associations of advertising associations joined forces to establish an Advertising Self-Regulatory Council (ASRC).[97] The ASRC has become the advertising industry's primary self-regulatory mechanism. It reviews complaints from consumers and consumer groups, local better business bureaus, and competitors. If the ASRC and the advertiser fail to resolve the controversy, either one can appeal to a review panel. If the advertiser loses the appeal, it is expected to discontinue the ad.

The ASRC cannot impose sanctions or order an advertiser to modify or stop running an ad, but advertisers who participate in an investigation and appeal rarely refuse to accept the panel's decision.[98] In 1996, of the board's investigations, 16 ad claims were substantiated, five were referred to the government, and 75 were modified or discontinued.[99]

An example to a challenge was for Malt-O-Meal's use of the phrase "Betcha Can't Taste the Difference" in 2007 advertisements. The board found that Malt-O-Meal's testing was flawed.[100] The chicken brand Perdue Farms was also scrutinized in 2007, with the board recommending that the company discontinue placing a "no preservatives" and "fresh" label in the advertising for its products when they actually contained several chemical additives.

Competitors and consumers complained about advertising by the satellite TV firm DirecTV. The board recommended that the company discontinue its claim that it offered "movies in 1080p HD, the same stunning quality as Blu-Ray." It also recommended that the advertiser discontinue its claims of "99.9% signal reliability" and its claim that it is a "myth" that its service suffers from weather outages. It also recommended that the advertiser limit the claim that it has "Over 130 HD channels—with the capacity for over 200 channels coming soon."[101] The cable companies Cox Communications and Time Warner Cable had to modify their description of offering a "fiber optic network" because it conveyed the message that their cable networks extended fiber to the home, which was not the case. The board also recommended that Cox discontinue the use of consumer testimonials disparaging Verizon FiOS customer service and billing practices, and modify its "up to" speed claims to more accurately reflect the limitations of the maximum available speed.

In Europe, the self-regulation of advertising is prevalent. There is a European Advertising Standards Alliance, a non-profit organization representing the advertising industry in Europe.[102] In Germany there are two advertising standards organizations:[103] *Deutscher Werberat* handles issues of taste, decency, and social responsibility, and *Wettbewerbszentrale* deals with issues of unfair commercial practices by applying unfair competition law. In the UK, self-regulation takes place through two advertising standards organizations.[104] The Advertising Standards Authority (ASA) is a "one-stop-shop" for all advertising standards. ASA applies the Advertising Codes, written by Committees of Advertising Practice. There is also Clearcast, which evaluates preproduction advertising scripts and offers preclearance to agencies on proposed TV ads prior to broadcast.

Particularly troubling advertising messages are those aimed at children. In the USA, the Children's Online Privacy Protection Act imposes rules on websites. It forbids collecting "personal information" (name, address, contact information, the child's image, geo-data, etc.), to contact a child, and to use "behavioral advertising."[105]

On the self-regulatory side, The Children's Advertising Review Unit of the Council of Better Business Bureaus was established in 1974 to self-regulate such marketing. It is financed by the children's advertising industry and sets guidelines and reviews compliance with its own rules as well as with federal laws, with respect to advertising directed at children under 12 years old, as well as online privacy practices.[106] In Australia, the self-regulatory code of the advertising industry is that advertising and marketing that are directed at children be conducted within "prevailing community standards."[107] Similar practices of self-regulatory guidelines and codes can be found in other countries, such as France, Ireland, and Spain.

97 The American Advertising Federation (AAF), the American Association of Advertising Agencies (AAAA), the Association of National Advertisers (ANA), and the Council of Better Business Bureau (CBBB).

98 In 1993, for the first time in its history, the ASRC's predecessor NARC referred a matter to the Federal Trade Commission following an advertiser's refusal to modify a commercial in accordance with a NARC decision.

99 Henry, Kenneth. "Perspective on Public Relations." *Harvard Business Journal* 45 (July/August 1967): 14; Belch, George and Michael Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

100 National Advertising Review Board. "NARB Panel #140." March 13, 2007. Last accessed Last accessed July 5, 2012. ► http://www.narbreview.org/quarterly/pdf/narbpanel140.pdf.

101 In a similar complaint against the rival satellite TV providers Dish Network, the board determined that the claim "99.9% signal reliability" conveys the messages that consumers will experience interruption-free television service 99.9% of the time, which is not supported by the evidence. Although the signal is available (emitted from the satellite 99.9% of the time, the consumer still may not be able to watch television 99.9% of the time, for example owing to weather factors.

102 International Chamber of Commerce. "Marketing & advertising." Last accessed June 17, 2017. ► http://www.iccwbo.org/advocacy-codes-and-rules/areas-of-work/marketing-and-advertising/self-regulation/.

103 European Advertising Standards Alliance. "Germany." Last accessed June 17, 2017. ► http://www.easa-alliance.org/members/europe/germany.

104 European Advertising Standards Alliance. "United Kingdom." Last accessed June 17, 2017. ► http://www.easa-alliance.org/members/europe/united-kingdom.

105 Federal Trade Commission. "Children's Online Privacy Protection Rule ("COPPA")." Last accessed June 17, 2017. ► https://www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/childrens-online-privacy-protection-rule.

106 Better Business Bureau. "Child's Advertising Review Unit (CARU)." Last accessed ► http://www.us.bbb.org/WWWRoot/SitePage.aspx?site=113&id=24783d03-2c4b-4b0e-b46f-5fb29117b7c6.

107 Australian Association of National Advertisers. "About - AANA." September 2, 2015. Last accessed June 17, 2017. ► http://aana.com.au/about/.

8.4.1.5 Self-Regulation of the Video Game Industry

When video games became popular and absorbed an increasing attention by youngsters, advocacy groups such as the Parents Television Council (PTC) raised concerns that video game violence can result in numbing children's reactions to violence. They lobbied for protective legislation.[108] In response, the Entertainment Software Association in the USA established the Entertainment Software Rating Board.[109] ESRB sets a rating system and enforces it. The control sets age restrictions on the sale of games, and focuses on informing parents about content within games. The ESRB system uses six age-based ratings – from "EC" (early childhood) to "AO" (Adults Only) – and at least 30 content descriptors. In legal terms, video games are not required to be rated, but most games submit to this in order to be acceptable to retailers and video game console manufactures.

The effectiveness of this "voluntary" rating system was checked out by a government agency. The Federal Trade Commission (FTC) sent out undercover shoppers who reported that almost all stores that sell video games strictly apply the ESRB ratings. Whereas in 2000, 83% of underage teenage customers could purchase M-rated ("mature") video games, in 2009 this had decreased to 20%, and later decreased further to 13%.[110]

8.4.1.6 Internet Self-Regulation

Internet companies generally prefer self-regulation to government involvement in consumer protection. The system that evolved is that of "seals of compliance." Several industry organizations (the Better Business Bureau, TrustE, and the Direct Marketing Association) issue such a seal to websites that agree to disclose their data privacy practices and follow certain rules. They are monitored for adherence, though this is reportedly quite spotty.

For example, to receive a seal of compliance for privacy practices, a website must agree to disclose its data practices and be checked for adherence. It must show:

- what personal information is being gathered;
- how it will be used;
- with whom it will be shared;
- what the dispute resolution mechanism is;
- whether the user can control its dissemination.

Another technique of online self-regulation is for companies, industry association, governments, or private groups, to issue a list of objectionable websites for blocking by intermediaries such as Google. However, there is often no transparency and accountability showing how the list was assembled. It may simply include content that some users found objectionable but that is not illegal. Such blacklisting lacks transparency and due process, and tends to overblock, limit free speech, and encourages the emergence of organized societal "nannies" who detect hate speech in any controversial opinion they do not approve of. In the aggregate, such efforts lead to a waste of law enforcement, company resources, and to efforts to extend jurisdictional reach beyond a country's territory.[111]

8.4.1.7 Case Discussion

Self-Regulation at Comcast

The cable TV companies have historically collaborated with each other closely in self-regulation. Comcast worked with other cable companies to create standards of behavior regarding customer privacy, billing practices, and disputes. The industry agreed to refrain from using customers' viewing data for marketing or resale. This collaboration helps the industry preserve public image and staves off government regulation of these issues, but it also reduces rivalry in service quality.

8.4.1.8 Managing the Self-Regulatory Process: Technical Standards

The setting of technical standards and protocols is important for companies and industries. Standards can be mandated by government, established cooperatively within the industry, or, left to the market where they may emerge noncooperatively. This is also discussed in ► Chap. 4, Technology Management.

Official standard bodies are typically broad based and slow moving. Private standards consortia can be fast and narrow, but can easily be the tool for a narrow industry group, often centered around a central firm. It is not clear which approach works better. Practically speaking, a company's standards activities must deal with both the official national and international standard bodies as well as with private technology development consortia.[112]

There are numerous technical standards. Past and current major examples include:

- TV: NTSC, PAL, and SECAM analog standards; ATSC and DVB digital standards;
- Radio: DAB+, ISDB-T, and DAB Eureka 147 standard for digital radio and S band standards for satellite direct radio;
- mobile phones: GSM, CDMA, LTE, and 5G standards;
- short-range wireless: WiFi IEEE 802.11, Bluetooth IEEE 802.15.1;

108 Coombs, Timothy and Sherry Holladay. "Self-Regulatory Discourse: Corrective or Quiescent?" *Management Communication Quarterly* 25, no. 3 (2011): 494–510; Parents Television Council. "Violent Video Games and Minors." Last accessed June 17, 2017. ► http://www.parentstv.org/ptc/videogames/main.asp.

109 Entertainment Software Rating Board. "Frequently Asked Questions: What is ESRB?" Last accessed August 1, 2012. ► http://www.esrb.org/ratings/faq.jsp#1.

110 Federal Trade Commission. "FTC Undercover Shopper Survey on Enforcement of Entertainment Ratings Finds Compliance Worst for Retailers of Music CDs and the Highest Among Video Game Sellers." April 20, 2011. Last accessed June 17, 2017. ► http://www.ftc.gov/opa/2011/04/violentkidsent.shtm.

111 Mueller, Milton L. *Networks and States: The Global Politics of Internet Governance.* Cambridge, MA: The MIT Press, 2010.

112 Dr. Ken Wacks, interview with the author, July 2, 2007.

- audio recordings: 45 single, LP, compact tape, CD;
- video recordings: VHS, Beta, DVD, Blu-ray;
- internet communication: TCP/IP network protocol;
- world wide web: HTML and CSS standards for website design;
- signal compression: MPEG-4, H.265, MP3.

The internal organization of how standards function inside media and tech companies varies considerably depending on size, age, and the tech savviness of a company. Some companies have full-time employees devoted to standards, usually at the vice-principal level such as a Director of Standards and Industry Group. However, it is more common for employees across the company, typically from the R&D department, to devote part of their time toward standards, depending on the technology in question. In addition, companies may bring in late-career engineers to monitor standards. Even though some may not be engaged in the latest technology R&D, they can be effective at playing the politics of the standards game. But many smaller companies pay no attention to standards until they are forced to.

Companies need to estimate the costs of their standards activities. For example, a company might need two engineering employees to devote two months to attend committee meetings and travel, plus two weeks of part-time attention. As mentioned, the personnel cost alone would be around $60,000 a year.[113]

Suppose a company has an interest in seeing a standard adopted internationally. How should it proceed? The first step is to find out if anyone else is working on developing the standard. It must ask if a standard body is already working to develop a standard.

- Are there consortia for this standard?
- What other companies have an interest in this standard? For or against?
- What group would be working on the standards?
- What group within one's own country is working on the standards?
- Do several domestic and international groups work on related issues and do they coordinate in order to avoid the duplication of standards?

The next step is to influence one's own country. Within an international committee, standards are written by delegated experts appointed by each country. These experts often have "marching orders" from their country as well as their company. Some countries, such as China, allocate state money to the standards process - the USA does not. The American National Standards Institute delegates the power to various industry trade groups, for example the Telecommunications Industry Association (TIA), to write standards for international proposals. TIA allows companies to join and charge membership fees that are based on revenue. Typical fees range from $1000 to over $70,000 a year. Any company with a US presence can participate, so the "American" group working on the US proposals may include many non-US firms. Once a company is a member of the appropriate committee, it tries to find other companies with similar views if possible.[114]

When a national standard is set, the US State Department (and in other countries similar national departments dealing with international economic affairs) determines its national positions. Individual companies have to support the US government, at least in public. Supportive companies then create a New Work Item Proposal (NWIP) to send to other countries for their endorsement. Companies want to get an international committee to back their proposal or at least to circulate the proposal to other countries. The committee then decides whether or not to endorse the NWIP. An endorsement requires "substantial support," meaning more than 50% must vote yes and less than 25% can vote no (members may also abstain). The NWIP is then circulated, sometimes without the endorsement of the home country's committee. For a NWIP to survive in the international process, a majority of countries must agree that discussion on the topic is worthwhile, and at least five countries must agree to vote for it.

Countries then choose endorse the NWIP or not (which requires comments and revision). The old draft and comments then become a new draft that is circulated again to countries. At this stage, companies often try to influence countries other than their home country, because each country in international standards bodies receives one vote. This involves behind-the-scenes lobbying, usually by government consultants or employees. The EU countries are generally savvier at this than the USA, and they have many more votes.

When multiple companies want to see a certain standard implemented, they may pool their efforts, even if they are competitors.[115] Each subsequent phase takes about three to six months. The Final Draft International Standard is then published, and placed in a library and sold. This whole process is very political. Companies and countries often call in favors from other companies or countries. They debate not only the merits, but also the procedures, rules, and paperwork. Companies may hire consultants who are specialists to represent them in negotiations and committee meetings. The consultants can argue, propose, and monitor the process on a company's behalf.[116] In order to set standards tactics, a company should try to know other participants' objectives beforehand, who its allies are, and what compromises it might have to make.[117]

Since the standard-setting process is composed of technology, politics, and economics, companies must be selective when picking sides and seek:

- low cost licensing;
- multiple sourcing;
- assuring future participation on joint tech development on this and future products;
- future deals.

113 Dr. Ken Wacks, interview with the author, July 2, 2007.

114 Dr. Ken Wacks, interview with the author, July 2, 2007.

115 WiMax Forum. "About the WiMax Forum" June 2001. Last accessed August 1, 2012. ▶ http://www.wimaxforum.org/about/.

116 Dr. Ken Wacks, interview with the author, July 2, 2007.

117 Shapiro, Carl and Hal Varian. *Information Rules*. Boston: Harvard Business School Press, 1999.

Determining the optimal level of investment in the standards process is difficult, but possible if one can estimate the NPV of a successful adoption of a favored standard in comparison to other standards, as well as the impact of the additional effort to achieve that goal.

8.4.2 Direct Government Regulation

8.4.2.1 The Role of Government Regulation

In many countries, the regulatory system for electronic media changed after 1980. Around the world, telecom companies were privatized, and private competitors were allowed to enter into telecoms, television, and cable TV. Semi-independent regulatory agencies now regulate and control the digital sector.[118]

In the USA, vital infrastructure industries and media organizations have been privately owned but regulated. A decisive step in that direction took place after a bitter gubernatorial election campaign in 1906 in New York. It pitted Republican Charles Evans Hughes (late Chief Justice of the US Supreme Court) against Democrat William Randolph Hearst, the newspaper mogul depicted in the famed movie *Citizen Kane*. Hearst favored European-style nationalization of public utilities. But Hughes won the election and established the New York Public Service Commission to regulate privately owned infrastructure. This became the US model. In contrast, most other countries followed an alternative model and their infrastructure industries such as telecommunications or TV were under state ownership for a long time. The goals of state ownership over these industries were:

- public control over vital services;
- state influence over avenues of politics and culture;
- redistribution to economically weaker regions and individuals;
- technological development.

The alternative to direct governmental ownership is governmental regulation. The USA, it is mostly the federal government that regulates the media industry. The states have some powers over intra-state telecom, and local governments issues over cable TV franchises. The US Congress passes broad laws, and then delegates the working out of the details, their implementation, and enforcement to the specialized regulatory agency. The Federal Communications Commission (FCC) operates as an independent regulatory commission; in other words, it is not subject to direct control by the White House or Congress. However, the appointment and budget processes and other methods provide tools for pressuring the agency.

Other regulatory agencies deal with a range of issues central to media companies such as competition and advertising (Federal Trade Commission) and company stock transaction and financial reporting (Securities and Exchange Commission). These independent commissions have broad powers that set general rules (quasi-legislative powers), decide specific cases (quasi-judicial powers), implement law such as select TV licenses (executive powers), and enforce compliance (executive powers).

There are also executive agencies subject to direct government authority, such as the Anti-trust Division of the Department of Justice provides a competitive market structure. Within the Commerce Department there are two organizations that regulate the media: the National Telecommunications and Information Administration controls frequencies, while the National Institute of Standards and Technology oversees the standards setting process. The US Trade Representative deals with international trade issues. The US Patent and Trademark Office, Registrar of Copyrights, and the Copyright Royalty Tribunal regulate IP. Additionally, various courts and local and state agencies exert some rules over media issues under their jurisdiction.

Similar regulatory structures have evolved in recent decades in many other countries. A common trend is a move toward "converged" agencies that deal with mass media like TV as well as telecom, and more recently media.

Figure 8.4[119] is an organizational chart of the FCC.[120] It was organized around bureaus in charge of certain industries (wireline, wireless, media); functions (technology, law; international; consumer protection, public safety); and process (enforcement, strategic planning, PR). Other countries regulatory agencies are often organized along similar lines.

The regulatory agencies of many countries control the use of the wireless spectrum. They license broadcasters and mobile telecom operators. They set the price for some telecommunication, services, specify interconnection prices, and control ownership limits and nationality restrictions, among other activities. They may set rules on content (e.g. protection for children) and on required domestic content.

Critics of communication regulatory agencies often argue against industry-specific agencies, because they often end up "captured" by the industries they are supposed to control. Instead, they argue, there should be only generic regulation for the entire economy, such as that of market power (anti-trust) or of consumer protection. On the other hand, such general agencies possess much less specific expertise and come up with "one size fits all" rules.

Some countries have given their media and communications regulatory agency particular independence from direct governmental political control in order to keep some distance between politics and media regulation. Often the intention to create independence from the government in power is not

118 Cherry, Barbara A. "Regulatory and Political Influences on Media Management and Economics." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006; Napoli, Philip M. "Issues in Media Management and the Public Interest." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

119 Federal Communication Commission. "FCC Organizational Chart." January 23, 2017. Last accessed May 17, 2017. ► https://www.fcc.gov/sites/default/files/fccorg-01232017.pdf.

120 "FCC Organizational Chart." *Federal Communication Commission*. Last accessed July 17, 2017. ► http://www.fcc.gov/fccorgchart.html.

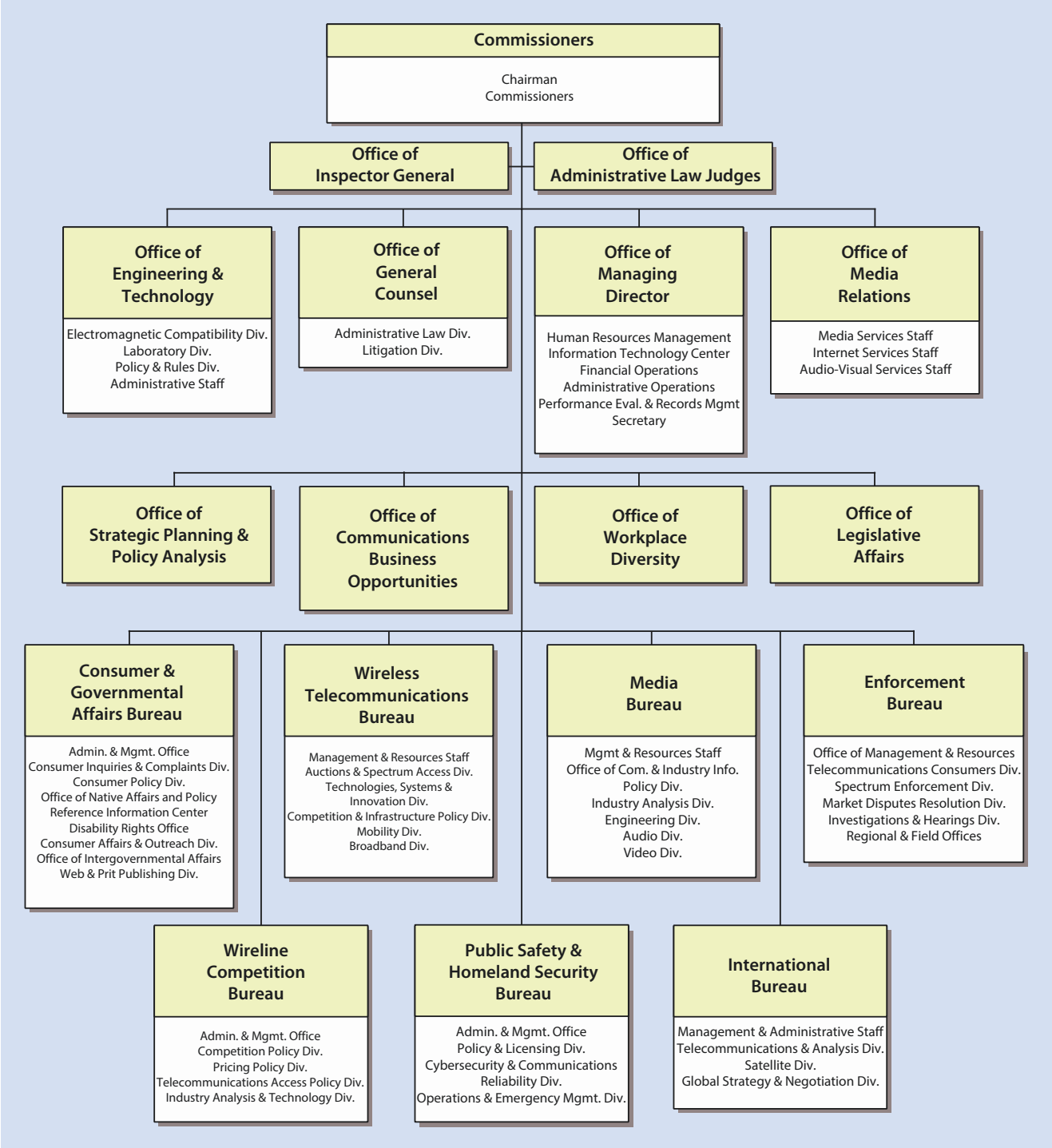


Fig. 8.4 FCC organizational chart

matched by reality. Other countries maintain the agencies as part of directly accountable ministries. An example is Japan's Ministry of Internal Affairs and Communications. Similarly, in India the media regulator is the Ministry of Information and Broadcasting,[121] and in China the Television Regulatory Agency, which is part of the State Administration of Radio, Film, and Television, which also owns the major TV networks (China Central Television, CCTV).

In the UK, the Office of Communications (Ofcom) is an independent regulator and competition authority the communication industries. Its Broadcasting Code Guidance sets regulations on televised content and broadcasting licenses. It issues "guidance notes" that address crime, religion, drug

121 Indian Television.com. "The Cable Television Networks Rules, 1994." September 29, 1994. Last accessed August 1, 2012. ► http://www.indiantelevision.com/indianbrodcast/legalreso/catvnetworkrules.htm.

and alcohol use, offensive language, and the treatment of discriminatory or impartial content material.[122]

The Regulatory Process

The regulation by agencies proceeds through a codified set of rules called, in the USA, the Administrative Procedure Act (APA). Other countries have similar codes that deal with the way an administrative agency must proceed. The APA is based on the goal of creating an open and transparent system. An agency must solicit comments, engage in open decision-making, and establish a factual record.

Agency actions consist of two major different approaches.

- "Rule Making": creating general rules. Example: setting a ceiling on ownership of TV stations.
- "Adjudication": deciding company-specific cases. Example: whether a merger of two companies exceeded the ownership ceiling.

The rule-making procedures include some of the following.

Often, an agency or commission publishes a Notice of Inquiry, inviting outside parties to comment on issues before the agency. All comments are public, and public hearings are possible. Parties may also respond to each others' comments.

The next step is often a Notice of Proposed Rulemaking, with further opportunity for public comments. The agency can seek information beyond the one provided by interested parties in order to form a final decision. The agency heads or commissioners may also modify the draft. When they meet to discuss this, it must be in a public and open meeting, with notice given to the public. No "backroom meetings" are allowed, though in practice their staff are free to do so. The vote on rules must be public, and final rules are then published. This is not the end of the story, however. Often, various interested parties sue in court to overturn the rules, or at least to delay them.

In the second major form of administrative action, adjudication, the agency reaches a decision on a specific case, not on a broader rule. (In practice, however, such adjudication of a specific case will create precedent and affect other cases as well as parties' behavior and expectation.) A case is often started by the filing of a complaint by the agency or another governmental body, by a private citizen, a harmed party, or by a petition by the company itself. The company must produce a response to a complaint from the outside.

To develop its case the agency can obtain information in three involuntary ways:

1. Reporting requirements—companies must periodically produce reports.
2. Subpoenas—directed to companies or specific individuals who are instructed to produce documents or testimony.[123]
3. Conduct a physical inspection—as long as it is authorized by law and complies with constitutional protections.

A complaint is often heard by an administrative law judge (ALJ) in a public hearing which has many of the trappings of a trial. Testimony and cross-examination is allowed, which provides another way for the agency to obtain information. The ALJ then issues a decision. A party can object to the ALJ decision, and the agency or commission then review the decision. If objections remain, the party must go to the outside courts system. In the USA, that would be the Federal Courts of Appeals for judicial review.

The agency decision can be reversed only on relatively narrow procedural grounds, not because it is unwise in terms of policy.

Grounds for legal appeals are limited:

- exceeding authority or jurisdiction;
- did not follow procedure;
- no due process or no substantial supportive evidence;
- violation of constitution.

In contrast, "bad policy" is no ground for appeal.

U.S. courts typically follow what has become know, as "Chevron Deference," based on the landmark case *Chevron vs. Natural Resources Defense* (1984). Before *Chevron* courts could supersede agency interpretations on questions of law but deferred to the agencies on questions of fact. The Chevron case established a two-step process:

- The court rules whether the underlying legislative language is ambiguous or not. If it is clear and unambiguous, the court's judgment supersedes the agency.
- If the legislative language is found to be ambiguous, then any "reasonable" agency interpretation supersedes the court's own judgment.

The legal philosophy behind the Chevron Deference is that Congress has given the agency the power to interpret ambiguous laws; but the agency has no power to change clear legislation on its own.

A further appeal is possible, but the US Supreme Court rarely takes administrative appeals, mostly only if two lower appellate courts have issued conflicting decisions, or where a major constitutional issue is at stake.

8.4.2.2 The Strategic Use of the Regulatory Process

Companies use the regulatory process strategically to achieve their objectives. An example is the merger of AT&T and BellSouth in telecoms. This proposed merger was opposed by a group of new and smaller telecom providers. They were worried about the potential market power of the new com-

122 Ofcom. "Guidance Notes, Section One: Protecting the Under 18s." December 16, 2009. Last accessed July 11, 2013. ► http://stakeholders.ofcom.org.uk/binaries/broadcast/guidance/831193/section1.pdf.

123 Subpoenas require specific statutory authority and can be enforced through judicial contempt proceedings. *United States vs. Morton Salt*, 338 U.S. 632 (1950) imposes limits on agency subpoenas. They cannot be too indefinite or overly burdensome, and must seek only relevant information.

bined firm and their loss of bargaining power. The competitors tried to block or at least delay the merger's approval.[124] They succeeded for a while. Finally, AT&T made several concessions to its rivals in order to hasten the FCC's approval of the merger.

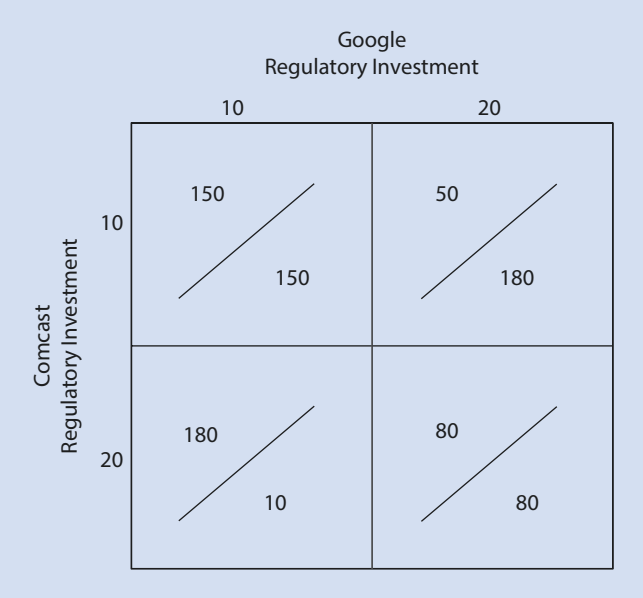
Given such a use of the process, how can one analyze a firm's actions and options in the regulatory environment in terms of managerial strategy? Game theory is one approach. Game theory models analyze the behavior of companies as they make moves and counter-moves. A firm can use this approach to take into account the reasoning of other firms. (However, since this analysis usually works for only two- or three-player scenarios, game theory cannot provide answers to many situations.)

As an example, let us look at Comcast as it competes against Google. The two companies can fight each other individually or they can collaborate. This is a scenario known in game theory as the "Prisoner's Dilemma." If firms conspire, they can both do well. Collusion and sharing the market may be more profitable to both than engaging in a regulatory war. The options of company behavior are listed in ◘ Fig. 8.5, together with the outcomes in terms of "payoffs" for each combination of actions. Each box shows the net profit for the two companies due to their regulatory investments, with Comcast's profit in the upper left corner of each box, and Google's profit in the lower right corners.

A game theory analysis of the situation shows that a hypothetical collaboration between Comcast and Google would be more profitable for both companies. If Google spends $10 million, Comcast should spend $20 million for a payoff of $180 million. If it spends only $10 million, its net payoff is $150. But Google's payoff matrix shows that if Comcast selects $20 million, then Google's best move is to do the same and spend $20 million, for a payoff of $80.

The dilemma is that this solution, in which both companies take the most rational action to maximize their individual profit, actually ends up with both firms having *lower* profits (each $8 million). If both companies realized the dilemma, they would each spend only $10 million and each would have a net payout of $150 million. The solution rests with co-operative, co-ordinated, or "tacit" strategy, which is why self-regulation often ends up being beneficial to collaborating competitors.

A major strategy of companies is to use (or abuse) the regulatory process to delay decisions that are unfavorable. One way to do so is to go to court in order to challenge the way in which an agency has made its decision; that is, the process. Another way is to delay the decision's implementation while the agency's decision is appealed. For example, in 2014, the major media companies Disney, Time Warner, and CBS faced an FCC order that would have forced them to make their contracts with pay-TV providers public. They successfully sought to postpone ("stay") their compliance while they appealed the



◘ **Fig. 8.5** Google and Comcast in a prisoner's dilemma game—Payout Matrix

decision. In such a case, it is not even necessary that the court decides in favor of the plaintiffs because the review of the case has already caused a delay that benefited them.[125]

Other ways to slow down a decision or its implementation is to file procedural motions; to request extensions; to seek a remand of the case to the agency or administrative law judge; to reopen the proceeding due to new evidence; to challenge the jurisdiction of the agency; to object to its procedure; to file cases, when possible, in multiple jurisdictions, sometimes through allies. When these decisions come out differently in different appellate courts, they must then be resolved by the US Supreme Court, which assures yet another bite at the apple or at least a substantial delay. If the agency denies the motion for a stay that can be appealed too, and even that court's decision can be further appealed to the Supreme Court. Granting a stay, is within the discretion of a court, based on a variety of factors, including the likelihood of prevailing on the merits; the public interest; the harm to the plaintiff or others by proceeding immediately.

It is much harder to accelerate decisions. The main way is to fully co-operate with an agency because anything else might result in a delayed decision. In cases of company-specific adjudication, the company might agree to conditions in a "settlement" (compromise deal) that also enables the agency to publicly claim a victory of sorts. The problem is that opponents have the opposite incentive and will play for delay, and often can do so as long as they have "standing." Persons or companies have standing if they show that they suffer a "legal wrong because of agency action" or are "adversely affected." They can then appeal the agency's decision in court.

124 Gohring, Nancy. "Competitors ask FCC to block AT&T, BellSouth merger." *IDG News Service*. June 12, 2006. Last accessed June 5, 2007. ► http://www.networkworld.com/news/2006/060606-competitors-ask-fcc-block-merger.html?fsrc=rss-bellsouth.

125 The appeals court threw out the FCC's order for failing to show the information was a key element to the merger review process. Hurley, Lawrence and Alina Slyukh. "U.S. appeals court throws out FCC order on programming contracts." *Reuters*. May 8, 2015. Last accessed June 17, 2017. ► http://www.reuters.com/article/usa-court-television-idUSL1N0XZ1GJ20150508.

8.4.2.3 Case Discussion

Comcast Versus Google: The Financial Value of a Regulatory Strategy

Comcast and Google must decide how much they should invest in the regulatory process. How would one analyze how much to spend on a specific regulatory issue in opposition to another stakeholder? The key question is the value of success to a company, both positively in terms of its own opportunities and in reducing the impact of a competitor. As an example, let us look at the value of a policy to Comcast that prevents or delays Google from offering rival video services.

Table 8.5 shows, with hypothetical numbers, the negative impact on Comcast from Google's entrance into video service. The negative NPV for Comcast that is the result of Google's competing entry is nearly $471 million (the first line). The second line shows the impact if entry is delayed by a year. Therefore, Comcast benefits from the one-year delay in Google's entry by $470.89 million minus $371.04 million, or about $100 million. This is a significant number, and it is worth a major Comcast effort.

How much then should Comcast spend on the regulatory process? Does this mean that Comcast should spend that amount, $100 million? Not quite. The optimal number would be where the extra dollar in regulatory investment results in an extra dollar worth of value of delay. That could be the case at a much lower number; spending more would not make much of a difference.

To determine that number requires:

1. estimation of monetary value of the goal;
2. estimation of the probabilities of success for deficit spending levels, given an estimated spending by the other side;
3. estimation of the impact on probability of success of different spending levels by the other side.

Table 8.5 Negative impact on Comcast from the entry of Google into video service

Year	1	2	3	4	5	6	7	8	NPV (with 12% discount rate) ($ million)
Loss of cable profits ($ million)	−10	−10	−100	−130	−200	−137	−137	−137	−470.89
Loss of cable profits ($ million) with a one-year delay	−0	−10	−10	−100	−130	−200	−137	−137	−371.04

8.5 Substantive Media Law

Every country has its own legal arrangements. It would be impossible to cover them all. Hence we will follow mostly the American system while also providing other examples and models from around the world.

8.5.1 Content Restrictions

Most democratic countries have constitutional protections to protect the freedom of speech, in particular by the media. The First Amendment of the US Constitution is a particularly strong bulwark against governmental constraints of the press. But even with such basic laws, there are some restrictions as to what the media can publish or show.

8.5.1.1 Defamation: Libel and Slander

Defamation includes any publication or broadcast of false information that exposes an individual to social or occupational harm.[126] In the USA, the classification of the target of a media story as a public figure, as opposed to a private person, is a crucial question. The 1964 case *NY Times vs. Sullivan* set this rule for the USA. In covering a private figure, a publication is liable for damages if it can be shown that it has acted with negligence in publishing a false statement. But for public figures the statement must not only be false, it must also be shown that it was published with malicious intent or with reckless disregard for accuracy. This standard is difficult to meet, and the burden of proof is on the complaining target of the story, the plaintiff. It gives the media considerable protection. In many other countries, in contrast, the defending media company must prove that its statement was both correct and was also made responsibly. Often the loser is also liable for court costs on top of damage payments.

Generally, truth is a defense, and the target of an unfavorable story or comment cannot claim that he was harmed by a truthful but unflattering story. This principle is limited somewhat in some countries by laws on privacy protection that can hold a comment or story, even if true, to be a violation of privacy or of the "right to be forgotten."

In Singapore, restrictive libel laws have been used against critics of the government. Journalists and publishers have been bankrupted by court decisions which found that criticisms against a public official or of the agency they directed included some inaccuracies and were therefore libelous.

In a case in the UK, Deborah Lipstadt, a history professor at Emory University in Atlanta, called the British historian David Irving a "holocaust denier." She was sued for libel by

126 Blumenthal, Howard J. & Goodenough, Oliver R. *This Business of Television*. New York: Billboard Books, 1998.

Irving in England.[127] As a result, Prof. Lipstadt essentially had to prove, in a London courtroom, the occurrence of the Holocaust. She also had to prove that Irving misstated the truth. The key issue in the trial was to document Irving's manipulation of historic material to support his viewpoint. The case was decided in favor of Prof. Lipstadt, but it took her many months to prepare, and had she lost on a technicality she would have been liable to cover the other party's legal costs.

In all cases, since it is crucial for a publication not to have been careless or lacking in its verification process, media managers must ensure that internal controls and safeguards are in place. Companies can also get insurance to cover claims for libel, slander, and breach of privacy or publicity. The insurance companies will expect certain internal safeguards to be in place at the media company in order to reduce their financial exposure.

The case also illustrates that authors and publications, including online writers, must be aware of overseas libel laws which might affect them. Beyond general legal issues, there are also country-specific laws. For example, it is illegal to offend the royal families of the Netherlands or Thailand.

In the USA, even patently false claims are protected when they are satire. In 1983, Jerry Falwell, the prominent Fundamentalist Protestant minister, sued *Hustler*, a sleazy magazine, for having created a fictitious advertisement for a popular liquor that described him as having an incestuous encounter with his own mother. However, the US Supreme Court held that the parody did not amount to libel.

Some jurisdictions, under political pressure, have tried to carve out special protections. In the USA, several states have "veggie libel" laws, which holds people liable for falsely disparaging perishable food products,[128] on the theory that by the time farmers can provide counter-evidence to a misleading or false information, their products would have spoiled. Courts have been unsympathetic to this kind of law on constitutional or factual grounds. In *Texas Cattlemen vs. Oprah Winfrey* (1998), ranchers sued the TV star Oprah Winfrey for producing a show that discussed the potential risk of contracting "mad cow" disease from beef. Meat prices fell for two weeks after the show's airing, and the cattlemen claimed a collective loss of millions caused by the program. However, the court ruled against the ranchers because they failed to prove that Winfrey had deliberately or recklessly made false statements that hurt their business, or that her program had caused the price declines.

A contrast is the case *Hertel vs. Switzerland* (1998). This was about an injunction against a Swiss scientist in connection with a magazine article about his research findings that food prepared in microwave ovens was harmful to human health. His report was used to form the basis of an article which called for the banning of microwave ovens. Consequently, the association of manufacturers of household appliances successfully secured a court order that he make no further statements.[129]

Internet Libel

A related question is who is responsible for a libelous statement. Is it the writer/speaker, or the medium in which the statement appears? This question becomes particularly important when applied to the internet, where online users often post reckless and false statements. Should the ISP, website, or portal be held liable for "publishing" what its users are writing?

In one early case, *Statton Oakmont vs. Prodigy* (1995), an investment bank sued Prodigy, the website/ISP, for statements posted on its MoneyTalk bulletin board. The statement claimed that Stratton had engaged in fraud. Since Prodigy used software to screen out obscene or offensive language, it was more than a passive distributor such as a phone company acting as a common carrier, and it was held liable. The US Congress passed a "Good Samaritan" provision in 1996 that limited the liability of ISPs for defamation.[130]

One year later, a White House official and Clinton confidant, Sydney Blumenthal, sued Matt Drudge, the creator of the high-rating Drudge Report, for libel and defamation. Drudge had posted a factually false story that alleged Blumenthal had beat up his wife. Blumenthal also sued AOL for displaying the report. Drudge apologized and retracted the story, but Blumenthal filed a $30 million libel lawsuit two weeks later. The courts ruled that AOL was not liable, based on the 1996 law, which states: "No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another content provider."

Another law establishes that there is no legal liability by websites that host information provided by others unless it can be proven that they had actual knowledge about it being defamatory. But this creates other problems. Content might be taken down on the mere say-so of an individual or organization claiming defamation. Another category of restriction is content that is offensive along racial, ethnic, or gender lines. In many countries there are rules against "hate speech," which at times has expanded quite a bit in scope.[131] But even when it is legal to include such content, no respectable media company likes to be labeled insensitive or racist, and thus content that might be legally OK but is controversial to some user or considered "fake news" by them is taken down. The privately owned websites, in doing so, exercise their own free speech right. They are, after all, not public utilities or common car-

127 Brown, Buce D. "Write Here Libel There, So Beware." *The Washington Post*. April 23, 2000. Last accessed June 17, 2017. ► https://www.washingtonpost.com/archive/opinions/2000/04/23/write-here-libel-there-so-beware/c297c2dc-0568-473f-9b97-876f6aab8dd8/.

128 Turano, Rebecca. "Agricultural Disparagement Statutes: An Overview." *Pennsylvania State University School of Law*. April 2010. Last accessed June 17, 2017. ► https://pennstatelaw.psu.edu/_file/aglaw/Agricultural_Disparagement_Statutes_Rebecca_Turano.pdf

129 Johnson, Bruce and Kyu Ho Youm. "Commercial Speech and Free Expression: The United States and Europe Compared." *Journal of Internal Media & Entertainment Law* 2, no. 1 (Winter 2009): 159–198.

130 Digital Media Law Project. "Stratton Oakmont v. Prodigy." May 24, 1995. Last accessed June 17, 2017. ► http://www.citmedialaw.org/threats/stratton-oakmont-v-prodigy.

131 Strossen, Nadine. *Hate: Why we should resist with Free Speech, not Censorship*. Oxford, 2018.

riers that must be content-neutral. There would be a problem if the authors of such expressions and views had no reasonable alternative websites or clouds to go to. In Germany, since 2018, large websites such as Google, Facebook, or Twitter, must delete hateful user posts, including "insults" and "blasphemy" within 24 hours of a complaint, or be subject to severe penalties (up to $60 million) and personal liability (up to $6 million.) Other EU countries have considered following suit, as had Russia done immediately, while extending these rules to other types of political expression.

Measures through which media platforms can control user-generated content include:

- Users are given a feature/button next to every piece of content by which they can easily report inappropriate content.
- Major platforms such as YouTube have a team for content control (called flaggers) who check that submitted videos, pictures, keywords, or comments are appropriate and follow the site's guidelines. If they flag content, an administrator controls the content and deletes it if this is deemed by the company to be necessary. These flaggers (and admins) can be full-time employees of the company, but in some cases are also active users of the community.
- Major platforms have algorithms which analyze texts for listed words or visual content for patterns that suggest nudity or violence. These programs then send a report to a human administrator who checks the content.

Although websites are not liable for libel posted by others where they are not on notice, they might still end up in the middle of conflicts. In "cybersmearing" cases, a company that feels aggrieved by a post sues the website for defamation in order to "out" the company employee or critic who posted the unfavorable information. Such cases balance free speech rights with the right to be free from defamation.[132] Therefore, courts require companies to make a strong initial showing of an unlawful statement before they issue a sub-poena. Several states go further and hold these cases as an abuse of the judicial system to stop criticism, and they have enacted laws that prohibit suits that infringe upon free speech.

Case Discussion

What Should NBC Do to Avoid Potential Liability for Defamation?

NBC's expenditure on libel lawsuits includes the cost of compliance with legal standards, the cost of settlements, litigation expenses, adverse judgments, and negative impact on reputation, audiences, and advertisers. Let us assume that NBC would face ten defamation lawsuits per year for unpreventable error, and 20 suits per year owing to preventable error. An estimated 10% of these suits go to trial. The average cost per trial is $15 million, and NBC loses 50% of its trials each year. The average judgment per lost trial is $20 million. Libel insurance is based on the number of trials in the preceding year, and amounts to $ 1 million per trial. The expected libel costs for the year, not including negative impact on its reputation, are $72 million.

Internal safeguards would reduce probability of preventable error lawsuits by 10% per $5 million spent, and by 3% for an additional $5 million. Since it costs $5 million to lower expected libel cost by $7.2 million, NBC should invest that amount, but not an additional $5 million which buys only $2.1 in lower libel cost.

8.5.1.2 Morality and Child Protection

Many people, ranging from conservative morality watchdogs to liberal feminists, oppose overt sexual imagery in media and seek to have it banned. But what, exactly, is pornography? Does it include Michelangelo's *David* or Goya's *Naked Maja*? When the courts were stuck trying to define obscenity, Supreme Court Justice Potter Stewart famously stated, "I know it when I see it." The US Supreme Court created a hugely complex test to determine whether content is pornographic.[133] Judges must consider the following elements when defining obscenity. A complainant must:

1. apply contemporary community standards;
2. show that the dominant theme of the material taken as a whole appeals to prurient interest;
3. show that it is patently offensive as defined by state law;
4. show that it lacks serious literary, scientific, political, or artistic merit.

Because it is difficult to meet this rigorous test, convictions for obscenity have become rare in the USA. A lower standard of obscenity exists for broadcasting. In the USA, and typically around the world, anything that is "patently offensive" is prohibited or restricted on broadcast TV, which is a lower threshold than the test for indecency for print or film. The reason, as the US Supreme Court held in *FCC vs. Pacifica Foundation* (1978), when it found that a monologue of "Filthy Words" by the comedian George Carlin was only partly protected by the First Amendment, is the "pervasive presence" of radio broadcasts and their easy accessibility by children.[134] Because there are a limited number of broadcasting licenses, government can apply conditions on what they do, to protect the public interest.

Following this rationale, many countries restrict or prohibit the presence of over-the-air broadcasts of obscenity and

132 Ernst, Marcia M. and John C. Ethridge Jr. "Corporate Strategies for Combating Cybersmear." *Trust the Leaders* no. 4 (Summer 2003). Last accessed June 17, 2017. ► http://www.sgrlaw.com/ttl-articles/920/.

133 Miller v. California, 413 U.S. 15 (1973).

134 Federal Communications Commission v. Pacifica Foundation, 438 U.S. 726 (1978).

indecency, such as nudity, violence, and offensive words.[135] The rules for cable TV programs are much laxer, because they do not require government licenses. The rules for pay-TV and on-demand video are basically those of the print press.

In 2004, the singer Janet Jackson partly revealed her breast in the Super Bowl half-time show produced by MTV and aired by CBS. There were many complaints, because in a live event, parents could not be warned in advance. The FCC fined CBS but the network appealed. An appeal court overturned the fine, but mostly on technical grounds. Congress raised the maximum fine of indecency from $27,500 to $500,000 for single indecency violation. A network with 20 stations may thus have to pay fines of $10 million for a single impromptu use of an expletive. In addition, the FCC encouraged a time delay on live broadcasts, and required display ratings for violence, nudity, and offensive language.

This type of issue does not go away, and passions run high on both sides. In just a few months of 2009, the FCC received 181,080 complaints. A single episode of Fox's animated show *Family Guy* generated over 100,000 complaints.[136] Many of those complaints were organized by traditional-values groups. Taking an opposing perspective, free-speech groups such as the American Civil Liberties Union argued that even if some people were upset at the content of a program, many others had no problem, and on principle "government should not parent parents."

In Europe, countries enforce their individual rules through agencies such as the UK's Ofcom. But the European Commission (EC) has the final say when content is broadcast across borders. Article 22 of the EC's policy requires member states to protect minors from damaging, indecent content through either audio or visual warnings. Even though there is no central enforcement agency, member states must notify the EC of penalties imposed by them.

Under political pressure, in 2006 alone the NAB, the TV and cable industry spent $300 million in advertising time to educate parents about the V-chip and other ways in which they could block programs whose ratings along several dimensions (violence, suggestive dialogue, sexual content, and coarse language) were unacceptable to them.[137]

Studies show that relatively few households actually use V-chip blocking. Morality groups therefore advocate an à la carte choice of cable channels so that subscribers can altogether drop undesirable channels rather than block programs on them.

Language

In 2003, the Irish rock band singer Bono, of the band U2, created controversy during the Golden Globes Awards when he blurted out, on live TV, "This is really, really fucking brilliant." The FCC originally decided that Bono's exclamation was not obscene since it was not used in a sexual context. However, after pressure from PTC, it reversed its decision in 2005.

Broadcasters generally do not challenge FCC fines because they do not want to antagonize regulators and politicians or even jeopardize their licenses. But in 2006, Fox, followed by other networks, challenged the rules on "fleeting" expletives such as those used by Bono. Six years later, the US Supreme Court overturned the FCC on legal technicalities, concluding that broadcasters such as Fox had not received adequate notice regarding "fleeting expletives." Partly as a result of these controversies, the TV networks instituted a seven-second delay on all live broadcasts, to enable the cutting of an offensive moment.

Obscenity on the Internet

Around the world, there have been persistent attempts to "clean up" the internet, partly for adults but primarily for children. Laws protecting children from internet content have therefore been enacted in the USA and many other countries, and the standards are tougher than they are for print books.

These laws have included, in the USA, the Communications Decency Act of 1996, which allowed the FCC to criminalize indecency on the internet. In *Reno vs. ACLU* (1997), the Supreme Court struck down the CDA as a violation of the freedom of speech protected by the First Amendment. Undeterred, in 1998, Congress passed the Child Online Protection Act, which was also struck down by the courts. Congress then passed the Children's Internet Protection Act, which required libraries and schools to install blocking if they accepted federal funds.[138] This decision, in contrast, was upheld by the Supreme Court because children have fewer protected rights within educational settings.

The problem arises when users provide the video content themselves. Blogs and video sites such as YouTube therefore monitor content to keep illegal and hazardous materials from being posted, as previously discussed.[139]

TV Political Balance

Many years ago, the FCC in the USA defined several components of the public interest which broadcasters must follow:

1. balance of opposing viewpoints;
2. localism;
3. diversity in terms of programming, services, and ownership.[140]

A Fairness Doctrine existed from 1949 to 1987,[141] required cable operators and broadcasters to discuss important controversial public issues in a balanced fashion. In contrast, in

135 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television.* New York: Billboard Books, 1998.

136 Murphy, Jaclyn. "Cursing and Nudity: The deadly sins of network television." *Campbell Law Observer.* August 13, 2013. Last accessed June 17, 2017. ► http://campbelllawobserver.com/cursing-and-nudity-the-deadly-sins-of-network-television/.

137 Labaton, Stephen. "F.C.C. Moves to Restrict TV Violence." *New York Times.* April 26, 2007. Last accessed June 17, 2017. ► http://www.nytimes.com/2007/04/26/business/media/26fcc.html.

138 Federal Communications Commission. "Children's Internet Protection Act." Last accessed June 17, 2017. ► http://www.fcc.gov/cgb/consumerfacts/cipa.html.

139 Fitzpatrick, Michael. "... While Japanese Face Web Censorship." *The Guardian*. January 3, 2008. Last accessed June 13, 2012. ► https://www.theguardian.com/technology/2008/jan/03/censorship.japan.

140 Napoli, Philip M. "Issues in Media Management and the Public Interest." In *Handbook of Media Management & Economics.* Eds. Alan Albaran, Sylvia Chan-Olmstead, and Michael Wirth. Mahwah, NJ: Erlbaum, 2006.

141 Red Lion Broadcasting Co. v. FCC, 395 U.S. 367 (1969).

another case,[142] the US Supreme Court ruled that a newspaper had no obligation to permit a "right of reply" by a person affected by a mistake in the paper. However, the FCC abandoned the Fairness Doctrine in 1987. Some countries maintain such requirements of balance. In Germany, for example, private TV broadcasters must ensure a diversity of opinions.

Protecting Children

In 1996, the FCC required all television stations to air at least 3 hours of educational programming per week. However, there is no consensus regarding what constitutes "educational" programming and several stations made spurious claims that their shows were educational. For instance, the Spanish-language network Univision was fined $24 million for labeling some of its soap opera telenovelas "educational."

Since children cannot easily distinguish between programming and advertising and are easily influenced, the US government has tried, mostly unsuccessfully, to limit advertising aimed at children. The FCC established standards regarding the amount of children's programming that could air a limited amount of advertising: this was 10.5 minutes per hour on weekdays and 12 minutes per hour on weekend days.[143] "Safe Harbor" rules established that broadcast television programs up until 9 pm should be children-friendly shows.

8.5.1.3 Government Restrictions of Publication

In the USA, there can be no "prior restraint" on publication, meaning the government cannot prevent the materials from being published, even where it is claimed to endanger national security.[144] In the "Pentagon Paper Case" against the *New York Times* and the *Washington Post*, imposing such restraint was not accepted by the US Supreme Court, and thus has remained the state of the law. (The only exception in US history was when a lower court used prior restraint on the small magazine *The Progressive*, against its publishing a guide describing how to build an H-bomb. The government then dropped the case, because this prior restraint would likely have been held unconstitutional in a higher court.)

The exception is "intentional incitement to imminent violence or other great harm, with a high likelihood that it will occur, and which cannot be prevented except by suppression." A court order preventing publication is extremely difficult to obtain and must be based on clear evidence that real and specific violence would directly follow the incitement.[145]

In the UK, the Official Secrets Act of 1989 prohibits the disclosure of confidential material from government sources by employees and journalists. There is no defense based on the "public interest" to publish the information. Even disclosure of information that is already in the public domain, such as published in another country, can be considered a crime.

Judicial Gag Orders

In the USA (and more frequently, the UK), a judge may issue a gag order on the reporting of a criminal case, in order to ensure a fair trial. Such an order, aims at preventing the press from influencing the jurors, and to reduce the incentive for lawyers to grandstand to the press about their case.

Prior Restraints by Private Parties

Private parties can try to obtain prior restraints. In 1999, the MPAA got a prohibition on an online hacker magazine, *2600*, to publish an article specifying how to break a DVD encryption. This injunction was upheld based on copyright/property rights, rather than free speech.

8.5.1.4 The Regulating of Advertising

In the USA, the FTC is in charge of unfair competition and false advertisement on the US federal level. The FTC also regulates contests, sweepstakes, premiums, trade allowances, and direct marketing.[146]

Generally, advertising claims must be substantiated. Advertisers must have a reasonable basis for the claims made in the ads. In many countries, consumer protection agencies may stop advertisements that do not meet that standard, and may levy fines on violators. A plaintiff who is awarded damages for false advertising by a rival can receive profits that resulted from the offending advertisement, as well as attorneys' fees, and (in the USA) three times the damages if actual harm is proven.

Consumer protection agencies may require advertisers to affirmatively disclose certain types of information in their ads so that consumers are aware of all the consequences, of the use of a product or service. This might include fuel mileage information in car ads or warnings about cigarettes. There may be requirements that advertising claims must be substantiated.

Three main types of false advertisements are prohibited:

- misrepresentation;
- bait and switch (advertising a product with no intention of selling it, then switching to a higher-priced item);
- false price comparison.

Online advertisements must contain the same disclosures as on traditional media, and they must be clear, conspicuous, and understandable to the intended audience.

Beyond laws and regulations, competitors are often able to bring civil suits against a company for deception and false advertising. Messages do not need to be literally false if they create a false impression. A complaining party may be awarded monetary damage payments for the false advertising by a competitor, plus legal fees (and in the USA damages three times in size of the damages). Even more expensive are class-action lawsuits, in which large groups of consumers, represented by a lawyer who often organizes the complaint, seek damages from a company for false advertising.

To avoid lawsuits many media outlets, advertisers, and advertising agencies check and review ads before distributing them to ensure that they are not deceptive, offensive, or illegal.

142 Miami Herald Publishing Co. v. Tornillo, 418 U.S. 241 (1974).
143 Ramsey, William A. "Rethinking Regulation of Advertising Aimed at Children." *Federal Communications Law Journal* 58, no. 2 (April 2006): 367–398.
144 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television.* New York: Billboard Books, 1998.
145 In the case of the Wikileaks disclosures (2011), a government prosecution was initiated, though not for the publishing as such but for collaborating in the leaking of classified material by a military person. Wikileaks was also not considered a press or journalistic organization but a source.
146 Belch, George and Michael Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

Case Discussion

Comcast Advertising

Comcast is engaged in an advertising campaign to promote its high-speed internet offerings. It must distinguish its service from Google's fiber network without violating the laws against false advertising. Suppose that Comcast releases the following ad: "Comcast's high-speed internet service is twice as fast as Google's at only half of the price." Since nothing in the advertisement appears wholly implausible, a reasonable buyer might have a legitimate expectation that the ad's claims are true. Possible concerns are:

- Is Comcast using the same metric for measuring its rival Google's services? Suppose that Comcast offers "shared" service that slows down if other users are online, while Google's service is unshared and hence more dependable on maintaining speed?
- Do Google and Comcast offer truly comparable packages? Suppose that to get the low broadband price a consumer must also subscribe to a more expensive video service?

These are all areas in which Comcast should not make itself vulnerable to false-advertising legal complaint brought by Google or by the government.

Suppose that Comcast instead advertisers: "[Our] high-speed internet is so much cheaper than Google's that with the money you'll save, you'll feel like a billionaire." Since the second advertising message is an obvious exaggeration and no reasonable buyer would rely on the claim, it is unlikely that Comcast would face a false advertising suit.

8

8.5.1.5 Commercial Speech

There are many reasons to prohibit false advertisement. Of course, there are similarly good reasons to ban lies among acquaintances or by political candidates. Yet, we do not so. The reason is that we consider the former commercial speech, while the latter is personal or political speech, whose banning would require various restrictions on vigorous communication.

Commercial speech is defined as speech on behalf of a profit-making activity and proposing a transaction. The US Supreme Court has given commercial speech less protection, and it can therefore be regulated. Thus, a scientist is within her rights if she writes a research article and claims that "Product X reduces baldness," even if this may be an incorrect conclusion based on the evidence. However, if a company makes the same claim in an advertisement and it is wrong, it can be challenged by a competitor, prosecuted by government agencies, and sued by unhappy customers.

There is a four-part test for commercial speech restrictions in the USA to be constitutional:

1. Speech that is inaccurate may be banned.
2. Even if speech is accurate, there can be a public interest in regulating it.
3. The restriction must be effective.
4. There must be a "reasonable fit" of goal and restriction.

The case *Nike vs. Kasky* (2002) involved the sports equipment maker Nike, which had been criticized for its foreign labor practices. When Nike defended itself publicly, it was accused to violating the commercial speech requirement of accuracy. The California Supreme Court ruled that according to California law, Nike's speech was an example of unprotected commercial speech. Though this holding was based on the California constitution, it affects all companies doing business in California, which is almost every big company. The US Supreme Court did not decide the case, but the ruling probably would have been overturned because it was so restrictive, given that the court has been increasingly reluctant to uphold restrictions on commercial speech when the company's message went beyond straight promotion.[147] In Europe, too, commercial speech receives less protection than personal or political speech.[148]

8.5.2 Anti-trust and Anti-monopoly Law

Economists tend to believe that the market structure of its industry strongly affects a firm's behavior and performance. Therefore, if there are problems with market power in an industry it is better for government to deal with its market structure and make it more competitive rather than try to micromanage companies' behaviors through regulation.[149] The main culprits are monopoly and its cousin oligopoly. The basic US law on anti-trust is the Sherman Act of 1890, which is a very general statement around which courts, for more than a century have created a body of case law that states rules and principles. Monopolies are not illegal per se, and there can be "innocent monopolies" as long as they behave in a reasonable manner. But monopolies obtained through acquisitions of competitors, predatory pricing, or other active attempts to obtain dominance can be challenged, with the government blocking a merger, or breaking up the company (divestiture), or other restrictions.

Antitrust lawsuits can also be brought by private parties such as competitors, suppliers, and customers. If successful,

147 In the case *Sorrell vs. IMS Health Inc.*, 564 U.S. 552 (2011) the court made it easier for companies to challenge commercial speech restrictions by defining market research, such as data mining, as speech and thus protected by the First Amendment. This adds to several commercial speech cases, where the US Supreme Court has struck down laws that restrict what corporations can say publicly in their advertising.

148 One example is the *Jakubowski vs. Germany* (1994) case. Manfred Jakubowski was ordered to stop criticizing his former news agency employer using a circular distributed by his own public relations agency. The ruling of the court was that the dissemination of his circular was not to discuss public issues, but to promote his business interests and improve his position in the market. He was allowed to criticize in other means but prohibited to do so using the commercial circular. Johnson, Bruce and Kyu Ho Youm. "Commercial Speech and Free Expression: The United States and Europe Compared." *Journal of Internal Media & Entertainment Law* 2, no. 1 (Winter 2009): 159–198.

149 Kranenburg, Hans van, and Annelies Hogenbirk. "Issues in Market Structure." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

company practices could be prohibited. A winning plaintiff in the USA can get three times the actual damages plus attorney's fees. This creates a strong incentive for plaintiffs and their lawyers to challenge monopolies, and private anti-trust cases are brought much more often as governmental ones. In 1980, a jury awarded the tiny telecom company MCI $1.8 billion in treble damages from its rival AT&T. (This was later reduced to about $175 million.) Other remedies to stop anti-competitive practices include ordering a firm to discontinue specific actions through a "cease and desist" order.

Antitrust actions may force a firm to split up. This happened to the Hollywood major studio companies when they were forced to sell off their movie theaters. Similarly, NBC, when dominant in radio, was forced to sell one of its two networks, which became ABC. The giant phone company AT&T was broken up into eight pieces as a result of a governmental anti-trust case. The software giant Microsoft was nearly split up but managed to escape.

European Union (EU) competition laws are derived from the Treaty of Rome, which prohibits activities restricting, preventing, or distorting competition among member states. Additionally, the Treaty of Rome prohibits companies with dominant market positions from abusing their power.

In 2006 EC officials warned Microsoft not to shut out rivals in the security software market by launching its Windows Vista operating system with a built-in anti-virus software. Later that same year (2006), the EC fined Microsoft $357 million for not complying with its mandate, and later, in 2007, it fined the company an additional $613 for continued non-compliance. In 2008, the EC initiated two major investigations against Microsoft for bundling its Internet Explorer browser with its Windows operating system and for refusing to disclose information enabling competitor interoperability. Microsoft was fined $1.35 billion for continuing to ignore the remedies prescribed in the initial case. Microsoft was also ordered to untie its Internet browser from its Windows operating system in Europe. In 2009, Microsoft did so and inserted a "ballot box" that allows the user to select from 12 different browsers to install which one to use with the Windows operating system. This was done until 2014 when the agreement expired, as this agreement only covered Windows 7 and 8. In some updates for Windows 7 and 8 the system did not automatically tell EU users that they had the option of installing other browsers. Because of this omission by Microsoft, the EU fined it an additional $731 million in 2013.

The EC opposed several major mergers or joint ventures on the basis of anti-trust violations, among them MCI-WorldCom, WorldCom-Sprint, Bertelsmann-Kirch-Deutsche Telekom, Time Warner-EMI, and Bertelsmann-EMI.

When the American telecom companies MCI WorldCom and Sprint planned to merge in 2000, the US Justice Department blocked the merger, as did the EC. That action by the EC was unprecedented in that both companies were US-based, with only minor business in Europe, and the EC had not previously prohibited a merger of two US corporations. The EC claimed jurisdiction to prohibit the merger because several markets within its member states would have been adversely affected. Beyond the jurisdictional issue is also the question whether this merger posed a problem. The MCI WorldCom company soon collapsed—maybe it would have survived in alliance with Sprint—and was then merged into the much larger Verizon without an EC challenge. Sprint, too, became a negligible competitor in wireline long-distance service.

The proposed merger between the large music groups EMI and Warner Music group would have created a trans-atlantic joint venture through a $20 billion music industry giant. The two firms offered proposals to address objections to the merger. They offered to sell off the Virgin Music label and other portions of their music publishing businesses to reduce concerns about the dominant position they would have in the music industry.

Similarly, the attempted merger of EMI with Bertelsmann was blocked, despite promises by the companies that they would sell off large parts of their assets to competitors. In the end, EMI went bankrupt, arguably a much worse outcome than letting it survive as part of another firm. Bertelsmann first merged its own music business with Sony's and then sold it off to its partner. Time Warner spun off its music group. The entire industry was in major decline, which led to the efforts toward consolidation.

In the USA, the anti-trust laws (the Clayton Act of 1914) prohibit horizontal agreements among competitors, where they restrict competition. It is illegal to engage in price-fixing, restriction of output, group boycotts, and market division by territory or customer categories. Price fixing is an agreement between competitors to raise, lower, or stabilize prices. But sometimes true competitors behave in the exact same way without any agreement, simply because it makes sense independently to match market prices or lose business otherwise. US courts have therefore held that parallel behavior alone is insufficient to prove a price conspiracy among competitors, as long as they are based on an independent business justification.[150]

The exchange of price information among competitors has been viewed with some suspicion since it facilitates price fixing. It is deemed to not be unlawful per se, as long as any relevant date is also available to the public, and as long as there exists no coercive mechanism which pressures the firms to adhere to price schedules. Moreover, there need to be legitimate business reasons for the exchange of the price information. In order to encourage cartel companies to break rank, the US Justice Department instituted a "Prisoner's Dilemma" system in which it offers amnesty guarantees to a whistleblower company or individual that co-operates with an investigation, although this offer only applies to the first in the door.

Specifically exempted from the anti-trust laws are several professional sports leagues (baseball and football), as well as labor unions, utilities such as phone companies and

150 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, Second Edition. New York: Taylor & Francis, 1995.

other companies that are otherwise price regulated, as well as newspapers, to some extent. The Newspaper Preservation Act of 1970 grants newspapers several exemptions from federal anti-trust laws, making it legal for two newspapers within the same market to form a joint operating agreement for production marketing and advertising solicitation when one is in danger of financial failure.

8.5.2.1 Price Discrimination?

When a consumer pays less for a good or service than he is willing to pay, the difference between the two is known as the "consumer surplus." The history of media is the history of the fight over consumer surplus, the fight between consumers and media companies. Too high of a consumer surplus may weaken the financial base of media companies and their ability to provide upgrades and innovation. Prices that are too low usually result in driving everyone out, and the "last man standing" becomes a monopolist. A consumer surplus that is too low, on the other hand, discourages consumption.

Under US law there cannot be any discrimination for commodities of like grade and quality, but this does not apply to discrimination in services—medical doctors or TV cable providers for instance. Price discrimination is permissible to match a competitor's price. More details on price discrimination are provided in ► Chap. 10 Marketing of Media and Information.

8.5.2.2 Predatory Pricing

Predatory pricing is defined as selling below a marginal cost, with the aim of eliminating a competitor and then raising prices. Predatory pricing is difficult to prove and unpopular to enforce, since price cutting is a benefit to consumers. According to the US Supreme Court, "there is a consensus among commentators that predatory pricing schemes are rarely tried and even more rarely successful."[151]

In 2003, the French ISP Wanadoo was fined €10 million by the EC for predatory pricing. At the time Wanadoo was Europe's largest ISP. Wanadoo, a subsidiary of France Telecom, had priced its broadband services at a loss to drive out competition, achieving a market share in France of 72%.[152] An extremely low price, by itself, is not a violation. The Wanadoo case highlights some difficulties in applying predatory pricing laws since it is difficult to determine what is "below marginal cost" in telecoms and digital services, where marginal costs are naturally very low.[153] Furthermore, for new products it is not unusual for a company to accept losses in the early years.

A related issue is price squeeze. DT, the German telecom giant, sold essential telecom services to competitors on a wholesale basis, as well as to consumers as a retail service. Nine competitors claimed that DT was charging them higher wholesale prices (where it held market power) than it was charging its own retail consumers, thereby making it impossible to compete in the retail market. The EC subsequently fined DT €12.6 million.

8.5.2.3 Profit and Investment Regulation

For some products or services there may be what is called a natural monopoly: the economies of scale are so high that there is really no room for a second competitor. Examples might be electric distribution, a highway, or sewer systems. Or it could simply be a gas station in a small town, where demand is too small to enable a second station to survive. In some cases, natural monopolies can be overcome through rival technologies, but in other cases they can be quite persistent. Where the service or product is of an essential nature, such as in the case of electricity, water, or rail transport, there might be a governmental intervention. This can take the form of governmental ownership private gains subject to regulation. The fundamental regulatory goal is, in the presence of a natural monopoly, to ensure service at a competitive price. This was an issue for telecom service, but also for some cable TV. There are two main approaches: the direct regulation of prices or an indirect regulation through the regulation of profits. Profit regulation involves a "rate of return" regulation, which assures that the profit on invested capital be "reasonable" in comparison to similar risky investments and not as high as it would be for an unrestricted monopoly. To do so, a company's prices are approved, based on several steps described in ► Chap. 11 Pricing of Media and Information. In theory, this procedure results in prices that are similar to market prices, if competition existed rather than monopoly. But in real life, major problems exist:

- Each of the investment, expense, revenue, and profit items is subject to interpretation and dispute. They also tend to be quite big in magnitude, which makes these disputes high-stake matters.
- The system creates incentives to overinvest in capital.
- There is a tendency to "cost-plus" pricing, and few incentives to reduce cost.
- It is complicated to administer.

The second approach is price regulation instead of profit regulation. In theory, it is simple to administer in order to control prices. An example of the system is a price cap regulation in telecoms, which exists in a number of countries. Prices are allowed to change according to formula, in which this year's prices are based on last year's, plus inflation, minus a "productivity factor."

8.5.2.4 Regulation of "Universal Connectivity"

The reach of a communications service across a country's geography and socio-demographic groups is known as "universal service" or "universal connectivity" and is often a key political goal. To achieve it beyond the coverage that would

151 Federal Trade Commission. FTC Staff Comment to the Honorable Demetrius C. Newton Concerning the Alabama Fuels Marketing Act. January 29, 2004. Last accessed May 29, 2007. ► http://www.ftc.gov/be/v040005.shtm.

152 Cullen, Drew. "EC fines Wanadoo €10 m for predatory pricing." *The Register*. July 16, 2003. Last accessed May 29, 2007. ► http://www.theregister.co.uk/2003/07/16/ec_fines_wanadoo_euro_10m.

153 It is difficult to determine the threshold "below cost" in telecom service, since marginal costs are so low.

be attained in a market equilibrium requires some form of subsidy. The subsidies can come directly from the government budget or indirectly through transfers inside a regulated system. There typically exists a broad political coalition for universal service:

- conservatives from rural states;
- liberals supportive of the poor;
- hardware manufacturers;
- labor unions;
- the many companies using the service to reach customers.

For telecoms, the USA has a complicated system of universal service financing, which involves both federal and state programs. There is a surcharge of about 17.4% (2016) on interstate telecom (and not internet) services. The percentage charge varies over time based on the need to raise a certain amount of subsidy, with the money going into a universal service fund. Part of that fund supports cheap internet connectivity for schools, hospitals, and libraries. That cost was about $2.36 billion in 2015.[154] Of this, $2.08 billion went to the E-rate program (schools and libraries), and $278 million to the Rural Health Care program (tele-health and tele-medicine infrastructure in hospitals). The rest of the fund goes toward price support of service in rural high-cost areas ($1.16 billion) and to support of service to low income households ($1.53 billion).

8.5.2.5 Support for National Industry

Most countries encourage development of high-tech and media industries. In the USA, there are hundreds of Federal and local programs. They have led, among other things, to the creation of the internet. Other countries have a still more active government support system. An example is France. Although France created the word "entrepreneur" is French, the post-World War II French economy has its roots in large state-run companies, so-called "national champions," which received high levels of government financial and research support,[155] whether in electronics or media.[156] There have been success stories in media and IT, such as the telecoms operator France Telecom (Orange) and the pay-TV company Canal Plus. On the other hand, Bull SA, a computer maker and IT company, was picked as the key element for French government policy in the 1960s to establish a national computer industry. Yet the company posted losses in ten out of 15 years through 2002. Its revenues fell from €5 billion revenues and 44,000 employees in 1990, to €1.5 billion, 8000 employees in 2002, and still fewer in 2016. Government made up for Bull's losses with billions of euros in subsidies,[157] and the company was kept alive by subsidies. In 2001–2002, the government granted €490 million in an "emergency loan." In 2003, it forgave 90% of that loan. The bailout was called a "grave violation of state aid rules" by EC's competition commissioner Mario Monti, and the EC took France to the European Court over the bailout. Yet Bull was given a new loan in 2004 of about $690 million.

More successful was another French initiative, that of video games. A strong view took hold among French politicians that video games, combining as they do new media, traditional arts, and technology, and with the potential to become a major art form in the 21st century, were a strategic industry for the country.[158] In 2003, Prime Minister Raffarin announced the creation of the Ecole Nationale du Jeu Video et des Medias Interactifs, dedicated to training game development managers. In addition, the government created a fund for game development and a tax credit on game production expenses. During the French 2007 presidential elections, all major candidates pledged to support the video game industry. After winning that election, President Nicolas Sarkozy publicly expressed strong support again. He advocated that the French video game tax credit be approved by the EU Commission, and this was the case. As part of this effort, the French Ministry of Culture elevated three video game designers to Knight in the Order of Arts and Letters.

The major players in the French video game market are Atari, Gameloft, Infogrames Entertainment SA, UbiSoft, Arkane Studios, Darkworks, and Quantum Dream. Between them, they make up approximately 10% of the world market and approximately 20% of the mobile games. In this instance, therefore, French industrial policy worked fairly well.

Support for Domestic Cultural Production

Many countries have legislated programming quotas with regards to broadcasting. In the EU, 50% of all airtime must be of European origin. In Italy, 6% of this 50% must be aimed specifically at children and 20% of this 50% must be suitable for children.[159] In Australia, a minimum of 260 hours of children's C programs and 130 hours of Australian preschool P programs are required annually.[160] In Malaysia, 80% of programs must be in the national language[161]—in other words in

154 Universal Service Administrative Company. "Building the Foundation: 2015 Annual Report." Last accessed June 17, 2017. ► http://www.lifelinesupport.org/_res/documents/about/pdf/annual-reports/usac-annual-report-2015.pdf.

155 Trumbull, Gunnar. *Silicon and the State: French Innovation Policy in the Internet Age.* Washington DC: The Brookings Institution, 2004.

156 Major examples: communications satellite, the Minitel consumer computer network system; the SECAM color TV standard; France Telecom network infrastructure; Alcatel telecom equipment; computer development projects.

157 Shannon, Victoria. "Bull S.A., the Computer Company, Aims to Emerge From Dependence on France." *New York Times*. August 25, 2003. Last accessed June 17, 2017. ► http://www.nytimes.com/2003/08/25/business/bull-sa-the-computer-company-aims-to-emerge-from-dependence-on-france.html.

158 Crampton, Thomas. "For France, Video Games Are as Artful as Cinema." *New York Times*. November 6, 2006. Last accessed June 17, 2017. ► http://www.nytimes.com/2006/11/06/business/worldbusiness/06game.html.

159 Blumenau, Jack. "Children's Media Regulations: A report into state provisions for the protection and promotion of home-grown children's media." *Save Kids' TV*. Last accessed July 11, 2013. ► http://www.savekidstv.org.uk/wp-content/uploads/2011/05/SKTV-competitor-territory-research-post-final-updated-24.4.11.pdf.

160 Australian Government Convergence Review. "Discussion Paper: Australian and Local Content." *Department of Broadband, Communications, and the Digital Economy, 2011*. Last accessed July 11, 2013. ► http://www.dbcde.gov.au/__data/assets/pdf_file/0007/139255/P.4_11352_Convergence_Review_Discussion_Papers_Aus_Content_v4_FA_web.pdf.

Malay and not in Chinese—and in Canada 60% of programs must be "Canadian programs,"[162] which are defined as shows that have Canadian producers, funders, or creators.

Building on the ideas of the earlier "Television Without Frontiers" which set import/broadcast quotas for European TV, the EC passed the "Principles and guidelines for the Community's audiovisual policy in the digital age" in 1999. This new code mandates how much foreign-created, or foreign-language, programming can be aired, and several other topics.[163]

Content support policies are deeply entrenched. Though they have traditionally focused on film and TV, their rationale of supporting national culture and a domestic production sector carries over into newer forms of media, as the French governmental support for the video game industry illustrates. Thus, media companies have to navigate this policy area both as an opportunity and as a barrier.

8

8.5.2.6 Interconnection Regulation

Wholesale prices among networks are perhaps the most important economic and regulatory issue for a telecom network. If interconnection prices are low, they would better support new competitors and thus provide more choices for consumers. But when they are very low, they reduce the incentive for new entrants as well as for the incumbent to build their own competing infrastructure.

The tension between the convergent forces of technology and the centrifugal forces of business competition is most pronounced on the front where they intersect: the rules of interconnection of the multiple hardware and software subnetworks and their access into the integrated whole. As various discrete networks grow, they must interoperate in terms of technical standards, protocols, and boundaries. In the networks of networks, their interconnection becomes critical. Control of interconnection by any entity, whether by government or by private firms, is the key to the control of the telecoms system and its market structure.

The term interconnection covers a wide matrix of relations. On the physical level of transmission conduits, it includes linkages within and among various types of entities and industries. On the higher levels of applications and content, interconnection becomes an issue of access and interoperability for entities such as ISPs, value-added service providers, video program channels and information providers, and more. On a geographic level, interconnection issues cross boundaries and involve many carriers, service providers, and national policy-makers.

8.5.2.7 Access Regulation

Recent years have witnessed major battles over the terms of access by providers of online content providers and other services to the segment of the internet platform that is run by the ISPs. The content providers want to be free from any gatekeeper powers by the ISPs, whether over the type of content, the provider, or the price. The ISPS, in turn, argue that they make major investments into distribution networks and that they should be able to control them. Both sides have considerable market power—the ISPs over the pipes, and several of the internet companies over major instrumentalities such as search engines or social networks.

The ISP companies have a track record of using gatekeeper power, whether over the interconnection of other networks, by phone companies, or of content, by cable companies. Perhaps the best way to analyze the issues is to view it as a triangle involving three parties: the providers of internet content and applications, such as Google, Netflix, HBO, Skype, and Facebook; the end-users of that content (some of whom are also providers at the same time) like you and me; and the electronic pipes and platforms that connect between them and transport the information packets, such as Comcast or AT&T. These pipes come in two different sections: "last-mile pipes" that reach individual end-users and "middle-pipes" that constitute the local and national network system such as content delivery networks (CDNs). It is important to distinguish between those two different segments.

The question, then, is what kind of control the pipes can exercise over the content, prices, and quality of information packets that are sent by providers to end users, and over the access of end users to the providers.

The logic of economic behavior would lead the end and middle pipes—to charge content and applications providers as they send out packets, even when these are requested by the end users. As a result, the internet might cease being mostly free to end users for usage, though with fixed monthly connectivity fee. Instead, they might have to pay each time they click on a website, thereby reducing the use and excitement of the internet.

For several years, the FCC, backed up by the US Supreme Court, had deregulated broadband operations, categorizing them as "information services" without common carrier obligations to serve everybody equally and with nondiscrimination.

Internet firms and content providers fear restrictiveness by the pipes in favor of their own offerings, and the exercise of monopoly pricing. The ISPs conversely, fear being returned to the strictly regulated common carrier status of the past, with supervision over prices and service quality. They argue that the result of imposing onerous conditions on them will only result in the most open network that was never built.

In 2015, the FCC reclassified ISPs as subject to common carrier for broadband services. In 2017, with a Republican majority this regulation was abolished again.

161 Bhattacharjee, Ken and Toby Mendel. "Local Content Rules in Broadcasting" *Article19*. March 2001.

162 The Economic Freedom Network. "Canadian Content Regulations." October 20, 1999. Last accessed July 11, 2013. ► http://oldfraser.lexi.net/publications/forum/1998/august/canadian.html.

During the 2016 election, the Democratic candidate, Hillary Clinton, was heavily favored and supported by the content and applications providing industries. In contrast, the Republican candidate, Donald Trump, called net neutrality a "top-down power grab," using it as a prime example when he promised to "reform the entire regulatory code." After he got elected, he appointed as the new FCC chairman Ajit Pai, a foe of net neutrality.

The net neutrality issue was described as a lobbying bonanza. Lawmakers and activist groups on both sides focused on the issue to raise cash and mobilize support.[164]

Congressional action came from the left, with bills directing the FCC to establish/adopt regulations to prohibit ISPs from offering "paid prioritization," as well as from the right, with bills to prohibit the FCC from regulating broadband ISP service as a telecommunications service.

In the 2014 election cycle, 373 House members (out of 435 total) and 45 senators (out of 100) were recipients of campaign donations from either the Comcast corporate PAC or employees of Comcast. Comcast donors gave a total of $2.9 million to congressional candidates.[165] Comcast was the eighth biggest spender on federal lobbying in 2014.

On the other side was Google, whose PAC and employees gave about $1.6 million to Congressional candidates in 2014, favoring Democrats over Republicans. Google donors gave to 249 members of the House (average donation $3967) and 64 members of the Senate ($6692). Google was also the pro-net neutrality organization that spent the most on lobbying—$16.8 million in 2014—and was the ninth-biggest spender on federal lobbying of any organization.

In parallel to their non-market actions the rival parties generated business responses to the regulations by trying to bypass the internet and its regulations. Several large ISP companies (AT&T and Verizon) instituted "Zero-Rating," which means not counting certain content against their data quota the consumer gets or part of a general subscription. AT&T does not count video content from DirecTV, which AT&T owns, against its data caps for mobile subscribers. But the company charges other content producers that compete with DirecTV. Under President Obama, the FCC had warned that these practices might obstruct fair competition and harm consumers by preventing them from accessing video content from other content providers.[166]

All of these approaches must pass muster with regulatory agencies. The resolution of these issues in a dynamic environment will occupy regulators and stakeholders for a long time.

8.5.2.8 Spectrum Allocation

Spectrum has become increasingly important to media and communications firms, and increasingly expensive. Its allocation is a battleground and the decision-makers are in government, not the market. Underlying just about any mobile and handheld distribution and communications is the use of the electromagnetic frequency spectrum. Because one signal using a particular frequency interferes with another signal on the same frequency, some forms of traffic management have been necessary from the early days of radio and until today. This means that certain frequencies and frequency bands are allocated to particular uses and users.

The five basic systems for spectrum allocation are:

1. Administrative decisions based on the merit of applications as well as politics (e.g. broadcast TV);
2. Auctions, with the highest bidders winning the licenses (e.g. mobile telecom);
3. Occupancy (first-come, first served) (Example: private TV in Italy);
4. Free access (Example: WiFi);
5. Free access but with user fees.

Emerging are several new tools for unlicensed access in which there is no exclusive control by an entity over a frequency, but a shared and open use coupled with a user fee payment.[167]

8.5.2.9 Privacy Regulation

Privacy often has two meanings: the right to be left alone (protected against intrusion) and the ability to control information about oneself.[168] There is often a tradeoff between privacy and other values, such as:

- Law enforcement;
- Freedom of the press;
- The public's "right to know";
- Free flow of information;
- Economic efficiency;
- Managerial decision-making.

In Europe, privacy rules are set by specialized data protection agencies that set regulations across the entire economy ("omnibus" laws) in advance of violations. Individuals,

163 Reding, Viviane. "Television without frontiers: amending the directive." *Intermedia* 29, no. 4 (September 2001): 4–9.

164 Romm, Tony. "Net Neutrality: A Lobbying Bonanza" *Politico.* February 23, 2015. Last accessed June 17, 2017. ► http://www.politico.com/story/2015/02/net-neutrality-a-lobbying-bonanza-115,385.

165 Choma, Russ. "Net Neutrality Fast Facts," *OpenSecrets.org.* February 26, 2015. Last accessed June 17, 2017. ► http://www.opensecrets.org/news/2015/02/net-neutrality-fast-facts/.

166 Another business response was to try to bypass the Internet through "Specialized services" or "managed services" that were not subject to net neutrality rules. Cable and phone companies can offer certain special services such as digital phone and video-on-demand that run on a dedicated part of the cable pipe and is separate from the portion reserved for public Internet access. They can offer these managed services to media content companies. ISP companies such as Comcast and Verizon were thus seeking deals with content providers about having their online TV services treated as part of a package of "managed" or "specialized" services.

167 Noam, Eli. "Spectrum Auctions: Yesterday's Heresy, Today's Orthodoxy, Tomorrow's Anachronism. Taking the Next Step to Open Spectrum Access." *The Journal of Law and Economics* 41, no. S2 (October 1998): 765–790.

168 Noam, Eli. "Privacy in Telecommunications: Markets, Rights, and Regulations." Cleveland, OH: United Church of Christ, 1994.

known as "data subjects," are granted, in particular, the following rights:

1. Right to information: to know where information about them came from and what it is used for;
2. Right of access: to see the data;
3. Right of rectification;
4. Right to opt out and delete the data if it is objectionable.

The data subject can thus know whether data related to her is being processed, the purpose of processing, the categories of data, and the recipients to whom data is disclosed.

The US has a more ad hoc type of data privacy regulation, including rules for information financial records, medical records, video rentals and use, telemarketing and cable TV usage, and cable. The US Constitution does not expressly grant a right to privacy, but the Supreme Court has interpreted several sections of the Constitution to protect different aspects of individual privacy.

In Europe, Article 25 of the EU Privacy Directive states that transfers of personal data to another country are permitted only if the third country ensures an "adequate" level of protection. This has created ongoing transatlantic disputes over privacy rules and practices. To resolve them, the US and EU agreed on "safe harbor" principles. If a US organization joined a self-regulatory program such as TRUSTe or BBBOnline, it qualified for Safe Harbor status. But in 2015 the EU court struck down Safe Harbor as being insufficient for privacy protection in the EU. A few months later the US and EU announced a new Privacy Shield Framework which would comply with EU data privacy regulations and replace Safe Harbor. Similar to Safe Harbor, companies that wish to participate in the Privacy Shield must self-certify specific actions they commit to take.[169]

In 2018, the EU implemented a strict Europe-wide "General Data Protection Regulation" which requires compliance by every company doing business in Europe.

8.5.2.10 Looking Ahead

The future role of government in the media, IT, and communications sector is shaped by two contradictory trends. The first is technological, the second socio-political. The rapid advance in technology creates problems for government regulation to keep up. The power of semiconductors has doubled every one to two years. This rate of progress became known as Moore's Law, and has shown remarkable resiliency.[170] However, no business or government institution can change at 40% a year. The question is: can the regulatory and legal system keep up with rate of technological and business change? This leads to pressures for government to withdraw from fast moving and dynamic sectors, a trend that is often described as "deregulation." It was expected that the advances in technology would lead to openness and competition, and cause legacy regulation to shrink and eventually disappear. However, this is not the case, and government regulation has remained prominent, and in some cases even increased.

The counter-force has been the push-back by segments of society based on direct negative impacts.

Wherever we look today around the information society and economy, protests and protesters are emerging. Elements of this emerging activism are:

- Net neutrality advocates;
- the "open source" movement to limit copyrights;
- privacy champions;
- proponents of unlicensed spectrum;
- municipal and free Wi-Fi initiatives;
- media reformers opposing media concentration;
- supporters of network upgrades and of affordable services;
- Advocates for a state-owned basic infrastructure.

Why such discontent? Isn't everything in this field becoming cheaper, faster, and more widely available? Many people are familiar with various flash points but have not connected the dots; they do not recognize that they are facing an incipient social movement on the model of environmentalism. Of course, it would be surprising if a technological revolution or an economic transformation did *not* lead to unrest.

Many advocates look at media issues with a basic syllogism:

1. Important aspects of social and political life have deteriorated—political apathy, violence, consumerism, gender and racial stereotyping, neglect of the world's poor, poor nutritional habits, and so on.
2. Information media play a central role in either creating or exacerbating these problems, or in preventing their alleviation.
3. Therefore, reforms of the information sector bring about social reform.

This syllogism is shared by the anti-authoritarian left and the political right, as well with traditionalists who are deeply suspicious of information medias' role in modernism and hedonism.

During the industrial revolution, when technology advanced at a very rapid pace while social institutions were relatively stagnant, the results were upheavals and revolutions. Now there is another economic upheaval upon us, the information revolution. As with any change, there will always be winners and losers:

169 Companies must do more than previously, including saying how to contact the groups to whom data is given, giving individuals the right to access their personal data, and what choices the individual has to limit the use and disclosure of the data, as well as the means by which this can be done. International Trade Administration. "Policy Shield Framework: 1. Notice." Last accessed June 17, 2017. ► https://www.privacyshield.gov/article?id=1-NOTICE.

170 Noam, Eli. "Moore's Law at risk from industry of delay." *Financial Times.* January 19. 2006. Last accessed December 4, 2012. ► http://www.ft.com/intl/cms/s/2/c22f7fa4-891b-11da-94a6-0000779e2340.html.

- losing industries and companies, such as the music sector, travel agencies, or print publishers;
- losing workers, whose jobs are being outsourced or offshored.

It is therefore almost inevitable that the media and communications sector will become a battlefield. Companies must be prepared for these conflicts.

8.5.2.11 The Future of Video Regulation

How would consumers use the emerging extraordinarily powerful broadband platforms? For residential households, the answer to this question is video entertainment, broadly defined. First, there will be a widening of content options, to even greater diversity. And second, there will be a deepening of content, an increasing richness of content in terms of the bit rate of information supplied per time unit to human sensory receptors. In either case, media content increasingly flows over what used to be described as telecommunications and cable TV networks. This raises the question about the regulatory treatment of such media operations.

The deepening of the entertainment medium will affect the nature of television considerably. Entertainment service offerings will include content that is immersive, interactive, 3D, more realistic, and more individualized. This leads to a whole set of issues and conflicts.[171]

Governments always maintain some regulatory control over electronic media to protect a variety of societal goals. Whether such controls are justified is less important than the fact that they will not disappear just because the platforms change. Many believe that one cannot regulate the internet, even if one wanted to. But it is only difficult for regulators to establish controls over the content part of communication. If they cannot reach the bits themselves and their source, they can still go after the physical elements of delivery: networks and infrastructure platforms cannot hide, and a two-way medium cannot easily operate across borders without permission.

Inevitably, internet-based TV will be used for controversial applications and content. Beyond stopping such uses, additional societal media policy goals will enter. It is a long list, and includes, in no particular order, child protection, content diversity and openness, ownership diversity, political balance, privacy, morality, spam, trade, national culture, consumer protection, IP protection, revenue generation, coverage across geography, and income, cyber-security, transparency, and employment. Some of these problems can be dealt with by commercial content providers. But much content is supplied by users themselves, in one of the more interesting aspects of internet TV. And some such users inevitably generate disruptive and anti-social content. Because most of the originators of the content cannot be easily reached directly by a national government, it is likely that blocking prior to content delivery to citizens will become a responsibility of the physical network and platform operators, who will be subject to regulations along these lines. Networks will therefore operate as a kind of national cordon sanitaire.

On the distribution side, the emerging online media system means more powerful pipes. These fiber pipes exhibit very strong economies of scale. This makes it difficult to compete against large incumbents. There are also increases in boom and bust characteristics of the sector.

Another issue is the content industry itself. There is a great expectation of a wide open and diverse media system, yet to produce such content is expensive. It requires creativity, many programmers, and new versions every two or three years to keep people buying. Such expensive content exhibits strong economies of scale on the content production side and network externalities on the demand side. These trends toward market power for networks, platforms, and content makes it unlikely that society will leave video media alone.

Additionally, the infrastructure providers also become, in effect, the tax collector by garnering the source of revenues for societal goals such as program production and spreading connectivity. It is an efficient tax collection device that is hard to avoid or evade. Infrastructure providers can also be reached to offer "in-kind" services, especially to achieve diversity and pluralism. They may allocate transmission for nationally favored purposes, such as public access or disadvantaged social groups.

As a result, regulation of the next-generation internet TV services will proceed through the network and platform core as opposed to through regulation of the content and applications providers. Accordingly, it is apparent that the regulation of communications will continue to exist as a means for the government to establish some control over mechanisms in the electronic environment, and as a way for rival firms and industries to gain advantages through non-market competition.[172]

171 Noam, Eli. "The Third Stage of Video: Cloud TV" forthcoming monograph.

172 As discussed, the notion that you can't regulate the internet is incorrect. On the contrary, one can regulate packetized information and its conveyance much more effectively than undifferentiated waves and bits. Moreover, on the internet, information is identifiable by the sender and recipient, and therefore it is targetable and able to be regulated.

8.6 Outlook

8.6.1 Case Discussion

Comcast's Non-market Competition Spending

A "back of the envelope" estimate of the annual cost for Comcast of regulatory and policy-oriented activities:

- outside lawyers $15 million;[173]
- inside lawyers. $12 million;
  - staff: $9 million;[174]
  - General counsel: $3 million;[175]
- outside lobbyists: $11.5 million;[176]
- inside lobbyists $10 million;
- outside PR $25 million;
- inside communications $10 million;
- political contributions through trade associations etc. $6.25 million;[177]
- political contributions by managers: $20 million;
- strategic philanthropy $20 million;[178]
- **Total $130 million**.

Comcast's annual revenues are about $85 billion. As the numbers above show, the company spends annually an estimated $130 million on non-market competitive activities. Is this money well spent? It is 0.15 of 1% of its revenues. If a doubling of such non-market activities budget would raise revenues by a mere 1%, or prevent it from dropping by that amount, the ROI on that spending would be a huge 654%. Given such high return, in a competition an expansion of the non-market budget is likely over time. But the same is also true for its rivals.

8

8.6.2 Conclusion

For a time, many people thought that the pervasiveness of law and regulation in the media and communications sector was transitory, induced by temporary bottlenecks or by government itself. Technology, entrepreneurship, and competition would make governmental interventions obsolete. But now, there is a greater recognition that in this sector a role of government has much resiliency, especially where there is only partial competition. Market power is increasing owing to the fundamental economics of electronic media. New problems have emerged, such as privacy. More generally, we have experienced in recent years that as an economy becomes more information sector based, it also becomes more volatile, with a boom and bust cycle, higher risk, and greater inequality. In consequence, the role of government in public interventions remains large and is likely to grow. In the process, various stakeholder groups are steering regulatory intervention in directions that favor themselves.

As we have seen with the example of Comcast in the case discussion, the return on investment in non-market competition is high. If so, will companies spend still more money on this function? The answer is yes. What then are the implications for the policy process in the long run? Spending by companies on strategic litigation, the policy process, politics, and PR will inevitably rise. Budgets and efforts will spiral upwards to greater activities by all, including by non-profit organizations.

This growing injection of money into the governmental process will have negative effect on politics and on society. (As it happens, however, many media companies will be beneficiaries in a narrow sense. The need and efforts of every constituency and product marketer to generate attention and influence means that they will have to spend more money on advertising to reach consumers, the public, and policy-makers. And such spending will benefit media companies as the platforms for marketing efforts.)

Therefore, it is most likely that the legal and regulatory function of media firms will keep growing. Managing non-market competition will become an even more important part of the managerial toolkit.

8.7 Review Materials

Issues Covered

In this chapter, we have covered the following issues:

- Why the government and law play a major role in media.
- What the function of the GC is.
- How to use litigation as a business strategy.

173 Hourly fee in large cities estimated at $600/h (compare Lemoine, Gano. "How Much Does an Entertainment Lawyer Cost?" *Lemoine Law Firm.* March 9, 2010. Last accessed June 17, 2017. ► http://lemoinefirm.com/how-much-does-an-entertainment-lawyer-cost/); est. 100 outside counsel cases in 2015 (Law360. "Comcast Corporation." Last accessed June 17, 2017. ► http://www.law360.com/companies/comcast-corporation/outside_counsel), est. 1 man month (=250 hrs) per case.

174 Est. average salary of 180 k/year (Glassdoor. "Senior Counsel Salaries." Last updated May 8, 2017. ► https://www.glassdoor.com/Salaries/senior-counsel-salary-SRCH_KO0,14.htm; Robert Half Legal. "2016 Salary Guide for the Legal Field." Last accessed June 17, 2017. ► https://www.roberthalf.com/sites/default/files/Media_Root/images/rhl-pdfs/robert_half_legal_2016_salary_guide.pdf) / headcount: 25 (LinkedIn estimate) + 100% additional salary for support staff (paralegals, secretaries).

175 Comcast and NBCU combined, estimated from Corporate Counsel. "The 2016 GC Compensation Survey: Top Industry Earners." July 20, 2016. Last accessed June 17, 2017. ► http://www.corpcounsel.com/home/id=1202763139481; and Corporate Counsel. "The GC Compensation Survey: First 100." July 19, 2016. Last accessed June 17, 2017. ► http://www.corpcounsel.com/home/id=1202763026404.

176 OpenSecrets. "Comcast Corp.: Annual Lobbying by Comcast Corp." Last accessed June 17, 2017. ► https://www.opensecrets.org/lobby/clientsum.php?id=D000000461&year=2015 (Comcast) + 25% (estimated) of NCTA lobbying (OpenSecrets. "National Cable & Telecommunications Assn.: Lobbying Totals, 1998–2016." Last accessed June 17, 2017. ► https://www.opensecrets.org/orgs/lobby.php?id=D000022131).

177 OpenSecrets. "Comcast Corp.: Profile for 2016 Election Cycle." Last accessed June 17, 2017. ► https://www.opensecrets.org/orgs/summary.php?id=D000000461 + 25% (estimated) of NCTA contributions (OpenSecrets. "National Cable & Telecommunications Assn.: Total Contributions." Last accessed June 17, 2017. ► https://www.opensecrets.org/orgs/totals.php?id=D000022131&cycle=2014.)

178 The Comcast Foundation. 2014 Form 990-PF. Last accessed June 17, 2017. ► http://corporate.comcast.com/images/2014-IRS-Form-990-PF.pdf.
NBCUniversal Foundation. 2014 Form 990-PF. Last accessed June 17, 2017. ► http://pdfs.citizenaudit.org/2015_08_PF/13-6096061_990PF_201412.pdf.

- How to organize lobbying, legal, and PR functions.
- How to use lobbying strategies as a tool.
- How to use PR management to create a positive image.
- How to determine how much to invest in PR.
- How industry self-regulation works.
- How government regulation is organized.
- What the procedure of administrative law is.
- How to use the regulatory process strategically.
- What the main content restrictions are.
- How to protect a business against libel lawsuits.
- What can and what cannot be claimed in advertising.
- How anti-trust laws apply to the media industry.
- What the goal of investment and pricing regulations are
- What elements of media activism are.
- How the future role of government in the media looks like.
- How to manage compliance.
- How firms leverage political spending.
- How to set price discrimination and what the legal constraints are.
- What governments do in pursuance of industrial policy.
- How regulated prices and profits are calculated.
- How the internet is being regulated.
- What the extent of media concentration is and what legal constraints are.
- How new entrants can use the rules of interconnection and unbundling.
- How the electromagnetic spectrum is being licensed.
- Where the debate over net neutrality stands.
- How online TV is likely to be regulated.

Tools Covered

We used these tools to address the above issues:

- Determining optimal investment in:
  - PR and public affairs;
  - Lobbying;
  - Litigation.
- Decision trees to determine lawsuit strategy.
- Calculation of financial settlements.
- Quantifying the value of lobbying.
- Metrics to measure PR effectiveness.
- Rate of return analysis.
- Marginal net analysis.
- Strategic setting of standards.

8.7.1 Questions for Discussion

1. Explain the advantages and disadvantages of using outside legal counsel to media firms. What steps can be taken to ensure cost savings when outsourcing legal functions?
2. Discuss some qualities of effective PR professionals. How does a PR campaign figure in the non-market strategy of a firm?
3. How do lobbyists add value to a firm's operations? What factors need to be considered when investing in a lobbying operation? What skills do effective lobbyists need?
4. How can a company assure the compliance by its employees of government regulations?
5. When is industry self-regulation a viable strategy? Discuss the strengths and weaknesses of self-regulation.
6. Discuss a regulatory approach to deal with deceptive advertising. How would a firm proceed to stop unfair competitive practices by a rival?
7. Are technical standards always in the interest of the firm? Discuss various ways in which standards are established.
8. How does a firm determine the optimal investment in non-market strategy?
9. What are the fundamental differences between European and US approaches to libel? Describe examples.
10. How should broadcasters and online websites deal with sexually explicit images during broadcasts in web postings?

8.7.2 Quiz

1. Which of the following is *not* an argument advanced by proponents of "net neutrality"?
   A. Price discrimination will stymie innovation in internet services;
   B. Uniform pricing is optimal for infrastructure owners;
   C. The internet is a "commons";
   D. The infrastructure owner should not control content.
2. What is the fundamental conflict of interconnection pricing?
   A. High prices needed to maintain infrastructure; low prices needed to spur consumer electronics sector;
   B. High prices needed to support competition; low prices needed to support universal service;
   C. High prices needed to support universal service; low prices needed to support competition;
   D. High prices needed to spur consumer electronics sector; low prices needed to maintain infrastructure.

3. Paying political consultants to generate the appearance of a spontaneous public reaction in favor of the firm is an example of:
   A. An astroturf campaign;
   B. A grassroots PR operation;
   C. Strategic lobbying;
   D. None of the above.

4. When are employees liable during a criminal prosecution involving a firm?
   A. At any time, they are employed;
   B. When they act in their own interest;
   C. When a criminal act takes place under directives from supervisors;
   D. When acting within the scope of the employment and for the corporation's benefit.

5. What is not a required component of a corporate compliance program?
   A. A compliance code;
   B. Employee training programs;
   C. Independent board of program review;
   D. Enforcement and disciplinary actions.

6. What is not considered legitimate grounds for appeals of administrative law?
   A. Bad policy;
   B. Exceeding jurisdiction;
   C. Lack of due process;
   D. Constitutional violation.

7. What kinds of monopolies are subject to legal challenge?
   A. Ones obtained through acquisitions;
   B. Monopolies created through exclusivity agreements;
   C. Predatory pricing;
   D. All the above.

8. In price cap regulation
   A. Prices are directly linked to profits;
   B. Prices are determined by a formula;
   C. Prices are set similar to market prices;
   D. None of the above.

9. Which is not a main function of legislative lobbying?
   A. Collection of unpublished intelligence;
   B. Communication of interest group's positions with the intention of (re)shaping public policy;
   C. Testify on behalf of the bill at legislative hearings;
   D. Contact consumers to obtain popular opinion.

10. Which is not a component of PR?
    A. Purchase of time and space to relay company's message;
    B. Professional communications;
    C. Establishing and maintaining a good company "name";
    D. Publicity.

11. What was the court ruling in the 1964 *NY Times vs. Sullivan* case?
    A. Recovery for defamation charges by third parties cannot be honored by a court of law;
    B. First Amendment prevents recovery by a public figure for defamation unless statement was false, or a reckless disregard for truth;
    C. IP rights must be reviewed by newspaper staff prior to publication of third party items;
    D. Public personalities cannot claim damages from intentional defamation.

12. Which of the following is a true statement concerning international copyright law?
    A. It is territorially applied;
    B. Copyrights are not heritable;
    C. It uniformly expires after 14 years;
    D. Both A and B.

13. Which is not a part of the legal function in businesses?
    A. Contracts;
    B. Compliance;
    C. Market strategy;
    D. Tort liability.

14. Which of the following are considered problems with self-regulation?
    1. Threat of government regulation is necessary for effectiveness
    2. Industry codes often lead to cartel behavior
    3. Firms chronically flout self-imposed rules
       A. Only 1;
       B. Only 2;
       C. 1 & 2;
       D. 1, 2, and 3.

15. Rate-of-return regulation ensures:
    A. Contractors give companies their projected returns;
    B. Prices are controlled by a simple formula;
    C. Profit of monopoly on invested capital to be "reasonable" in comparison to similar reasonable risky investments;
    D. No incentives to over-invest or be wasteful exist.

16. What is a Click-wrap agreement?
    A. Agreement between two parties determining the location of banking transactions;
    B. Forum selection clauses that define the geographic jurisdiction and the law to be applied should litigation arise;
    C. Contract clause that determines the binding principles of the contract if one party is representing a minor;
    D. None of the above.

17. What are typical tasks that outside lawyers are hired for?
    A. Antitrust battles;
    B. Office agreements;
    C. Bill collection;
    D. All of the above.

18. Why is it important for companies to have an internally defined settlement range for different litigation stages within their litigation management?
    A. Because 90% of cases never make it to court and are settled beforehand;
    B. It helps control the costs for external lawyers working on the case;
    C. It helps winning the cases;
    D. It provides a basis for estimating internal staffing.

19. Which of the statements below is correct about publicity and PR?
    A. PR is short-term and publicity long-term;
    B. PR is long-term and publicity short-term;
    C. Publicity aims to form a public opinion;
    D. PR effectiveness is measured via total money spent on online marketing.

20. Codes of conduct developed by companies as part of self-regulating mechanisms,
    A. Can be used as a basis to enforce sanctions against violators;
    B. Usually includes also parties outside of the companies' own interests;
    C. May be pushed on industries as compromises by a government, when they do not have legal rights to do so directly;
    D. Rarely lead to cartel behavior and price collaboration.

21. When is a publication liable for damages when reporting false information about a public figure in the United States?
    A. When it acted with minor regard to accuracy;
    B. When it acted with negligence in publishing;
    C. When it acted not only with negligence in publishing but also pursued malicious intent;
    D. When the statement was incorrect and not made responsibly.

22. Which of the following is a possible activity by content platforms to control user-generated content?
    A. Algorithms detecting identifying unsuitable content;
    B. User-generated reporting of content;
    C. Executive decision to remove content;
    D. Content control teams within content platform companies;
    E. All of the above.

23. What is the difference between market and non-market competition?
    A. Non-market competition refers to strategies focused on strengthening presence in foreign markets while market competition refers to strategies focused on competing for customers within a market;
    B. Market competition is a rivalry for customers whereas non-market competition is a rivalry not for customers but for favorable treatment by governments, courts, and the policy process;
    C. Non-market competition refers to competition that is not directly associated to revenue generation whereas market competition does so;
    D. Market competition usually leads to price reduction, innovation and quality improvements whereas non-market competition refers to the opposite, often caused by a monopolistic market situation.

24. Which component is not always necessary for the creation of a contract enforceable by law?
    A. The emergence of digital activism;
    B. Traditional firms are being disrupted and, thus are increasingly under pressure and imperil employment numbers;
    C. Governments have been an obstacle to the digital economy from the beginning;
    D. Ever since the emergence of the Internet, its community increasingly demanded regulatory actions, such as net neutrality protections.

25. What are practices to quantify how much a firm should spend on PR?
    A. Doing an analysis comparing the overall cost relative to the estimated overall value of expected results;
    B. As long as the extra PR benefits are larger than the extra cost;
    C. Estimate the spending's of competitors and match them;
    D. Match last year's expenditure, and add if needed;
    E. All of the above.

Quiz Answers

1. B
2. C
3. A
4. D
5. C
6. A
7. D
8. B
9. D
10. A
11. B
12. A
13. C
14. C
15. C
16. B
17. D
18. A
19. B
20. C
21. C
22. E
23. B
24. C
25. E

Demand and Market Research for Media and Information Products

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_9

9.1 Why Demand Analysis

» *"Nobody knows anything"*
William Goldman (Oscar-winning screen-writer for the films *Butch Cassidy and the Sundance Kid*; *All the President's Men*; *The Stepford Wives*; *A Bridge Too Far*; *The Great Waldo Pepper*; *Marathon Man*; *The Princess Bride*)

Is Goldman, a classic Hollywood insider, correct with his oft-quoted observation that guesswork rules when it comes to understanding and assessing media audiences, their tastes and preferences? In a strict sense, yes. We do not fully know what the users of a new piece of media content (and of media-related technology and platform) want at a given moment, which is why so many of them fail in the marketplace. But perhaps one should define the task more modestly.

To be absolutely sure might be impossible, but maybe one can increase the probability a bit? To succeed against competitors operating under similar uncertainty one need not be exactly on target all or even most of the time—just a little less wrong than they are. Over time this leads to a better track record and to success. And this is the subject of this chapter: how media and technology firms can improve the assessment of the demand for their products and services and thereby become more successful.

9

9.1.1 The Importance and Special Problems of Demand Estimation for Media Industries

Understanding demand research is always important and always difficult. On the macro-level of the overall economy, governments and businesses need to know what to expect by way of aggregate national demand, or sectorial demand such as for housing or energy. In the Bible, Joseph provides Egypt's pharaoh with forecasts about the Egyptian grain market. There would come seven years of abundant harvests from an overflowing Nile, followed by seven lean years. This enabled the pharaoh to plan ahead. The fact that this prediction resulted in Joseph's elevation to power shows how valued such analysis already was thousands of years ago.

On the firm-specific microlevel, every industry and firm wants to know:

- Who are the potential buyers?
- What is the buyer's willingness to pay?
  - What is their price sensitivity?
  - What product features are valued?
  - What do customers like about competing products?
  - How can promotional effectiveness be identified?
  - How can market segments be identified and target markets selected?

It is easy enough, in a college class in introductory economics, for the professor to graph a hypothetical demand curve that shows for each price the quantity demanded by buyers. But in the real world it is hard to determine the actual nature of demand and the factors that go into it. Demand analysis is particularly important (and difficult) for media and information firms. Recall some of the basic economic characteristics of media, discussed earlier:

High Investment Needs Media content is often expensive to produce and has a short shelf life. A Hollywood film may cost $100 million in upfront investment of production and marketing cost, yet have an economic life of only a few months. Similarly, infrastructure distribution networks require huge investment far ahead of actual demand. Around the world, telecom networks are among the largest investors in technology and construction in their countries.

High Uncertainty In media, an 80–20 rule often applies, wherein 80% of products do not break even; 10% of products account for 90% of the profits; and 2% of products account for 50% of the profits. Such performance does not follow a normal statistical distribution but an exponential one. It can be schematically shown by Zipf's Distribution, exemplified by the equation $y = 1/x$. In Fig. 9.1, the horizontal axis shows the demand for a product and the vertical axis shows the probability of such a demand for the product happening). Zipf's Distribution shows that the probability of a high demand (a hit) is very rare (Point A). Conversely, the probability of a low demand is very high (Point C). Of course, this will usually be true but seldom to such an extreme. In contrast, a normal (Gaussian) distribution shows a peak at

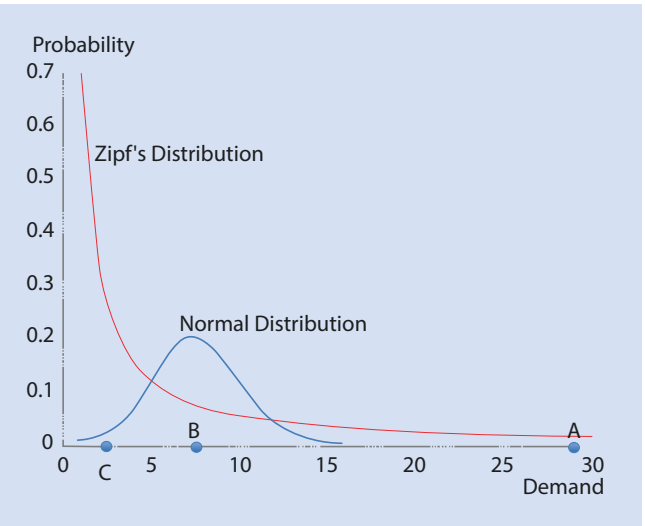


Fig. 9.1 Zipf's Distribution for product demand versus a normal distribution

Point B, with a lot of outcomes higher or lower than B still reasonably likely.

The implication of such an exponential distribution is that, in statistical terms, even if the average (the mean) audience, Point B might be the same as it is for a normal distribution, it is much higher than the most probable audience (the median C), owing to the extreme return of a few products (A) that pull up the average. In contrast, in the normal distribution of success, the average demand (B) is also the most likely outcome. For companies, knowing the average performance from the past does not help in predicting the chances of a new product, which are much lower. These are the characteristics of a "winner-takes-all" business.

Preferences Are Unstable Content suppliers must be able to rapidly respond to changing audience tastes. Each discrete media product, such as a film, a book, a song is unique and hard to evaluate in advance.

Public Good Characteristics Because viewing and sharing cannot be easily accomplished, media products such as broadcast TV or online content are often given away rather than sold to identifiable users, and the audience's attention is then sold to advertisers. To monetize such an audience, the media company must be able to identify and quantify it.

Technology Change Digital technology has had a particularly rapid product cycle in recent decades. Consumers have often no experience with new products in advance.

Network Effects The product and service preferences of individuals are interdependent with those of others. There is a "network effect." For example, benefits to users of a social network will rise with the numbers of other participants. Similarly, one of the attractions of a TV show is to share the experience with friends. This leads to extremes of success because users dynamically influence each other, both by positive encouragement and negative dismissal. When a product or service catches on it becomes a self-reinforcing process. Conversely, a product that does not generate such positive feedback drops out. Facebook, Twitter, Pinterest, and Instagram quickly became popular but Friendster and MySpace evaporated.

Where the average utility of a product increases as other participants are added, the demand for the product will increase with the number of users. The more people are on the network or share the experience, the more people are willing to pay. This can lead to a highly unusual demand. Whereas classically the number of users drops as prices rise, that is, the demand keeps falling, we now have a situation where, as the number of users rises, people are willing to pay more because the service becomes more valuable to them. Thus, the demand curve seems to bend upwards again (Fig. 9.2).

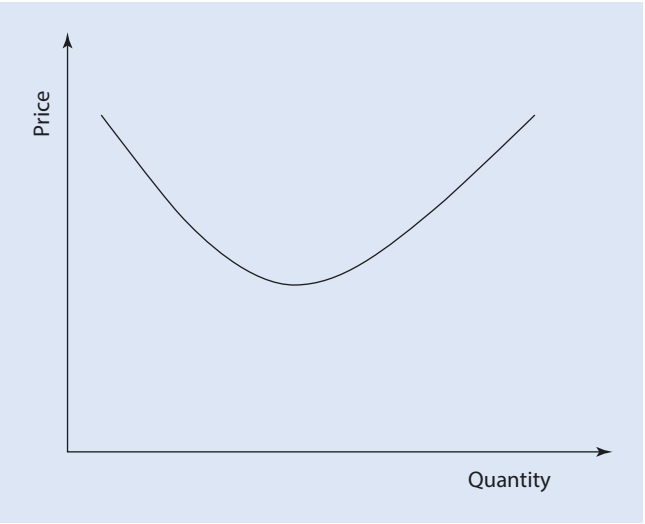


Fig. 9.2 Demand for product with network effects

For these and other reasons, demand analysis, while particularly important in the media and information field, is also particularly difficult.

9.1.2 Examples for the Problems of Forecasting Demand

The media world is full of false predictions. Statisticians speak of "Type I errors" and "Type II errors." Type I errors are "false positives": the wrong decision is taken by a company, which mistakenly accepts a positive but wrong prediction (hypothesis)—in this case that that there is sufficient demand for the product—which turns out to be much smaller in actuality. This happens all the time. It has been estimated that startups overvalue the demand for their innovations by a factor of three.[1] Eternal optimism governs media content and technology, and is a force for progress. But it comes with frequent, expensive, and often fatal flops.

In communications services, when "picture phones" were introduced in 1963 at the New York World's Fair, the telecom giant AT&T, which had been at the forefront of designing and introducing the technology, estimated that there would be 10 million such phones in use in America by 1980. But the real number in that year was closer to zero. (30 years later, with smartphones, laptops, tablets, equipped desktop computers, personal video penetration was at the other extreme, at 230 million). Similarly, at one time mobile phones connected

1 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review* 84, no. 6 (June 2006): 98–106.

by satellites were widely expected by experts to be the next Big Thing. In 1998, the *Wall Street Journal* gushed that "the consensus forecast by media analysts is of 30 million satellite phone subscribers by 2006." The reality, however, was vastly more modest than these experts predicted. Such phones, aside from some subsidized national security applications, are mostly used as rental units on adventure travel, and even that niche has been rapidly contested by alternatives. Other examples are the video devices Tivo and Slingbox. Both were thought of as sure winners yet struggled to find markets.

9.1.2.1 Type II Errors

Type II errors, in contrast, are "false negatives": a product should have been picked but was not. The prediction that demand would be low is accepted, but this is incorrect and in actuality the product is a winner. In 1877 Western Union, the largest telegraph company in the world, believed that there was no market for the new-fangled telephone. It passed on acquiring the patent offered to it by Alexander Graham Bell. Bell had to go on his own, and within a few years his company, AT&T, eclipsed Western Union, which then had a long and lingering death. A century later, the shoe was on the other foot. AT&T vastly underestimated the prospects of mobile phones, after an expensive McKinsey consulting study commissioned by the company predicted in 1981 that there would be only 900,000 cellphones in use worldwide by the year 2000. AT&T took the advice and left the field to the local phone companies. However, in actuality there were more than 1 billion cell phones by the millennium year. The company had to spend billions of dollars to get back into the business, and was too late to be successful. It failed and was acquired for a song by another phone company, SBC, which renamed itself AT&T.

Errors abound by industry insiders who are close to the subject. In 1916 Charlie Chaplin, who went on to one of the most illustrious film careers, opined that "The cinema is little more than a fad. What audiences really want to see is flesh and blood on the stage."[2] When TV started to be successful, movie mogul Daryl Zanuck, the twentieth Century Fox studio chief, was similarly out of touch: "[Television] won't be able to hold on to any market it captures after the first six months. People will soon get tired of staring at a plywood box every night." In the computer field, industry experts could be amazingly wrong. "I think there is a world market for maybe five computers," opined Thomas Watson, chairman of IBM in 1943. Ten years later, the company was the world's leading computer maker. A generation later, the president of one of the world's largest computer makers at the time, Digital Equipment Corporation, predicted that "There is no reason anyone would want a computer in their home."[3] Bill Gates, a founder of Microsoft and the microcomputer industry, may have continued this trend of myopia in observing in 1992 that "640 kilobytes of memory should be enough for anybody." In 2018, a typical desktop computer has about 6–8 gigabytes, 12,500 times as much.

Consumers regularly opt not to adopt a product even if it is beneficial to them. The approach of behavioral economics has sought explanations. Losses have a far greater negative impact on people than similarly sized gains, a phenomenon that behavioral economists have called a loss aversion. Consumers overvalue those things they already own over those they do not own by a factor of about three.[4] This is known as the endowment effect.

9.1.2.2 Type I Plus Type II Errors

In many situations there exist both Type I and Type II errors, where the producer is overoptimistic and the buyer is overcautious. In other words, the producer makes the wrong decision to go forward with the product while the buyer makes the wrong decision not to buy it. Thus, when consumers undervalue the existing benefits of an entrenched product by a factor of three while developers overvalue the benefits of their innovation by a factor of three, the result is a mismatch of nine times between what innovators think consumers desire and what consumers actually want, about one order of magnitude.[5]

9.1.3 Limits to Audience and Market Research

We will investigate in this chapter ways to conduct estimation of audiences and market demand. However, as we proceed with looking into various techniques we must also keep asking the following questions. When it comes to content rather than products, should media companies use demand estimation techniques in the same way that a car manufacturer or an airline does? Shouldn't decisions on media creations by a media company be based on artistic originality, news judgment, and public responsibility?

In that vein, a great deal of criticism has been directed toward audience research as a substitute for a creative judgment. Garrison Keillor, the noted American radio performer, complained about the "guys in suits with charts" who have changed even non-profit public service radio into an audience-driven enterprise. He argued that the focus on audiences has ruined radio's "intellectual and moral growth, passion, variety, and pleasure."[6] Screenwriters and film directors despise audience research that forces them to modify their creation. Editors bristle at the pressure to tailor their front-page stories to attract younger demographics. This is not how a business visionary acts, they argue. Steve Jobs did not test-market the original Macintosh. Colonel Parker did not Q-test Elvis Presley. Orson Welles did not use a focus

2 Tech News and Lifestyle Blog. "Top 50 Failed Technology Predictions of All Time." Last accessed May 31, 2011. ► http://data-katalog.com/index.php?newsid=50975.

3 Tech News and Lifestyle Blog. "Top 50 Failed Technology Predictions of All Time." Last accessed May 31, 2011. ► http://data-katalog.com/index.php?newsid=50975.

4 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review* 84, no. 6. (June 2006): 98–106.

5 Gourville, John T. "Eager Sellers & Stony Buyers." *Harvard Business Review* 84, no. 6. (June 2006): 98–106.

6 Stavitsky, Alan. "Guys in Suits with Charts: Audience Research in U.S. Public Radio." *Journal of Broadcasting and Electronic Media* 39, no. 2 (Spring 1995): 177–189.

group. Henry Luce did not go to Simmons Market Research when he started *Time*, *Life*, and *Fortune.* Walt Disney did not stop at Nielsen to check on Mickey Mouse's ratings.

Leo Bogart, executive vice-president of the Newspaper Advertising Bureau, wrote that "It is a fantasy to believe that a newspaper can be designed and packaged like a bar of soap or a can of dog food."[7] Former Disney chief executive officer (CEO) Michael Eisner argued that while audience research is useful to understand the past or even the present, it is not useful to look into the future. The audience wants originality, at least up to a point.

Taking this one step further, do media owe their audience a special responsibility to go beyond what that audience thinks it wants? Should they have an obligation to cover significant but boring news and difficult but important topics? Time, Inc. former Editor-in-Chief Norman Pearlstine believes that "There's always been a balance between educating your reader and serving your reader … you obviously balance telling them what you think they ought to read with giving them what they want to read…"[8]

More fundamentally, some thinkers believe that the entire exercise of demand estimation by media companies is tautological: media creates its own demand by influencing people and their preferences. They like what they are told to like. There has long been a debate whether peoples' preferences are shaping the content of media or, to the contrary, whether media content has been shaping peoples' preferences. Do "powerful media" or "powerful audiences" determine media content?[9] Social science and communications research have not resolved this question.

The "powerful media" perspective dominates the sociological wing of communications studies. It goes back at least to the 1930s Frankfurt School of sociology which developed the study of modern communications into a new branch of social sciences.[10] Its adherents argue that media manufacture societal consciousness and set the political discourse. Critics of that perspective point out that if media are so all-powerful in shaping demand and the public agenda, then how come 80% of its products lose money? Or that the music and newspaper industries are suffering major declines? Or that the dominant companies AT&T, NBC, and the Hollywood studios were broken up by the supposedly pliant government?

Other academic theorists are adherents of the "powerful audience" perspective and believe that viewers' preferences are inherent—desires for adventure, romance, and so on—plus early patterns set by the environment that become hard to modify.[11]

In looking at the demand for media it helps if we identify the reasons for them. What needs do media supply? Stripped down to the essentials, media supply people with "bits" of two kinds: bits that provide information and bits that provide stimuli. The two are overlapping. The "information bits" are sought by users to support:

- *Survival skills*: the ability to cope and be productive.
- *Status*: knowledgeable individual tends to be respected.
- *Curiosity*: help to understand how things work.
- *Reduction of uncertainty*[12]: lower stressful risk.[13]
- *Confirmation of beliefs*: content that corroborates one's views creates confidence.[14]
- *Learning experience*: instructing people about how to behave, and allowing them to gain experience that they can use in future challenging social and work situations.[15]

When it comes to "stimuli bits," their value to the user is:

- *Sensory enrichment*: to overcome understimulation (boredom).
- *Mood management*: calming or stimulating, joyful or sad. People may like a depressing movie partly because it makes them feel better about their own lot in comparison; it helps them to escape from a stressful reality. Entertainment provides a brief withdrawal from everyday life by added stimuli. There is a desire to assume for a brief period alternative lives of the rich and famous, the beautiful and courageous.[16]
- *Social outreach*: sharing, interacting, competing. Sharing grief with a viewing partner serves to increases intimacy.[17] Adolescents watch gore and horror movies to demonstrate to their peers mastery over fear.[18]
- *Team inclusion*: people, especially men, enjoy viewing sports games because of their suspense. This is also a way to stay connected with the experiences of one's peers.[19]
- *Stimulation*: neuroscientists have shown that a high level of stimulation (excitement) produces dopamine, a neurotransmitter that facilitates pleasurable sensations. A person can become addicted to a certain dopamine level and may need increased stimulation to produce it. This, at least, is one hypothesis for compulsive video game playing.[20]

7 Underwood, Doug. *When MBAs Rule the Newsroom: How the Marketers and Managers Are Reshaping Today's Media*. (New York: Columbia University Press, 1993), 3–13.

8 Hickey, Neil. "Money lust: How pressure for profit is perverting journalism." *Columbia Journalism Review*. (July/Aug. 1998): 28–36.

9 Livingstone, Sonia M. "The Rise and Fall of Audience Research: An Old Story With a New Ending." *Journal of Communication* 43, no.4 (Autumn 1993): 5–12.

10 Czitrom, Daniel. *Media and the American Mind*. (Chapel Hill: University of North Carolina Press, 1983), 122–146.

11 A synthesis of the two perspectives is the cultural studies approach, where media "texts" are shaped by their creators but are then processed by the audience through an encoding process affected by the cultural background of the audience.

12 Brashers, Dale E. "Communication and Uncertainty Management." *Journal of Communication* 51, no. 3 (September 2001): 477–497.

13 Sotirovic, Mira. "How Individuals Explain Social Problems: The Influences of Media Use." *Journal of Communication* 53, no.1. (March, 2003): 122–137.

14 Hamilton, David L., and Terrence Rose. "Illusionary Correlation and the Maintenance of Stereotypic Beliefs" *Journal of Personality and Social Psychology* 39, no. 5 (1980): 832–845.

15 Steen, Francis F., and Stephanie A. Owens. "Evolution's Pedagogy: An Adaptationist Model of Pretense and Entertainment." *Journal of Cognition and Culture* 1, no. 4 (2004): 289–321.

16 Vorderer, Peter, Christoph Klimmt Christoph, and Ute Ritterfeld. "Enjoyment: At the Heart of Media Entertainment." *Communication Theory* 14, no. 4 (November 2004): 388–408.

17 Oliver, Mary. "Exploring the Paradox of the Enjoyment of Sad Films." *Human Communication Research* 19, no. 3 (March 1993): 315.

18 Walters, Glen D. "Understanding the Popular Appeal of Horror Cinema: An Integrated-Interactive Model." *Journal of Media Psychology* 7, no. 2 (May 13, 2004).

19 Gan, Su-lin et al. "The Thrill of a Close Game: Who enjoys it and who does it?" *Journal of Sport & Social Issues* 21, no. 1 (February 1997): 53–64.

20 See Small, Gary and Gigi Vorgan. *iBrain: Surviving the Technological Alteration of the Modern Mind.* New York: Harper, 2008. Also TheDopamineProject.org. "Dopamine addiction." October 26, 2014. Last accessed July 11, 2017. ► http://dopamineproject.org/dopamine-addiction-da/. For another perspective, see Bressan, R. A. and Crippa, J. A. "The role of dopamine in reward and pleasure behaviour – review of data from preclinical research." *Acta psychiatrica Scandinavica* 111, no. 427 (February 2005): 14–21.

Those who believe that preferences are inherent to the viewer (the "powerful audience") tend to study it purely empirically, looking at audience behavior rather than engaging in theories to explain that behavior. George Gallup, the famed pollster, was among the first to research audience preferences in a very practical way. In the academic field, a central figure was Paul Lazarsfeld, who started an institute in audience measurement at Columbia University to study radio listeners.[21] Lazarsfeld's statistical techniques were adopted by media firms and by audience measurement companies such as Nielsen. This approach centers on the audience and on audience sub-groups, and on their behaviors rather than their motivations.

In such a vein, many if not most media firms look at audience preferences and seek to satisfy them in order to be commercially successful. Yet media firms themselves are self-contradictory. On the one hand, they argue that they only passively serve existing influences rather than shape them. This might be called the Nielsen perspective. Yet at the same time, they promote themselves to advertisers as being able to actively reshape consumer preferences, including on their media choices. That might be called the "Madison Avenue" perspective.

Maybe both major perspectives are correct. Media audiences have preferences that can be analyzed as given at a certain moment. This is referred to by the industry as media research or market research. However, these preferences can also be influenced by means of media marketing. This chapter deals with the former. In ► Chap. 10, Marketing of Media and Information, we will deal with the latter.

9.1.4 How Media Companies Organize Their Demand Research

To improve on their odds for success, media organizations engage in substantial market research at every step.

- To let the companies know who their audience is, and how it responds to the content provided;
- To let advertisers know who they are reaching;
- To let advertisers know how effective they are.

A lot of money is at stake. The largest advertisers in the USA in 2016 were Proctor & Gamble with $4.3 billion, AT&T with $3.9 billion, General Motors with $3.5 billion, Comcast with $3.4 billion, and Verizon with $2.7 billion.[22] On the receiving end, 2016 advertising sales by the TV company CBS were about half of overall revenues, about $6.1 billion, and another $6 billion from licensing fees and affiliate payments that were themselves heavily dependent on other TV companies' advertising sales. For the major newspaper company Tribune Publishing, two-thirds of revenues were from advertising, $1.6 billion. Over 90% of Google's 2018 revenues of $110 billion came from advertising. With such large amounts of money at stake, advertisers, media companies, network platform service providers, and technology firms need to understand their markets and audiences.

Over time, large TV firms organized media and audience research in increasingly complex ways, both in house and by the use of outside measuring services. The major US TV networks have internal research departments of approximately 30 people—about 20 ratings analysts, plus three to five people undertaking primary work on strategic and regulatory issues such as violence, children, and boycotts, as well as qualitative studies including focus groups. These analysts are mostly at company headquarters in New York. The research agenda consists of sales research for advertising sales, internal program research, studies for local stations and radio, and work with outside contractors.[23] About half-a-dozen analysts are deployed in Los Angeles engaged in program research.

The top audience research executives in the large media firms hold titles such as Head of Research, President—Research, Exec VP—Research, or Chief Research Officer. They report either to the Chief Marketing Officer or to the CEO directly. Audience research departments tend to hire at the BA or masters level, often with a background in statistics. Some hire MBAs. Experience in digital data analysis and in advertising agencies is helpful.

Starting in the mid 1980s to mid 2000s, the major TV companies added new cable TV channels. Research departments doubled and tripled even though the major networks themselves shrunk. In time, decentralization took place as the subsidiary cable channels created their own research departments within the same company, such as the Disney Channel, ABC, and ESPN. There was much expansion, including into digital research and involving more program research.[24]

Local TV stations, depending on market size, also have one or more market researchers, in particular for ratings analysis. Their work is supported by the TV networks or by outside contractors. At national cable multiple-system operators (the distribution platforms), the number of audience researchers is relatively small. Maybe three to five people analyze subscriber data and subscriber satisfaction, reporting to marketing. Outside contractors contribute other studies.

In other countries, TV networks have similar, though smaller, audience research structures. For example, in Germany the private RTL network (owned by Bertelsmann) operates with about 10–15 people. The public ZDF has a large department with involvement in broader issues.

21 Czitrom, Daniel. *Media and the American Mind*. (Chapel Hill: University of North Carolina Press, 1938), 122–146.

22 Nanji, Ayaz. "The 10 Biggest Advertisers in the United States." *Marketing Profs*. July 22, 2016. Last accessed July 11, 2017. ► http://www.marketingprofs.com/charts/2016/30313/the-10-biggest-advertisers-in-the-united-states.

23 Scott McDonald, interview with author, July 18, 2012.

24 Scott McDonald, interview with author, July 18, 2012.

Large magazine group publishers may employ several dozen researchers. In addition, individual magazines might have a researcher or two. At Condé Nast, this function is called the Research and Insights Group. Its head reports directly to the CEO and is a member of the executive committee.

In magazine publishing, a media research group has two main functions and actions. Syndicator research uses and analyzes third-party numbers. The core estimate numbers are usually from a company called MRI (Mediamark Research & Intelligence, owned by GfK of Germany). That research includes a sample of 28,000 people. Other data is obtained from comScore and Nielsen. More specific market and data collection is accomplished through hired external marketing research firms. Advertising agencies use the same third-party data to help select the most effective media vehicles for their clients' advertising.

The second type of media research is that of custom studies, which use the group's own generated data. This kind of research supports sales pitches to ad agencies for ad placement. It is known as persuasion research. Individual magazines, and sometimes corporate management, conduct panel studies. They may generate pools of potential panelists through contests, where applicants are often willing to be surveyed and provide some information about themselves.

There are several distinct categories of market research for media firms[25]:

1. *Concept testing:* evaluating the appeal of an idea, content, or product.
2. *Positioning studies:* identifying the target market for the concept.
3. *Product testing:* feedback about the product for its fine tuning, as it is being produced.
4. *Tracking surveys:* measuring changes of users and audiences over time.
5. *Advertising testing:* analyzing the effectiveness of a promotional campaign.
6. *User surveys:* analyzing the users' experience.

Example: Time Warner

Time Warner has an internal Consumer Research Council responsible for identifying and interpreting consumer trends. The council's membership consists of the Executive Vice-President, Corporate Marketing and Communications; the Chief Marketing Officer of the Global Media Group; the Senior Vice-President, Audience Measurement, HBO; the Chief Research Officer, Turner Broadcasting; and the EVP Media Research and Insights, Warner Bros.

The company operates the state-of-the-art Time Warner Media Lab, which conducts research, houses focus groups and observation rooms, and has the technology for testing consumer emotion.[26] Media Lab includes a 47-seat 3D movie theater. In various parts of the lab, researchers can analyze games played, reactions to reality shows and to advertised products, the skipping of commercials, the picking up of particular magazines, and how users navigate online. The lab uses two-way mirrors, biometric belts, and a camera that peers over each computer user's shoulder. For example, CNN used the lab to test voters' biometric reactions to candidates during debates. The lab is located in the Time Warner headquarters building in New York, but in the busy general retail mall area, and there is only a discreet outside sign that it is part of Time Warner itself. This provides researchers and markets with a blank slate of subjects to test and experiment. The lab is also available for hire by advertisers and producers. It charges about $50,000 per focus group study and $120,000 for biometric research.

9.1.5 Case Discussion

Golden Age Media (a Hypothetical Case)

The large US media company Viacom, in an effort to target the large and growing retirement-age audience, considers launching a new media endeavor: Golden Years Media (GYM). This would offer three products: a cable pay channel (Golden Years Channel, GYC) that is marketed directly to viewers; a print periodical (*Golden Years Magazine*); and a website (GY Portal).

The basic question for the company is whether it should launch Golden Age Media.

To answer that question, how can Viacom estimate its audiences, their content preferences, their consumption preferences, and their willingness to pay?

A Brief Overview of Viacom

Viacom is an American mass-media company. It owns film and TV production (Paramount), runs more than 160 cable networks, and serves over 700 million viewers worldwide in many dozens of countries and languages. Its channels include MTV, Nickelodeon, BET, and Comedy Central.

Sumner Redstone, aged 95 in 2018, is the controlling shareholder of Viacom as well as of the TV network CBS and other media firms, through the family business National Amusements, originally a medium sized movie theater chain.

In 1952, CBS created Viacom (the initials stand for VIsual and Audio COMmunications) as a subsidiary for the syndication of its content. In 1971, it was spun off by CBS to comply with federal rules against networks being in syndication. Redstone's National Amusements bought it in 1987.[27]

25 Marich, Robert. *Marketing to Moviegoers.* Burlington, MA: Elsevier Focal Press, 2005.

26 Time Warner. "Media Labs." January 8, 2013. Last accessed July 11, 2017. ► http://www.timewarnermedialab.com/.

27 Viacom. "History." Last accessed July 11, 2017. ► http://www.viacom.com/Pages/default.aspx.

Several major purchases by Viacom made it a media giant. The company moved into TV stations, cable TV platforms, and channels such as MTV. In 1994, it bought for $9.9 billion the Hollywood studio Paramount and the largest home video chain, Blockbuster. In 2000, it bought for $39.8 billion its former parent company, CBS, including its radio operations (Infinity) and its book publishing division (Simon and Shuster). In 2001, it added for $3 billion Black Entertainment TV (BET). Then Viacom slimmed down again by splitting itself into two parts, both controlled by Redstone. CBS holds TV and radio stations and networks, and Viacom owns cable TV networks and Paramount. The premise of the spin-off was that Viacom would be in charge of the fast-growing parts while CBS was left with the slow-growth divisions. Yet by 2018, the Redstone family was attempting to again merge the two companies.

Viacom owns a large number of satellite-delivered TV channels that are carried by cable and direct broadcast satellite (DBS) TV operators. Ordered by the target audience ages, they include Noggin (preschoolers), Nick Jr. (ages two to five), NickToons, Nickelodeon (tweens), TeenNick (ages 12–24), MTV and MTV2 (12+).[28] These channels reached up to 100 million households. Other Viacom channels target college students and young adults (ages 18–49): mtvU (college), Comedy Central, Spike, VH1, and Logo. These channels reach up to 127 million households. Viacom's channels targeting mature adults are Nick at Nite (50+), TV Land (50+), and CMT (Country Music TV) (18–65). These channels reach up to 68 million households. Other Viacom channels that target specific demographics include BET (African American), BET HER (African American women), Logo (LGBT), MTV Tr3s (Latino), and Sundance (film fans).

Viacom now plans to target the 65+ age demographics though three interrelated new media products: the GYC, *Golden Years Magazine*, and the GY web portal.

9.2 Data Collection

Good research requires good data and a good interpretation of that information. The topic of the next section is how to get the data. Later, we will discuss how to analyze it.

9.2.1 The Impact of Collection Methodology

The choice of the methodology and technology of such collection is not an objective science. But such choices affect results and thus influence business and creative decisions. Therefore, it is always a battlefield. One main purpose of audience measurement is to be a tool for attracting and charging advertisers and others. Any change in a metering procedure will therefore have business impacts. In TV, the replacement of the system of paper diaries with an automated measurement system made a significant difference to the results. The People Meter system showed ratings for the major TV networks that were consistently lower by about 4.5 points than the combined TV diary ratings. In contrast, cable TV had a substantial ratings gain. There were also effects on different programming categories. Participation shows were boosted by 5 points in rating, sitcoms by 1.5, and news by 0.2. But medical shows dropped by 4.1 points. All this has an impact on revenue. Each ratings point was worth approximately $140 million per year. The networks' decrease in ratings by 4.5 points might therefore cost over $600 million a year.

Similarly, the introduction of electronic local people metering (LPM) of TV audiences affected networks, stations, and advertisers. In New York City, it caused the stations affiliated with Fox, UPN, and the WB network to show big audience drops. In Washington, a test-run showed that instead of 650,000 households watching local TV from 5 pm to 7 pm that had been measured before, only 526,000 households were actually counted by the new measurement technology. Some population groups showed above-average audience losses with the LPM measurement technology. Defenders of the previous high numbers explained that owing to the new system, 25% of Hispanic homes and 20% of African American homes were now being undercounted in Washington.[29] The Fox TV network, a loser under the new technology and methodology, complained that LPM worked against its minority viewers. "Don't Count Us Out," a group funded by Fox, generated political pressures on Nielsen to upwardly adjust the count of these underrepresented audience groups (and in the process raise Fox's ratings and advertising revenues.) A third example is Arbitron's portable electronic meter PPM, whose introduction instantly showed audiences lower by 25%. This led to numerous news stories about the decline of radio's popularity, when much of the difference could be attributed to a new measurement technology.

Thus one can see that ratings technology and ratings methodology affect dollars, euros, and yen. It is therefore important that the methodologies are trusted by all sides. For the USA, standards for video audience analysis research are established by the Electronic Media Ratings Council headquartered in New York, which audits and accredits rating services. Members of the Council are the trade and advertising associations of the broadcasting, cable TV, radio, and internet sectors.

9.2.2 Measuring at the User Level

Broadly speaking, data is primarily collected from either of the two sides of transactions, either from the buy side (users, consumers, audiences) or from the sell side (provider,

28 Viacom. "Viacom Brands." Last accessed July 13, 2017. ► http://www.viacom.com/brands/pages/default.aspx.

29 Maynard, John. "Nielsen Delays Release of Local People Meters." *The Washington Post*. June 2, 2005. Last accessed July 11, 2017. ► http://www.washingtonpost.com/wp-dyn/content/article/2005/06/01/AR2005060101908.html.

producer, distributor). We will discuss these different approaches, starting with users as data sources.

Media researchers utilize a number of techniques for collecting data about users' behavior and preferences. The techniques range from hands-on physiological/medical methods that aim to measure the audience's physiological response to a media experience, to more abstract statistical and analytical models. There are several ways to collect data from users. They include:

- Personal interviews;
- Mail surveys;
- Phone surveys;
- Focus groups;
- Test marketing;
- Experiments;
- Psycho-physiological testing;
- Automatic Metering Internet Measurement.

9.2.2.1 Personal Interviews, Mail Surveys, and Telephone

Personal surveys are usually conducted by market research firms. In the USA such firms include Simmons, Dun & Bradstreet, and Gallup Horizon Research; in Japan Research Panel Asia, Access JP, and GMO Japan Market Intelligence[30]; in Europe Global NR, Focus4People, and MM-Eye among others.[31]

Personal interviews can be in depth, but they are also expensive and need a reliable survey team. The sample is often biased by a self-selection of subjects who agree to participate and by the accessibility of the subjects. Follow-up research is time consuming. To lower cost, market researchers often solicit passers-by at a shopping mall, but this also produces a biased sample[32]. In some cases, an interview subject is shown aids to memory (such as past copies of the publication or of an ad), followed by questions. This is known as the recognition method. When no such aids are given, it is referred to as a "recall method" interview.[33]

A major problem with personal surveys is the truthfulness of responses. People will often dissemble about their incomes, taste, and actual consumption patterns; or they can be forgetful. There is also an "interviewer effect," where the age, gender, attractiveness, status, and so on of the person conducting the survey have an impact on responses.[34] There is also a subconscious "bargaining" behavior, such as when consumers typically state a price they would pay for a tested product that is lower than they would actually be willing to pay. On the other hand, sometimes they may state a higher price just to please the interviewer.[35] In short, personal interviews are time consuming, expensive, and limited in accuracy.

Mail surveys cost less than in-person surveys and their greater anonymity increases candor. However, the low response rates to "junk mail" mean that on a per responder basis this is not a cheap method after all. There is a self-selection bias because of the tiny response rate, and researchers cannot probe or clarify users' answers.

Mail surveys can be used for new magazines as a way to survey potential subscribers at the same time that subscriptions are solicited or to test for effective marketing elements. This can be done even before the magazine is actually published in order to gain feedback on price and features. Potential subscribers receive offers that differ in price, the type of payment, the text of the promotion, and even the editorial content. Combining the test results of mail surveys with the demographic characteristics of the responders' postal code helps a magazine to determine the best target area code and which characteristics to focus on, such as income, race, gender, or age. This kind of survey, used for decades by magazines, is often used by the internet industry. It is known as A/B testing.

As an example, by comparing the acceptance rates of test marketing that offers two alternative prices, with the other variables held constant, one may discover the responsiveness to price. Suppose that for a listed price of $17, acceptance was 10.2% lower than when the price is listed at $15.[36] This is a price reduction of 11.8%. The price elasticity (defined as percentage change in demand divided by the percentage change in price) is hence $\eta = -10.2/11.8 = -0.86$. This means that the price sensitivity is slightly inelastic (less than 1).[37] Where demand is inelastic, a higher price point (such as going to $18 or higher) would raise revenues.

Telephone surveys are cheap and allow follow-up questions and clarifications. They are not truly anonymous since the interviewer is in possession of the phone number and could track the name and address of respondents. Here, too, there is a self-selection bias. In many countries, poor or young households may have no residential or mobile phone, or be reluctant to use up the minutes on their plan. On the other hand, rich and busy people tend to avoid surveys. There are legal restrictions on unsolicited phone surveys when they are coupled to a sales pitch.

The internet provides convenient and low-cost ways of ascertaining consumer views. To recruit respondents a website might seek volunteers (for a one-time response or to serve as part of an ongoing panel). It might offer a reward such as access to otherwise restricted or for-pay content (a survey wall) or a chance to win a reward in a lottery. They might solicit general user feedback such as "likes" or create polls. Companies seek respondents through advertising or by posting on blogs, websites, and social media. They can send

30 Greenbook. "Marketing Research Firms and Services in Japan." 2010. Last accessed July 11, 2017. ► https://www.greenbook.org/market-research-companies/japan.
31 Greenbook. "International Market Research – Europe."2010. Last accessed July 11, 2017. ► https://www.greenbook.org/market-research-firms/europe.
32 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies Used by Major Studios and Independents*. Burlington, MA: Elsevier Focal, 2005.
33 Kim, Hyo Gyoo. "Traditional Media Audience Measurement: Print and Broadcast Media." 2006. Last accessed July 13, 2017. ► http://www.citi.columbia.edu/B8210/read24/suggested/Audience3.htm.
34 Frankel, Martin R., Marc B. Glassman, and Eleanor Singer. "The Effect of Interviewer Characteristics and Expectations on Response." *Oxford Journal Volume* 47, no.1 (Spring 1983): 68–83.
35 Holden, Reed and Thomas Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. New Jersey: Prentice Hall, 2001.
36 Kobak, James B. *How to Start a Magazine*. New York: M. Evans & Company, 2002.
37 Disregarding the negative sign.

emails with survey instruments to various mailing lists that can be self-created or rented. They can present each online visitor with a survey or do so selectively by picking a sample, either randomly or according to some parameters. A number of companies provide relevant software and services, such as SurveyMonkey and Google Surveys. The software permits customizations of various kinds as well as data analytics of the responses. The disadvantages are that self-selected respondents might be a statistically biased sample in terms of demographics, and that strategic manipulation by multiple responses from a small group are hard to control. More details are provided in the sections on internet-based research tools.

9.2.2.2 Focus Groups and Tests

Market researchers often use group-wide approaches. They may include interactive focus groups or larger-scale product tests.

Focus groups are often used for films in advance of wide release. There are two types of such group testing: for production and for marketing. Production previews help filmmakers fine-tune the movie while it is being made, whereas marketing previews study an audience's reactions to complete films and assess the marketing strategy.[38]

A typical focus group gathers about a dozen people (more would be unwieldy for interaction) to discuss the product for maybe two hours, talking with each other and to a professional moderator. Most test screenings followed by focus group sessions are conducted in the Los Angeles and New York City region so that studio executives can observe the audience and their reactions.[39] To benefit from the focus group, marketing managers often listen in from the outside, or observe through one-way mirrors or video screens.

In Time Warner's Media Lab Theater, during screening and focus group meetings, infrared cameras allow observers and researchers to understand group dynamics, and monitor group engagement as participants respond.[40] With the preparing of questions, renting of a facility, recruiting participants, and analyzing the discussion, a single focus group study for a film can cost easily over $20,000, and most likely there are several such groups.[41]

Focus groups can be used to help fine-tune a work in progress. Their response provides feedback to producers, creators, marketers, and executives, but is no substitute for artistic judgment. For example, focus groups hated the pilot to the TV series *Seinfeld*, which was green lit anyway and then became one of the most successful TV shows ever.

Focus group testing is similarly done by game developers or publishers. A group of the target demographics, typically young men or adolescents, are brought together. They play the game for a while and are then prompted to discuss their experience and observations. This might include whether the game is too easy or too hard, the visuals, the level of excitement, and the characters.

Focus groups are highly unpopular with screenwriters and directors. They are held to be responsible (or used as a smoke screen) for media executives watering down artistically exciting approaches. For people with a statistical bent, the focus group approach is laughably imprecise with its sample size, bias, and randomness.

A broader outreach uses test audiences. Such test screenings are done in a theater, typically in New York or Los Angeles. They are co-ordinated by specialists with no particular ax to grind. Sometimes test audiences are asked to fill out a survey questionnaire to indicate what they liked and did not like about the film. This includes elements such as actors, characters, special effects, plot, and pacing.[42] Other test screenings use audience perception analyzers, which are systems with little hand-held clickers like TV remote controls.[43] These send out, record, and analyze responses, and their intensity, in real time.

Many popular movies have been altered after being shown to test audiences or focus groups. For example, in the early version of the film *Fatal Attraction,* Glenn Close's character—the vindictive spurned woman—originally killed herself while framing Michael Douglas as the murderer. However, audiences hated her so much that the ending was changed and reshot to see her die by the hands of Douglas and his wife.[44] Conversely, in the movie *ET* the alien space traveler character originally perished, but the test audiences loved him too much and their reaction convinced the film-makers, including Steven Spielberg, that they should send him safely back to his galaxy. Another example is *Pretty Woman*, where in the original ending Julia Roberts, playing a high-priced hooker, rejected Richard Gere who had paid for her companionship. Moreover, the film portrayed Roberts's character as a drug addict. But audiences preferred a Cinderella story, and a happy ending was therefore tacked on. Testing for marketing purpose might also deal with the most effective title. *Pretty Woman*, for example, was originally titled *$3000*, which was the lead character's daily rate.[45]

Television producers and directors fear that shows that test poorly will be dropped by networks and thus forgo a major content development advantage over film. In contrast to film, a series can improve with constant refinements as it goes along. But this potential is lost when cancellations are based on only one or two episodes, and the show has no chance to improve itself and build a following.[46] The opposite criticism is also made, that testing a film serves as a shield to protect managers' careers if a film opens badly. Then the marketing executives can point to the earlier poor test results and claim that they produced the best release campaign possible for a weak product.[47]

38 Friedman, Robert, and Jason Squire. *The Movie Business Book, Third Edition*. UK: Open University Press, 2006), 282–298.
39 Marich, Robert. *Marketing to Moviegoers*. (Burlington, MA: Elsevier Focal Press, 2005), 27.
40 Time Warner Medialab. "Digital image." Last accessed July 11, 2017. ► http://www.time-warnermedialab.com/.
41 Marich, Robert. *Marketing to Moviegoers*. (Burlington, MA: Elsevier Focal Press, 2005), 27.
42 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies Used by Major Studios and Independents*. Burlington, MA: Elsevier Focal, 2005.
43 Conferex. "Excellence in Presentation." 2008. Last accessed June 2, 2011. ► http://www.conferex.co.uk/index-3.html.
44 Bay, Willow. "Test audiences have profound effect on movies." *CNN Entertainment*. September 28,1998. Last accessed July 11, 2017. ► http://www.cnn.com/SHOWBIZ/Movies/9809/28/screen.test/.
45 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies Used by Major Studios and Independents*. Burlington, MA: Elsevier Focal, 2005.
46 Albarran, Alan, and Sylvia Chan-Olmsted. *Handbook of Media Management and Economics*. (Mahwah: L. Erlbaum Associates, 2006), 629.
47 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies Used by Major Studios and Independents*. (Burlington, MA: Elsevier Focal Press, 2005), 27.

For all of its use of audience testing, Hollywood studios were initially dismissive toward modern research techniques. In the 1930s, the Lazarsfeld-Stanton Analyzer was introduced, where a listener (or, later, viewer) would turn a knob left or right to express their opinion about scenes. In the 1950s, an engineer at Columbia Pictures developed a handheld device for recording reactions instantaneously. The studio then created a research business called Audience Studies Inc. (ASI), with a screening and research facility, Preview House, in Hollywood. For two decades, ASI was the leading theatrical film research firm.

Another company, National Research Group (NRG), subsequently entered the field and became dominant. Its founder, Joseph Farrell, held an important status in Hollywood. It assembled a large database which enabled it to draw comparisons with past films. In the twenty-first century, the media market giant Nielsen acquired NRG. Other services, MarketCast and OTX Research, provide information for the film industry. A comprehensive research effort for an important studio film might cost over $1 million.

NRG's research begins when it calls likely moviegoers and ask whether they were "aware" of a particular movie, and if they planned to see it. From the responses, and enhanced by age and gender information, NRG projects the film's likely success against other films. Having such information for all major studios enables NRG to help co-ordinate release dates that avoid direct head-to-head clashes of major releases with similar appeals in the same age/genre "quadrant." NRG's projections have been influential on studio marketing decisions but have not always been correct. For the popular and media-competitive Independence Day weekend in 2000 it predicted that Columbia Pictures' *The Patriot* (with Mel Gibson) would beat Warner Brothers' *The Perfect Storm* (starring George Clooney) at the box office, but it ended up significantly out-grossed by the latter.

Case Discussion

Surveys

How would Viacom survey potential viewers?

Viacom would use concept testing and focus groups for the idea of a senior-targeted channel, website, magazine, or program. It could evaluate how competing media products are viewed and where market niches exist. Later, tracking surveys could measure changes in the perception of a channel or magazine to analyze trends. It would analyze the cost-effectiveness of various types of surveys:

In-Person, Phone, and Mail Surveys

The cost of a mall in-person interview includes (hypothetical):

- A daily raffle prize = $150;
- A surveyor, at $20/hour; three people average for 10hours a day= $600;
- Rental of booth in mall = $100 per hour* 10 hours = $1000;
- Overhead cost 25% = $437.50;
- Estimated total per day= $2200.
- 150 people answer the survey each day.

The cost for the mall survey would be $2200 for 150 completed surveys, or approximately $14.67 per survey subject. The downside is that individuals might just answer the survey to enter the raffle, and will not respond truthfully.

Phone interviews are convenient for consumers and surveyors. The cost for phone surveys about GYM would include the survey-takers, the telecom cost, prospect lists, and overhead. The cost for phone surveys would include the survey-takers, the telecom cost, prospect lists, and overhead. The total cost for the phone surveys is then calculated at $13.67 per surveyed subject.

For a GYM mail survey, costs would consist of the actual mailing, the mailing list, and so on. The cost is $4.21 per survey sent out. However, only 5% respond and mail back the survey (this is optimistic). Thus, the total cost per mail survey response is $84.24 per survey subject. The advantage of mail surveys is that individuals are more likely to give accurate answers without an interviewer present and without time pressure. The downside is that it is expensive, slow, and few people will take the time to respond, and the response sample will be biased.

Internet surveys are cheap but not free. Their cost elements are the development of an effective questionnaire, fees to a survey company or in-house experts, software, the acquisition of mailing lists if email is used, and rewards, free access, and other benefits that are provided. These costs, without the data analytics, are estimated at $7.50 per response.

Focus groups can help with feedback on looks, program choices, marketing approaches, and price, through asking a range of questions. Is the basic idea behind GYC—that senior citizens need a channel of their own—a sensible one? What did you like/dislike about this show, and why? How much would you pay for the channel? Did you like the star of the show? A focus group for researching on GYM could be recruited fairly easily at a retirement home or senior village. The cost for a focus group includes the free-trials for the channel, the cost of the discussion leaders and of the analysis of the comments received, facility cost, refreshments, overheads, and so on. This adds up to $112.50 per subject.

Follow-Up and Time-Line Surveys

After a period, GYM would call subscribers to determine their experience. Was the media experience better than expected? (yes/no). Rank other channels and publications. Would you recommend GYM to friends? Would you like to see more films? This survey method would be straightforward and inexpensive. The cost of this follow-up survey would be calculated at $6.06 per survey subject.

Cost Comparison per Survey Subject (Hypothetical)

- Personal interview: $14.65;
- Phone interview: $13.67;
- Mail survey: $84.25;
- Internet survey: $7.50;
- Focus groups: $112.50;
- Follow-up interview: $6.06.

The focus group is by far the most expensive but yields the most insights, though it is not very reliable in statistical terms. The follow-up interview is cheapest but deals with customers who have already been "sold" and may be defensive of their earlier choice. Mail surveys are expensive owing to the low response rate. Internet- or email-based surveys are the cheapest but they are likely to be biased in this case, given the age characteristics of the target population. If this problem cannot be overcome through various forms of screening, then for this age cohort phone interviews seem most cost effective and can reach a statistically less biased sample.

9.2.2.3 Demand Experiments

One can obtain data on audiences and buyers by observing their actual behavior or by experiments.

In an *uncontrolled study*, researchers are only observers. Uncontrolled research often uses behavioral data from samples collected from panels of consumers. Consumers can keep a diary of their activity and purchases, or these are recorded automatically. Customers may get a reward for cooperating.

In contrast, in *controlled studies* researchers can manipulate the important variables to observe their effect. In controlled studies of actual purchases, the researchers may generate price variations while holding other variables constant, such as advertising. This can be useful but takes time and money.[48]

Magazine test marketing serves as a good example of a controlled purchase experiment. Magazine firms may utilize a "dry test," where product acceptance is tested without it actually yet being published. Letters are sent out to potential readers, soliciting subscriptions but no payment, though the first issue may be far away.[49] This allows the magazine company to determine which combination of design, price, offers, advertising copy, target demographics, and mailing lists works the best. On the internet, such experiments have become much easier. If a website wants to find out whether a new design of a web page increases sales, it can quickly run a controlled experiment. It will show the new page design to, say, every hundredth visitor. Determination of whether the new design increases sales can be made after a few days, which allows for numbers to build and to correct for unusual weather, holidays, etc.[50]

Test marketing means launching the media product, a TV show or a film, for example, with full marketing and advertising efforts in several test cities or regions. The consumer response is then tracked. Such test marketing for films enables decisions about marketing strategies, improvements, fine-tuning, or discontinuation. An instance of such testing may be a TV show shown in a small country. The Dutch media producer Endemol uses the entire Dutch market to test shows for subsequent international rollout.[51] Its show *Big Brother*, for example, was subsequently franchised to the producers of national venues in at least 52 countries. The problem with test marketing is that it is slow. It also leads to a premature exposure of the product to competitors. With the internet, information spreads rapidly, and test audiences are much less isolated than in the past.

In-store purchase experiments can be costly and run into millions of dollars. The cost is high because each additional factor studied requires the use of more stores in order to get statistically valid results. When Quaker Oats conducted an in-store experiment that focused on the effect of price alone, the study required the use of 120 stores for three months.[52] For technology products such as TV sets or computers, charging lower prices for experimental purposes can become quite expensive. This then leads to the use of laboratory experiments.

A laboratory experiment research facility can be set up at a shopping mall or other high-traffic location. It resembles a small store to provide the realism of in-store trials without its high cost and exposure to competitors. Participants and prices are controlled. Consumers may be rewarded with a substantial discount or other benefits. The overall cost is smaller than for in-store testing, and it is therefore more popular with electronics products.[53] Other laboratory experiments may provide users with play money, observe how they engage with content and with on-shelf retail content such as magazine covers, subject them to advertising messages, followed by product choice decisions, and monitor the impact of an ad. They might also simulate a living room setting to observe user behavior. Such lab in-home simulation aims to provide insight into the typical interactions of consumers with devices and programming in a home-like setting. Research questions could include the following. How are programming choices made? When and how are available devices used? What else is done while watching? What interactions does a message or content trigger? How can a program stand out from the rest?

9.2.2.4 Biometric Testing

Perhaps the most individualized data of all is the collection of biometric data. Biometric monitoring tracks human biological responses. This shows the emotional responses to media content, marketing, and advertising. There are a variety of techniques to measure a person's reactions to an item of media content.

Heart Rate[54] Heart rate graphs can measure the intensity of emotions in response to a stimulus. Game companies use this research to determine what type of games to develop based on how the audience responds to them. One study found that players who measured a higher heart rates after playing a video game were feeling more "frustrated" by the game, while those who had a lower heart rate felt more "competent" and

48 Holden, Reed and Thomas Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. New Jersey: Prentice Hall, 2001.

49 Kobak, James B. "Testing a New Magazine Through Direct Mail." *How to Start a Magazine*. New York: M. Evans & Company, 2002.

50 Varian, Hal R. "Kaizen, That Continuous Improvement Strategy, Finds Its Ideal Environment." *New York Times*. February 8, 2007. ► http://www.nytimes.com/2007/02/08/business/08scene.html.

51 Aris, Annet. *Managing Media Companies: Harnessing Creative Values*. Hoboken: Wiley, 2005.

52 Holden, Reed and Thomas Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. New Jersey: Prentice Hall, 2001.

53 Holden, Reed and Thomas Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. New Jersey: Prentice Hall, 2001.

54 Ravaha, Niklas. "Contributions of Psychophysiology to Media Research: Review and Recommendations." *Media Psychology* 6, no. 2 (May 2004): 193–235.

"positive" about the game and were able to complete it. This gives designers feedback on how to structure a game.[55] Some developers therefore create "casual games," which are simpler to play and allow people to finish within a few minutes and do not require any previous experience or skill.[56]

Sweat (Electrodermal Activity, EDA) Skin conductivity of electricity increases when sweat increases owing to arousal from stimuli such as emotionally charged visuals, pain, anxiety, fear, and guilt.[57] For example, an EDA might measure "before," "during," and "after" responses to an emotional picture and a calming picture. One study measuring the correlation between video gaming and arousal found that high arousal was related to a high EDA value, which is most likely due to elevated intensity and excitement while playing the game.[58] The harder a task was to complete, the higher the value of the EDA. By evaluating studies like this, gaming companies can better determine the kind of games they want to develop, as a higher value of EDA in players would indicate a game that is more fun and exciting.

Facial Muscles: Electromyography (EMG) EMG detects the electrical potential generated by muscle cells when they contract in response to stimuli. Using facial EMG, researchers are able to determine emotional responses to advertisement messages.[59]

Breathing: Respiratory Sinus Arrhythmia Irregularity This is an index that measures reaction of the parasympathetic nervous system, which is affected by emotion.[60]

Eyes: Tracking Eye-tracking systems monitor the gaze of a subject and pinpoint what the individual is looking at. The pattern of gaze shifts and periods of rest gives researchers insight into how a user interacts with a scene or an ad.[61]

Technology by the Canadian firm CognoVision (a company bought by Intel in 2010) measures the number and nature of impressions on a person by using Anonymous Video Analytics (AVA).[62] AVA uses small cameras to analyze the patterns on people's faces. To analyze user face patterns UVA looks for pixel patterns to determine how long something has been viewed, and estimates the age and gender of the viewer.[63] It then deletes the images themselves. Sensors track how long the user lingers or shifts her eyes from ad to ad.

Hands Another technique is to track mouse activity. Three main mouse activities are measured: number of clicks, time spent moving the mouse in milliseconds, and time spent scrolling.[64]

Hormone Levels One can extend testing to dopamine levels (and of other hormones) in the blood stream, as well as to sexual arousal.

Brainwaves: Electroencephalographic (EEG) Activity This measures brainwaves using electrodes.[65] Emotions are observed by frontal EEG activity.[66] Specific parts of the brain are reacting to certain stimuli and particular "memes." Another study used EEG to evaluate responses to video game violence.[67] A new discipline emerged, consumer neuroscience. Using neuroscience for marketing is highly controversial.[68]

Usually no single psycho-physiological method as described above is sufficient. Often several methods are used to identify different responses.[69] One vendor offers a combination "biometric belt" as a tool strapped across the test subject's chest to measure several types of reactions. An example is the department store chain Macy's technology to track customer preferences, in which shoppers listen to ten 60 minute radio advertisements that possess either a positive or negative emotional tone.[70] Their facial EMG, heart rate and skin conductivity data were collected for evaluation of the ads' effectiveness.[71]

55 Nacke, Lennart et al. "Correlation Between Heart Rate, Electrodermal Activity and Player Experience in First-Person Shooter Games." *Academia.edu*. 2010. Last accessed July 11, 2017. ► http://www.academia.edu/366028/Correlation_Between_Heart_Rate_Electrodermal_Activity_and_Player_Experience_In_First-Person_Shooter_Games.

56 Higgins, Tom. "Causal Games as a Business." *Unity.* Last accessed July 11, 2017. ► http://unity3d.com/support/resources/articles/casual-business.

57 Larson, Randy and David Buss. *Physiological Approaches to Personality*. New York: McGraw Hill, 2002. ► http://highered.mcgraw-hill.com/sites/0070366055/student_view0/chapter3/chapter_outline.html.

58 Nacke, Lennart et al. "Correlation Between Heart Rate, Electrodermal Activity and Player Experience in First-Person Shooter Games." *Academia.edu*. 2010. Last accessed July 11, 2017. ► http://www.academia.edu/366028/Correlation_Between_Heart_Rate_Electrodermal_Activity_and_Player_Experience_In_First-Person_Shooter_Games.

59 Bolls, Paul D. et al. "The Effects of Message Valence and Listener Arousal on Attention, Memory, and Facial Muscular Responses to Radio Advertisements." *Communication Research* 28, no. 5 (October 2001): 627–651.

60 Dahme, Bernhard and Thomas Ritz. "Implementation and Interpretation of Respiratory Sinus Arrhythmia Measures in Psychosomatic Medicine: Practice Against Better Evidence?". *Psychosomatic Medicine, Journal of Biobehavioral Medicine* 68, no. 4 (July/August 2006): 617–627.

61 Time Warner Medialab. "Digital image." Last accessed July 11, 2017. ► http://www.timewarnermedialab.com.

62 Intel. "Intel AIM suite." Last accessed July 11, 2017. ► https://aimsuite.intel.com/.

63 Greene, Kate. "In-Store Signs Get Smart." *Technology Review.* December 16, 2010. Last accessed July 11, 2017. ► http://www.technologyreview.com/news/422046/in-store-signs-get-smart/.

64 Brown, David et al. "Inferring User Interest." *IEEE Internet Computing* 5, no. 6 (November 2001): 35.

65 Novant Medical Group. "Electroencephalogram (EEG) for Children." *Novant Medical Group*. Last accessed July 11, 2017. ► http://www.novantmedicalgroup.org/Taxonomy/RelatedDocuments.aspx?ContentTypeId=90&ContentId=P02599.

66 Dawson, G. "Frontal electroencephalographic correlates of individual differences in emotion expression in infants: a brain systems perspective on emotion." *Monographs of the Society for Child Development* 59, no. 2–3 (1994): 135–151.

67 Ravaha, Niklas et al. "The Psychophysiology of James Bond: Phasic Emotional Responses to Violent Video Game Events". *Emotion* 8, no. 1, (February 2008).

68 In 2011, the Nielsen Company acquired the brain wave research company NeuroFocus.

69 Ravaha, Niklas. "Contributions of Psychophysiology to Media Research: Review and Recommendations." *Media Psychology* 6, no. 2 (May 2004): 193–235.

70 Batista, Amanda. "Macy's, Target Tap QR Codes for Extended Customer Interaction." *Retail Touch Points.* March 10, 2011. Last accessed July 11, 2017. ► http://www.retailtouchpoints.com/cross-channel-strategies/778-macys-target-tap-qr-codes-for-extended-customer-interaction.

71 Bolls, Paul D. et al. "The Effects of Message Valence and Listener Arousal on Attention, Memory, and Facial Muscular Responses to Radio Advertisements." *Communication Research* 28, no. 5 (October 2001): 627–651.

Case Discussion

Biometric Audience Testing

Should Viacom engage in psycho-physiological testing, in the way its New York cross-town rival Time Warner does, to gauge the potential audience interest in its Golden Years project and specific content types for them?

The user demographics for Golden Years are elderly and probably resistant to such testing, so it may be difficult to assemble an unbiased sample. Furthermore, what would one test for? Senior-oriented TV programs or web pages might not raise heart or respiratory rates. However, this kind of research approach may be more useful for the advertisers on GYC for their ads, and they would be the primary initiators of such research.

9.2.2.5 Automatic Audience Metering

Individualized or group surveys and experiments are usually too slow, costly, and unreliable for the mass production of data. In consequence, large-scale data collection was an early goal.

TV and radio broadcasting were the first to use automatic metering. In the USA, the rating service company Nielsen became the main authority for TV ratings. Nielsen has over 200 designated TV market areas, which it "sweeps" four times a year. A station's advertising rates are based on its ratings during these months. The stations therefore demand that the networks display their most popular programs during sweep periods to attract the largest possible audiences.

Similar audience measurement companies to Nielsen operate all over the world wherever advertising supported TV or radio is in place.[72]

Early TV audiences were measured primarily with a "diary system," in which viewers recorded their TV viewing in a paper diary. This had many problems. The sample of such a methodology is biased and misses responses from adolescents, travelers, and TV viewers in bars. Such off-premises viewing is not trivial. In 2008, 8.6% of all video exposure took place out-of home, which equates to 23 minutes per day.[73] With rising video viewing on smartphones and tablet devices this number is going up.

There are other clear disadvantages to diaries. They are a slow collection process. There is an opportunity for the sampled viewer to lie in order to boost favored programs, or to disavow the viewing of programs they would rather not admit to. It is also difficult to record channel surfing, when a viewer flips through many channels. In the past, the response rate was typically around 70% for diaries, but more recently it has been difficult to get a 20% response rate. If the people who respond view TV differently from those that do not, then the sampling results are misleading.

For radio, where similar issues exist, the measurement company Arbitron (since 2013 owned by Nielsen) covers over 250 local radio markets in the USA with one to four ratings reports per year. This, too, is diary-based.[74] It takes millions of dollars per year to locate potential diary keepers, and 2.6 million surveys are mailed by Arbitron each year.[75]

A second way in which TV audiences have been tracked is via telephone surveys. These are used for TV "overnight" ratings. This enables fast turnaround, but this sample, too, can be biased. Telephone respondents at night or in the morning often run out of time and patience, and answers may be incomplete.

These problems encouraged the development of automatic systems of audience monitoring. An early audience meter called the Dynascope (1965) was a movie camera that took pictures of the TV viewer, the TV set, and the TV shows on it every 15 seconds. In all, 1.5 million pictures were analyzed. It found that when the TV set was on, for 19% of the time no one in the room was actually watching, and 21% of the time the person was engaged in a different activity.[76] This technology, with its intrusiveness, was just as clumsy as an alternative, the Kiewit "hot bodies" system, which scanned the room with an infrared sensor for people present. But Kiewit's scanner readings were distorted by what became known as the "big-dog effect." Nielsen used an audimeter, which was a mechanical measurement device attached to respondents' television sets.[77] The clunky meter/diary methodology was generally used in the audience research industry into the mid-1980s, until the British firm AGB introduced an automated methodology that could record the channels that were switched on. AGB offered a people meter that provided advertisers and networks with more information faster, and with greater precision. In response, Nielsen created its own People Meter and rolled it out in 1987 for its national sample and later for local measurements. AGB was forced out of the American market. This is one example of many for the effects of scale and network externalities in the audience measurement business. Users such as media firms and advertisers like the concept of competition, but in practice they flock to a "common denominator" firm whose data they use as a basis for their transactions. The new entrants then soon drop out.

Nielsen's People Meter is an electronic box placed in 5000 randomly selected households and positioned near

72 Examples are: Audimetrie in Belgium; BARB in the U.K.; MMI in Norway; AGB in the U.K., Italy, Mexico, Australia, Hungary, Greece, Turkey, the Czech Republic, and Poland; Mediametrie and Telemetric in France; GfK Group, Medien Daten Südwest, and TNS Emnid in Germany; TELETEST in Austria; IHA in Switzerland; Auditel in Italy; Sofres AM; Intomart BV in the Netherlands; AC Nielsen in Ireland, Australia, Indonesia, Italy, South Korea, and 25 other countries. European Audiovisual Observatory. "Sites of the TV Audience Measurement Companies." August 2001. Last accessed June 1, 2011. ► http://www.obs.coe.int/db/gavis/00002194.html.

73 Trussell, Norman and Michael Link. "Video Consumer Mapping Direct Observation Study: Out of Home Video Habits of U.S. Adults." *2010 American Association of Public Opinion Research Annual Conference.* Last accessed July 11, 2017. ► http://www.amstat.org/sections/srms/proceedings/y2010/Files/400098.pdf.

74 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. Boston: Irwin/McGraw-Hill, 1998.

75 These diary-keepers tended to record the radio station that they could identify with most closely, whether they actually listened to it or not. Another radio measurement system in the USA is Eastlan Ratings, which provides rating services for smaller radio markets.

76 Larson, Erik. "Watching Americans Watch TV." *The Atlantic Monthly* 269, no. 3 (March 1992), 66–74.

77 Kim, Hyo Gyoo. "Traditional Media Audience Measurement: Print and Broadcast Media." 2006. Last accessed July 13, 2017. ► http://www.citi.columbia.edu/B8210/read24/suggested/Audience3.htm.

their TV sets. It measured their viewing instantly and eliminated "lying" responses. Drawbacks are that viewing by travelers and in bars is not captured, and often there is nobody in the room actually watching. Viewers must identify themselves so as to differentiate between different members of a household, and this requires active co-operation. A solution to this problem is a "passive" meter that records the behavior of the respondents without requiring any respondent effort.[78]

Nielsen expanded from national People Meter measurement to local ones. This data is collected a box on top of a TV set in a selected household. Each family member has an assigned number.[79] This allows for larger local samples than for diaries (8000 versus 540), and for continuous rather than periodic measurement. Another method was introduced by Arbitron, (a company subsequently acquired by Nielsen). This involved a digital "watermark" (identifier), which was embedded in the music and advertisements played, these codes being received and identified by monitors in each market. Analytic software then identifies the time and station, as well as ad or music content.[80] This system can be used for broadcast TV, satellite, and cable, as well as for advertisements, and follows the person wherever she is. Such a "passive people meter" (PPM) requires a device to be worn by the consumer, which then detects and records the content the consumer is exposed to, whatever the program source was.[81]

A problem with the accuracy of TV data collection is that greater audience fragmentation makes results less reliable. The percentage of standard deviation tends to grow as the measured percentages of ratings and shares become smaller. For example, a "true" rating of 6 (6% of TV households) in a sample of 3000 will show as a sample rating of between 5.2 and 6.8 (±0.8) in 95% of the samples taken. The relative error is thus 0.8/6, or ±14%. But the same error at the same 95% confidence level for a "true" rating of only 2 will be ±0.5. This means a relative error of ±25%. And for a small cable channel with a "true" rating of 0.3(±0.2), the relative error is ±65%. This means that the samples need to become larger as audiences fragment, and this adds cost and potentially slows down the system.

There are several approaches to the measurement of music airplay. On the sell-side, radio stations are required to maintain a list of what they play, and this creates a database that can be measured. But this is a slow and expensive way to measure national popularity. A second approach is to scan the airwaves and observe what is being played. This has been automated. One way is to have a computerized system that is able to recognize the music itself. Songs and commercials are played into the system's computer, which creates a digital "fingerprint" or "pattern" of that material.[82] Such a system is the Broadcast Data Systems (BDS), launched in 1989 and owned by Nielsen. It recognizes the "fingerprints" of songs submitted to BDS (over 1 million), surveys stations (about 1000 major stations in 128 markets) with computerized radio scanners, and music is then computer matched what it hears. It tracks the airplay of recordings by radio stations, including by format, and provides access to stations' playlists. BDS can be manipulated, however. Several music labels attempted to influence its count by buying late night advertising time in small and medium markets, then playing their songs frequently and getting them counted. This is known in the industry as "spin programs."

One problem with the more accurate measurement techniques is that not everyone liked the results. Just as had been the case for Nielsen's People Meter, Arbitron's radio measures using the PPM were 25% lower than for paper diaries, and radio stations did not like this improved accuracy at all. Furthermore, for a measuring service the PPM device was much more expensive to buy, deploy, and collect than paper diaries.

In 2014, Nielsen introduced a new system to track television and online audiences across 16 world markets, Global Television Audience Metering. This is less intrusive for users than Nielsen's past methodology of People Meters. There is no hardware physically connected to household media devices such as TV sets and set-top tuners. The selected users receive a code reader that is placed within 6 feet of their TV speaker. This reader detects inaudible audio watermarks in the program, and it relays them back to Nielsen via a cellphone modem.[83]

An alternative technology approach for measurements is to use the digital set-top box (STB) of cable or satellite TV. This could increase the sample size from thousands to millions. The concept and the technology has been around since the 1980s, and the data is available. However, the cable TV industry in the USA decided not to collect such STB data, individually or even in the aggregate, in order to avoid giving customers a feeling that they were being watched and monitored, and to prevent regulatory privacy protection laws that were certain to be enacted.

A second round of using STBs for multichannel real-time metering started in the late 1990s. Media research firms could buy aggregated (non-identifiable in terms of persons or households) STB data from cable operators and thus get an instant analysis of viewing.[84] This also enabled a shift from identifying the viewing of advertising messages rather than of programs, which is more important to advertisers.[85] Cable and DBS providers can also collect

78 Albarran, Alan and Sylvia Chan-Olmsted. *Handbook of Media Management and Economics.* (Mawah: L. Erlbaum Associates, 2006), 632.

79 Maynard, John. "Local People Meters May Mean Sweeping changes on TV." *The Washington Post*. April 28, 2005. Last accessed July 11, 2017. ► http://www.washingtonpost.com/wp-dyn/articles/A21772-2005Apr28.html.

80 Baskerville, David. *Music Business Handbook and Career Guide*, 8th ed. Thousand Oaks, CA: Sage Publications, 2005.

81 Arbitron. "The Portable People Meter System." Last accessed July 11, 2017. ► http://www.arbitron.com/downloads/esomar2000.pdf.

82 Baskerville, David. "Record Markets." *Music Business Handbook & Career Guide,* 8th Ed. (Thousand Oaks, CA. Sage Publications), 335.

83 Zornow, Dave. "Nielsen Chooses Plastic Over Paper For TV Ratings." *Media News & Views*. June 2, 2012. Last accessed July 13, 2017. ► http://www.medianewsandviews.com/2012/06/dz_nmr_gtam2012/.

84 Rentrak. "Media Measurement Services." 2011. Last accessed July 11, 2017. ► http://www.rentrak.com/section/media/index.html.

85 Shabbab, George. "Not A Second to Lose." *MediaWeek* 17, no. 28 (July 2007): 10.

data about users' navigation through program guides and use of devices such as remote controls.[86] Similarly, in the UK, Virgin Media collects its TV customers' choice of programs and usage of TV services (e.g. pausing, fast-forwarding, rewinding, saving, ad skipping, and responsiveness to ads).[87] BT (UK) collects details of used devices, consumed channels/programs, and behavioral data.[88] Kabel Deutschland (Germany) collects search history (of TV content) and lists of favorites.[89]

The TiVo box, a type of digital video recorder subscription service, enables real-time monitoring of viewing and also keeps data for a while. It permits the analysis of time shifting and zapping of commercial ads.

Automatic metering has advantages, such as low cost and reliability. But there are also problems.

1. Conflicts of interest. Vendors of data may feel constrained from using methodologies and report results that make their main clients look bad. When Arbitron's and AGB's results showed that the major commercial TV networks had lower audiences than those measured by Nielsen, they lost that business. Another example of a potential conflict of interest exist for Google, which measures and provides audience data but is also the primary placement service for online advertisements, and paid according to the number of users/viewers.
2. Automation may operate according to non-transparent methodologies. Even where the basic methodology is provided, it is unclear how samples are assembled and then modified and weighted.
3. Samples are often inherently biased. Young males, for example, are overrepresented because they are more agreeable to being measured.
4. There are privacy issues, because the automation of household measurement makes it easier to create a detailed profile of individual consumers. In consequence, privacy laws restrict such practices in several countries.
5. Automated data gathering enables the targeting of consumers by customized, attention-grabbing ads. In the long run, advertising will become less of a "one size fits all" mass-product and will thus be more expensive to create.
6. Ratings can be manipulated. In 2003, a producer at the Nippon TV Network (NTV) paid to find out the households monitored by the ratings agency Video Research Ltd, and got those homes to watch certain shows by bribing the occupants through various benefits. As a result of the ensuing scandal, the chairman of NTV was forced to resign.

Case Discussion

People Meters

In theory, GYC could benefit from the fast and relatively accurate TV ratings data via the People Meter. It would also show demographics more precisely. Such data is available to subscribers, which includes Viacom. But in practice GYC's audience will be too low to register. Viacom can use the People Meter ratings to gauge the popularity of certain cable channels with seniors.[90]

This data shows that channels favored by seniors are doing well among all channels that are available: FoxNews (#4), History (#5), Nick at Nite (#11), American Movie Classics (#21), and TV Land (#22). This shows a good-sized audience potential. However, it also shows that that the target senior audience already flocks to well-established channels.

9.2.2.6 The Measurement of Websites: User-Level Measurements of Internet Activities

The internet is an excellent survey tool. Viacom's children-targeted cable channel Nickelodeon uses it in such a way. For example, before production of a new season and format of the TV series *Rugrats*, Viacom quizzed children and parents about what they wanted. *Elle*, the well-known fashion magazine, conducts regular online surveys each month in China, and offers samples of cosmetics to its readers in return. These approaches, however, are basically the equivalent of mail surveys, minus the paper. As in mail surveys, self-selection can create bias errors. The metering requires user cooperation. Incentives are therefore often offered to users who were willing to participate.[91] In some cases, such responses to surveys are made conditional on users being able to access a website's content. This, too, might bias the sample.

When it comes to the measurement of the internet itself such as of website visitors, here, too, there are two basic methods:

1. To measure user behavior (the "user-centric" approach);
2. To measure websites (the "site-centric" approach)
   2.1. A sub-category of the website measurement is the "adcentric" approach, in which clicks on advertisements are counted.

User-level measurement of online activity is an approach drawn from the TV and radio audience sampling methodology. It uses a large panel of general internet users, observing their behavior and visits to websites. The users install a software meter on their computers that measures

86 Xfinity.com. "Comcast Customer Privacy Notice." Last accessed July 11, 2017. ► http://www.xfinity.com/Corporate/Customers/Policies/CustomerPrivacy.html.

87 Virgin Media. "Terms and conditions." Last accessed July 11, 2017. ► http://store.virginmedia.com/the-legal-stuff/privacy-policy.html.

88 BT. "Privacy Policy" Last accessed July 11, 2017. ► http://home.bt.com/pages/navigation/privacypolicy.html?page=TV.

89 Vodafone GmbH. "Datenschutz - Fernsehen Kabel Deutschland." Last accessed July 11, 2017. ► https://www.vodafone.de/datenschutz-fernsehen-kabel-deutschland.html.

90 Kondolojy, Amanda. "TNT Wins Week With Cable Primetime Adults 18–49 & Total Viewers, Nickelodeon on Top With Total Day Viewership For Week Ending May 12, 2013." *TVbythe-Numbers*. May 14, 2013. Last accessed July 13, 2017. ► http://tvbythenumbers.zap2it.com/sdsdskdh279882992z1/tnt-wins-week-with-cable-primetime-adults-18-49-total-viewers-nickelodeon-on-top-with-total-day-viewership-for-week-ending-may-12-2013/.

91 Cooley, Robert, et al. "Web Usage Mining: Discovery and Applications of Usage Patterns from Web Data." *SIGKDD Explorations* 18, no. 2 (January 2002). Last accessed July 11, 2017. ► http://www.sigkdd.org/explorations/issues/1-2-2000-01/srivastava.pdf.

and recalls their behavior. The meter reads the URL in the browser, then counts and forwards data to the web-rating company. Data is then matched to websites and reported.[92] To automate the process of tracking internet traffic on the user level, cookies or similar tools are used. These are electronic files to tag individual users with unique identification. It allows websites to recognize individuals.[93]

In 1995, the company Media Metrix installed the first meter of internet uses, the PC Meter, into a consumer sample.[94] comScore (which acquired rival Media Matrix in 2002) claims a panel of 2 million worldwide internet users, including 1 million in the USA, who opt in and share their clickstream data (the digital trail of web pages visited).[95] Nielsen's NetRatings uses a group of about 2.5 million in the USA, who are part of an opt-in panel of people who give information about themselves such as age, gender, and income.[96] In time over 100 web ratings companies emerged; the major firms being Google Doubleclick, Nielsen, Experian, Adobe Analytics, Akamai Real Time Web Monitor, Quantcast, comScore, Hitwise, and Amazon's Alexa. These companies make up about 80% of the marketplace.

There are several advantages to a user-level approach. It provides demographics and measures actual behavior. There is no conflict of interest in which the website inflates its count in order to raise its advertising revenues. (In some cases, however, the user measurement company also operates large websites, as Google does for example, and provides placement services to advertisers.) The user-level approach provides additional tools for analysis. Mouse activity can be measured through a monitoring of the number of clicks, time spent moving the mouse,[97] or total time spent on a web page. On the other hand, the user-based methodology requires user cooperation by signing up. Hence incentives must be offered to users.[98] The sample thus has some biases.

Another problem of user-centric measurement is its disadvantage to small sites which may get only a few hits and may thus be ignored or undercounted. It also provides poor site diagnostics on what a site is that a user reaches, and what the user does there.[99] Moreover, user-centric systems are not welcome on workplace computers. Most large companies have firewalls and security systems, and measurement software cannot be installed. And as with all panel/sample-based measurements, certain locations and demographics are underrepresented. Therefore, the measuring companies often recruit panelists to "balance" panels, and they may also correct for remaining biases through post-sample weighting, that is, through retro-tweaking the results. This invites problems.

9.2.3 Measuring at the Provider (Sell-Side) Level

So far, we have discussed the ways in which audiences can be measured on the level of the actual users. The other major approach is to focus on the *seller/provider side* and to measure there. This is done in various ways.

9.2.3.1 Surveying Retailers

Bestseller Lists Book bestseller lists are tabulated by newspapers, magazines, or other organizations from actual sales. They are compiled from reports by hundreds of bookstores, with the identity and weight given to each store not being disclosed. The system is basically an extensive sampling of retailers. The problem with such lists is that they are self-fulfilling. They determine the location of a book's display inside a bookstore, which has a substantial effect on the book's sales. The list also determines whether or not the book will be discounted in price.

Because it does not take all that many sales to make it to a bestseller list, they have been subject to manipulation. Publishers or authors can "pad" the list by buying their own books in bulk from stores around the USA to get their sales figures up for the lists. The authors of the book *The Discipline of Market Leaders*, business consultants Michael Treacy and Fred Wiersema, reportedly spent $250,000 of their own money to buy 10,000 copies of their personal book. This propelled the book into the bestseller list and to subsequent sales of over 250,000 copies, easily recouping their money. The *New York Times* now places a dagger next to any titles when substantial bulk sales are being reported at individual stores.

9.2.3.2 Self-Reporting

Producer self-reporting is mainly used by newspapers and magazines, and is also part of internet sitecentric measurements. This system of central Audit Bureaus of Circulation (ABCs) exists in many countries to audit and verify newspaper and magazine circulation. Before ABC, publishers exaggerated sales to advertisers. Controversies ensued. Advertisers and ad agencies then created an institutional method to verify circulation claims. The way the system works is that a publication such as a newspaper or magazine reports its circulation and sales to a central unit, the

92 Coffey, Steve. "Internet Audience Measurement: A Practitioner's View." *Journal of Interactive Advertising* 1, no. 2 (Spring 2001): 13.
93 Deck, Cary A. et al. "Tracking Customer Search to Price Discriminate." *UArk.edu.* June 2003. Last accessed July 11, 2017. ► http://comp.uark.edu/~cdeck/Tracking%20Customer%20Search%20to%20Price%20Discriminate.pdf.
94 Coffey, Steve. "Internet Audience Measurement: A Practitioner's View." *Journal of Interactive Advertising* 1, no. 2. (Spring 2001): 11.
95 Delo, Cotton. "Your Guide to Who Measures What in the Online Space." *Advertising Age* 82 (September 18, 2011): 1.
96 Innovateus. "What Is the Nielsen Rating System?" Last accessed July 11, 2017. ► http://www.innovateus.net/innopedia/what-nielsen-rating-system; Delo, Cotton. "Your Guide to Who Measures What in the Online Space." *Advertising Age* 82 (September 18th, 2011), 1.
97 Brown, David. "Inferring User Interest." *IEEE Internet Computing* 5, no. 6 (November 2001): 35.
98 Cooley, Robert. "Web Usage Mining: Discovery and Applications of Usage Patterns from Web Data." *SIGKIDD Explorations* 18, no. 2 (January 2002): 13.
99 McDonald, Scott and James Collins. "Internet Site Measurement Developments and Print." Presented at *Worldwide Readership Research Symposium 2007*, Vienna, October 2007.

ABC. Typically, each magazine and newspaper submits twice a year a statement of its circulation (a publisher's statement). The ABC is responsible for auditing to verify the numbers and keep everyone honest. An ABC board typically consists of advertisers and ad-agency representatives as well as newspaper and magazine representatives.

Even with audits there have been regular instances of padding of circulation numbers. In 2004, Belo Corp., owner of the *Dallas Morning News*, as well as of other newspapers and TV stations, was investigated. It was found that the company had falsely reported numbers by counting, for example, unsold papers. This overestimated weekday circulation by 5.1% and Sunday's circulation by 11.9%. The company had to refund advertisers $23 million.

Misreporting of newspaper sales included Hollinger's *Chicago Sun-Times* and Tribune Co.'s *Newsday*, and *Hoy*. The Tribune counted unsold copies that were not returned. It overstated 40,000 copies of circulation and 60,000 copies for Sunday's paper.

Part of the problem is how to define circulation. Most basically, circulation encompasses paid subscriptions and news-stand sales. But the question is how to count, for example, bulk copies provided by hotels to its customers. Many of these copies are never read. On the other hand, circulation figures do not accurately measure readership, since they do not take into account multiple readers of a single issue, the so-called pass-along rate. A magazine in the waiting room of a doctor's office gets numerous readers.[100]

There are several limitations to the ABC system of measuring readership. One issue is that the information is highly aggregate; the readership of various newspaper sections (or stories) is not obtained, nor is demographic information about the readers. Advertisers need to see such information. Newspapers therefore also conduct telephone and other surveys. For example, Simmons (SMRB), a large consumer research firm, conducts newspaper reader research, basically a panel survey.

Other alternatives to ABC are the firms BPA International, which also provides a business magazine circulation exposure in 20 countries, MRI, which specializes in consumer magazines, with a sample panel of almost 30,000 people, and Readership.com by Scarborough. Other magazine circulation and readership reports are the Folio 400, which tracks news-stand and subscription sales of the top 400 magazines, Magazine Publishers of America, which tracks circulation for its 200 member magazines and periodicals, and Ipsos.

Case Discussion

Self-Made Reporting

Magazines self-report their circulation, subject to auditing of those numbers. Suppose that *Golden Years* magazine had a verified test run in the New York State market for a three-month period (◘ Table 9.1), accompanied by a regional promotional campaign.

Extrapolating nationally from New York State, the number of subscribers in the USA would be about 133,000. Such an overall circulation, after strong promotion, is relatively low considering that *AARP the Magazine* has a 22.5 million circulation, the largest of any US magazine.

Another observation is that in Month 1 the rate of increase of subscribers was rapid, probably because the new product was being promoted. It grew from 0 to 7000. In Month 2, subscribers increased to 8000, a much slower rate of growth. In Month 3, the increase was only 100. Circulation plateaued, and would likely even decline with the decline of magazines generally, although this decline would be somewhat offset by the rise in the number of retirees.

◘ **Table 9.1** *Golden Years* magazine circulation reports (schematic)

Golden Years Magazine Circulation Jan–Jun NEW YORK (3 Issues)	Month 1	Month 2	Month 3
Paid	6000	7400	7500
Complimentary	1000	1100	1100
Single Copy Sales	0	0	0
Total Paid & Verified Circulation	7000	8500	8600

9.2.3.3 Measuring Film Box Office Sales

The measurement companies in the USA for film audiences are ERC (Exhibitor Relations Co.) and in particular Rentrak.[101] They record film ticket data by collecting box office attendance figures from theaters (i.e. the retailers), and issuing weekly reports to the news media. To make sure theaters are not misreporting the number of tickets sold, undercover checkers may be used who buy numbered tickets at the first and last shows at randomly selected theaters. The main criticism of this movie audience reporting methodology is that it is inaccurate. Anne Thompson, editor of *Premiere Magazine*, dismissed the numbers as "made up—fabricated—every week."[102] For example, distributors tend to exaggerate

100 Kim, Hyo Gyoo. "Traditional Media Audience Measurement: Print and Broadcast Media." 2006. Last accessed July 13, 2017. ► http://www.citi.columbia.edu/B8210/read24/suggested/Audience3.htm.

101 Other major Hollywood market research firms are Marketcast (owned by Shamrock Capital), The French-owned MPG closed down in 2014.

102 Shaw, David. "Tinseltown Spins Yarns, Media Take Bait." *Los Angeles Times*. February 12, 2001. Last accessed July 11, 2017. ► http://articles.latimes.com/2001/feb/12/news/mn-24444.

the popularity of 3D films (whose tickets are pricier). Sunday figures are extrapolated from the Friday and Saturday figures, based on experience. Film studios also receive direct information from national and regional multiplex chains in the USA and Canada. In addition, the measurement companies conduct exit polls, to determine the demographics of audiences.[103] Rentrak generates cross-platform overall tracking of films on television, film theaters, movie rental, video on demand (VOD), and other media.

Nielsen's film theater box office measurement operation was EDI, which had a strong presence outside the USA. In 2010, EDI was acquired by Rentrak, a rival box office measurement firm with near real-time data that became the major data provider in this segment. As part of the deal, Rentrak provides data to Nielsen for use in some of its other products. Rentrak, in turn, was acquired in 2016 for stock valued $768 million by the audience measurement firm comScore, which aimed to become a rival to Nielsen.

9.2.3.4 Point-of-Sale Measurement

For music, one must distinguish between different approaches to measurement. The first is to measure radio audiences and airplay. This has been discussed in the preceding section on user-level measurement. The second is the provider-level measure of sales and of digital uploads.

In the old days of music sales, *Billboard Magazine* (or its equivalent in other countries) contacted a sample of selected retailers to create bestseller lists. Reporting was often inaccurate, merely rank-ordered rather than with full numbers, and susceptible to manipulation and favoritism. The Recording Industry Association of America conducted similar sales research for its awards of the coveted certifications for a gold, platinum, or diamond record (a gold album requires 500,000 copies sold and a platinum 1 million, while diamond status is reserved for artists whose sales total 10 million).[104]

A vast improvement came about through the point-of-sale (POS) SoundScan System. Developed by Sound Data in 1987 and used by *Billboard* for its charts, it is a computerized data collection system with barcode scanning by retailers. SoundScan claims to measure 85% of all music sales in the USA. POS purchases are tabulated from over 14,000 US retail outlets as well as mass-merchants and non-traditional distributors such as online stores and venues.[105] It is also used by performing right organizations to track royalties.

Nielsen acquired SoundScan in 1991. Nielsen also provides the related POS sales services BookScan and VideoScan. Video DVD sales, however, remain a more difficult number to record accurately. Distributors usually hype a film's initial DVD sales but do not release periodic sales information thereafter.[106] Yet such DVD sales information is important to actors, directors, and writers for royalties and profit information. In consequence, talent agencies and management firms have created research teams to check on DVD revenues. There are also specialized companies that work on DVD sales, such as Screen Digest.

9.2.3.5 Tracking Downloads and Uploads

Another way of measuring the sale of music is to measure uploads of music to users. In 2004, *Billboard* magazine introduced the "Billboard Buzz Top 25," based not on sales or airplay but on the extent to which artists were being discussed by a selected sample of users. *Billboard* also introduced the Hot Digital Tracks chart for sales of cellphone ringtones.[107] (However, these new charts did not last long.)

Music download purchases from iTunes are known to Apple, of course, but are not reported by the company outside a "most popular" iTunes charts. SoundScan tracks online sales as well as online streams of music. Nielsen partnered with major online music sellers and streamers including Apple, Spotify, Beats Music, Google Play, and Xbox Music to count songs downloaded and online streamed. In aggregating overall sales, online album sales are counted as a full sale, just as a physical CD or vinyl record. When a single track is purchased it counts as one-tenth of an album sale. For streaming (i.e. from one of the services above), when 1500 tracks off the same album are streamed it counts as one album sale.[108]

Nielsen tracks video streamed from Netflix and other online video platforms by using the audio watermarks embedded in the videos. These are received by the Nielsen People Meters located in the sample households. The number of these households is small, relative to the large number of films. Nielsen then incorporates those download plays into its sales numbers of video sales and rentals. Netflix keeps track of plays but does not release the numbers.

YouTube displays a counter on a video's page which counts the number of times it is played. YouTube uses these views to put together "what's hot" pages showing clips with large interest as well as weekly, monthly, yearly, and all-time lists of most viewed videos. Being highly popular creates prestige and bragging rights. Google also pays highly watched content providers a share of the advertising revenues associated with that content. Thus, for reasons of both ego and money, content providers have an incentive to drive up the visitor count. This can be done by promoting and pushing content, and by presenting the content and its links with sensationalist headlines or pictures to attract click-throughs and to encourage forwarding of the material

103 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, 2005.
104 Baskerville, David. "Record Markets." *Music Business Handbook and Career Guide*, 8th ed. Thousand Oaks: Sage Publications, 2005.
105 International Standard Recording Code. "What is SoundScan?" 2010. Last accessed July 11, 2017. ► https://www.isrc.net/FAQ-Soundscan.php.
106 Horn, John. "DVD Sales Figures Turn Every Film into a Mystery." *Los Angeles Times*. April 17, 2005. Last accessed July 11, 2017. ► http://articles.latimes.com/2005/apr/17/entertainment/et-dvdmoney17.
107 Baskerville, David. "Record Markets." *Music Business Handbook & Career Guide,* 8th ed. (Thousand Oaks, CA. Sage Publications, June 28, 2004), 335.
108 MacNN. "Billboard, Nielsen tipped to track streaming music, video services." November 20, 2014. Last accessed July 13, 2017. ► http://www.electronista.com/articles/14/11/20/billboard.introducing.streaming.plays.digital.sales.into.album.chart/.

over social media. This is known as "clickbait." Websites can also buy views. Content providers on YouTube inflate their views by buying them from service providers such as YTView.[109] The individual seeking clicks selects the service requested and its quantity. This can include "likes" or (even more problematically) "dislikes" ($5.00 for 100 "likes"); comments ($15.00 for 100 comments); subscribers ($20.00 for 100 subscribers); and views ($2.00 for 1000 views). The user enters the link to the video they want to see affected and pays for the service through PayPal. How the manipulation is done varies by site. Some sites use bots or malware infected devices to browse to the selected websites. These views are counted as real since the video is played for three to five seconds. Because the IP address rotates around the world, it is hard for YouTube to identify it as a fake view. The song "Pickles" by Yasha Swag reached 8.5 million views in 2012 by buying view clicks from multiple sources.[110] The muck-raking journalist Chase Hoffberger bought more than 60,000 views for $500 for a bogus music video showing him perform, and eventually reached half a million real and fake views. After identifying fake views on channels from artists belonging to Sony and Universal, YouTube lowered its aggregate viewcount by 2 billion views.[111]

9.2.3.6 Consumer Electronics Sales and Tracking

To determine the sales of consumer electronics and other devices, several companies are active in tracking and publishing data. International Data Corporation does so for cellular telephones. HIS Inc. tracks the sales of TV sets. NPD Group tracks the sale of video game systems and software. Their figures are global and are reported periodically. Their methodology is not published but includes contacts by the analysts among the manufacturers, large retailers, and intermediaries such as mobile phone companies.

Radio Frequency Identification chips (RFIDs) are a technologically advanced method of tracking individual physical products. An RFID is a tiny passive radio transponder that reflects a radio signal received and thus provides identification information. The RFID tag is a small integrated-circuit chip with a radio and identification code embedded into it, which can be scanned from a distance. As passive (unpowered) RFID prices come down to pennies, it may become a major tracking and measurement tool.

In 2005, the major retail chain Wal-Mart began to require its top 100 suppliers to apply RFID labels to all shipments, so as to improve supply chain management. The next logical step is to track the product downstream in real time, through the retail POS, with a potential profiling of consumers.[112]

Samsung developed an RFID refrigerator that recommends recipes based on what one has in the fridge; it also compiles shopping lists including items that are needed and those that are about to perish. The same idea can be applied to music tracks: the system can suggest playlists for the evening based on a user's collection (and on the dinner menu prepared). This can potentially be linked to media companies for audience analysis and recommendations for music purchases.

9.2.3.7 Measuring Internet Website Traffic

As mentioned, there are several approaches to measuring internet audience: user Level, site level, and ad level. We discussed user-level measurements in an earlier section. In contrast, site-level measures count audience website visits, which is similar to the approach of measuring actual sales. Ad-level measures clicks on ads when the user is transferred to the advertiser. This, too, is similar to the actual sales approach. Site-level measurement is basically a self-reporting system by the website (or by a hired service provider) about its visitor count. This method relies on software that records every time a page is requested.[113] Tabulations are based on page requests.

Site-level measurement has systematic measurement biases. These are major problems of overinclusion and underinclusion. It overcounts because it repeats returning visitors. Users might be viewing from several devices and locations, or clear their browser caches, and would then appear as new users. Some websites, such as those of TV networks, have counted more unique visitors than the entire population of the USA.[114] Conversely, the system undercounts cached pages and cannot distinguish multiple users on the same computer.

Websites try to get information about their visitors in several ways:

1. One way is often referred to as "packet sniffing." This directly extracts usage data from the packet addresses.[115]
2. Another way is setting registration requirements with users identifying themselves, but this does not work well, because it requires an effort by users.
3. Using cookies. As mentioned, these are electronic tags of individual customers with a unique identification. Essentially, it allows a website to recognize an individual.[116] Many users refuse or delete cookies. Such users get counted as "uniques" by a server-centric system when, in fact, they are repeat visitors.[117]

109 Hoffberger, Chase. "I bought myself 60,000 YouTube views for Christmas." *The Daily Dot*. January 3, 2013. Last accessed July 11, 2017. ► http://www.dailydot.com/entertainment/how-to-buy-youtube-views/.

110 Hoffberger, Chase. "How a terrible music video cheated its way to 8.5 million views." *The Daily Dot*. December 7, 2012. Last accessed July 11, 2017. ► http://www.dailydot.com/news/pickles-yasha-swag-cheating-youtube-views/.

111 Hoffberger, Chase. "YouTube strips Universal and Sony of 2 billion fake views." *The Daily Dot*. December 21, 2012. Last accessed July 11, 2017. ► http://www.dailydot.com/news/youtube-universal-sony-fake-views-black-hat/.

112 Weinstein, Ron. "RFID: A Technical Overview and Its Application to the Enterprise." *IT Professional* 7, no. 3 (May–June 2005): 27–33.

113 McDonald, Scott and James Collins. "Internet Site Measurement Developments and Print." Presented at *Worldwide Readership Research Symposium 2007*, Vienna, October 2007.

114 Thielman, Sam. "Watching the TV Watchers: Companies jostle to measure network, online audiences." *Variety*. January 12, 2001. Last accessed July 11, 2017. ► http://variety.com/2011/digital/news/watching-the-tv-watchers-1118030108/.

115 Nirsoft. "Description." 2011. Last accessed July 11, 2017. ► http://www.nirsoft.net/utils/cports.html.

116 Deck, Cary A. and Bart Wilson. "Tracking Customer Search to Price Discriminate." *Electronic Inquiry* 44, no. 2 (April 2006): 280–295.

117 McDonald, Scott and James Collins. "Internet Site Measurement Developments and Print." Presented at *Worldwide Readership Research Symposium 2007*, Vienna, October 2007.

Site-centric measurement methods are preferred by website owners, in particular because they usually report a higher number of visits to the website.

Advantages of the site-centric approach include that all visits are recorded, regardless of the user's access device (whether computer, connected TV sets, smartphone, tablet, etc.) or their location, including from home or office, and visits from other countries.

Since all visits are recorded, there is no sampling problem.[118] Furthermore, even small websites with a limited visitor count can show their traffic and its composition to advertisers. But there are other problems which turn off advertisers. We have already described the ways in which clickbait is provided and clicks are purchased from service providers who will, for hefty fees, drive up traffic. Other problems are:

- Often, measurements are made by the websites themselves;
- Even if third-party companies handle the measurements, they are often biased in favor of their client;
- Demographic information is often poor;
- "Bots" are counted. Although there are filters that cut automated page requests these filters can be easily defeated;
- Websites try to attract traffic through various techniques of search engine optimization, but traffic gained in such a way is often fickle and uninterested.

Major companies in the USA that measure internet audiences are Nielsen/Net Ratings, Media Metrix, Google DoubleClick, Adobe Omniture, and Quantcast. These services enable websites and advertisers to determine the number of times users have visited the website, how often they have been exposed to ads, and who those users were.

The Doubleclick online measurement service was founded in 1995 and acquired by Google in 2008 for $3.1 billion. Doubleclick tracks browser activity and notes where a person is coming from and the sites they are subsequently going to. This activity is identified through cookies, and Doubleclick also registers the internet service provider (ISP) so that users cannot hide by disabling cookies. Doubleclick feeds the data it collects to other Google products and that data is used for targeting providing users with ads.

Adobe Omniture provides a function for data analysis by a "SiteCatalyst" feature, which tracks unique views, completion rates, time viewed, conversion events, milestones reached, and revenue contribution.[119] For example, the video service HBO GO generates user data that comes in real-time to Omniture servers for aggregation and analysis.

Quantcast measures websites directly, using a system of tags across over 100 million websites worldwide. It offers premium measurement services to web publishers and advertisers on a paid basis, but simple reports are free.[120] Quantcast provides a large amount of user activity data and is easily available.

9.2.3.8 Advertising-Level Measurement

Ad-level measurement is a sub-category of site-level measurement. It counts the number of visitors to an advertisement. Click-through rate (CTR) software measures whether a user clicked on a particular advertisement that linked her to the sponsor. This helps advertisers to measure the actual effect of an ad in a detail that is not available for most TV and print ads. It creates a payment structure based on success. Some per-click payments are quite high, reaching $55 in 2013,[121] but the average was $0.92.[122] comScore offers an ad effectiveness product that tracks who is seeing which ads, as well as their reach and frequency. Google Doubleclick provides reporting on how many people have viewed the ads during a week, and other measures.

With a high value placed on a user's clicking on an ad, abuse was inevitable. Robots were used to create "hits," and when they were filtered out, the websites that sought to inflate their click rate hired people from low-wage countries to create phony clicks all day.

9.2.3.9 Hybrid Web Measurement

The difference between third-party services (user-centric) and a site's own server count (server-centric) is not just methodological but has concrete economic results. User-centric numbers were smaller and websites were therefore often less compensated by advertisers. This led to hybrid approaches by several companies.

comScore In 2009, to compromise between the approaches favored by websites and advertisers, comScore introduced a dual system. It added direct (site-centric) measurement which enables websites to count and register traffic directly. Such a combined measurement takes into account actual visits plus extrapolations based on the panelists' behavior. The two data streams are triangulated using an algorithm to produce an estimate.

comScore had a panel of over 2 million people, half of them in the USA. These users agreed to share their clickstream" data. comScore also has a second data stream that directly measures website visits (known as census-based traffic) and it combined the two data streams to produce its final numbers into its comScore's Unified Digital Measurement (UDM) figures.[123] comScore uses its UDM to segment

118 McDonald, Scott and James Collins. "Internet Site Measurement Developments and Print." Presented at *Worldwide Readership Research Symposium 2007*, Vienna, October 2007.

119 Hartness, Brandon. "Tracking Video Consumption with Site Catalyst and the new Flash 10.3 release." *Adobe Digital Marketing Blog*. June 3, 2011. Last accessed July 11, 2017. ► http://blogs.adobe.com/digitalmarketing/analytics/tracking-video-consumption-with-sitecatalyst-and-the-new-flash-103-release/.

120 Delo, Cotton. "Your Guide to Who Measures What in the Online Space." *Advertising Age*. September 19, 2011. Last accessed July 11, 2017. ► http://adage.com/article/media/guide-measures-online-space/229858/.

121 WordStream. "Most Expensive Keywords on Google AdWords." Last accessed July 11, 2017. ► http://www.wordstream.com/articles/most-expensive-keywords.

122 Hochman, Jonathan. "The Cost of Pay-Per-Click (PPC) Advertising-Trends and Analysis." *Hochman Consultants*. February 22, 2017. Last accessed July 11, 2017. ► https://www.hochmanconsultants.com/articles/je-hochman-benchmark.shtml.

123 Donovan, Mark. "comScore Introduces Mobile Metrix 2.0: The Next Generation of Mobile Behavioral Measurement." *comScore.* May 7, 2012. Last accessed July 11, 2017. ► http://www.comscore.com/Insights/Blog/comScore-Introduces-Mobile-Metrix-2.0-The-Next-Generation-of-Mobile-Behavioral-Measurement.

audience measures by demographics, regions and other variables. The two-data streams can adjust for a user's access from different computers in different locations.

Google Double Click Google DoubleClick's data comes from several sources: aggregated Google Toolbar data from identified users who have opted in; data from anonymous opt-in users; Google Analytics data; opt-in external consumer panel data from third party market research;[124] and census data. Its strengths are that it is aggregated over millions of users, and can be integrated with Ad Words and the Doubleclick ad-serving products, so that the audience tracking and analysis can be used for almost instantaneous advertiser action.

Nielsen NetRatings Total Internet Audience (TIA) Nielsen NetRatings (acquired in 2009), introduced a similar hybrid methodology in 2011. It combines data from a panel of 200,000 users in the USA (and another 200,000 for ten other countries) with data collected through tags that publishers place on their website. Panelists have Nielsen software on their computers which meters in real-time the sites visited and produces the NetRatings results.[125] NetRatings can also analyze consumer behavior and trends, advertising effectiveness, brand advocacy, and social media buzz to view how consumers engage online media. Nielsen's TIA is very similar to comScore's UDM, in that it uses audience panels to extrapolate measures from the information produced by cookies that is often unreliable. Nielsen recruited a panel of over half a million users and monitors their content behavior.[126] It uses cookie data to create traditional metrics such as reach, frequency, and gross rating points. (These are discussed further below.) Nielsen's hybrid methodology was rolled out two years after comScore's. Since it is a paid service, it is not used as widely as free services, but it has a big market share among media companies and advertisers.[127]

Hitwise Other hybrids include Hitwise, owned by online marketing firm Cennexity (Shopzilla, etc.). Hitwise partners with ISPs to measure a sample of 10 million US internet users (and 25 million globally in ten markets). Hitwise does this by analyzing users' clickstream data. Hitwise data is cheap and can sometimes answer questions better than comScore or Nielsen, such as how many of a website's users play golf or go to the movies.

Visible Measures New companies emerged to measure the use of social video. One of them is Visible Measures, which uses two approaches for measuring reach, engagement, attention, and brand advocacy.[128] Reach is measured by combining video placements, video views, and sentiment analysis (comments and rating scores). Engagement and attention refers to the percentage of viewers that abandon the video partway through. The company has tracked video campaigns by online video companies and major advertisers.

9.2.3.10 Cross-Media Measurement

Case Discussion

Internet Portal Audience Measurement

How would Viacom measure the usage of the Golden Years internet portal once it was running? And how many of these users will read the ads on that website?

The three approaches for website audience research are user-based, site-based, and ad-based measurement. In a user-based measurement, a web measurement company such as comScore recruits panelists and provides them with a toolbar to download so that their browsing behavior is recorded. comScore then records page view data about the Golden Years website, from the panel's browsing activity. This would provide good demographic information. However, the panel underrepresents small websites, and Golden Years web portal is still in its infancy. The estimated subscription cost to Viacom would be $40,000 per year.[129]

In site-based measurement a web measurement company such as Google Analytics places cookies and tags on the publisher's website. When a user loads the website, a cookie is placed on her browser, and the user's browsing information is recorded and sent to the measurement company which analyzes it. Google Analytics is free for websites with fewer than 10 million hits a month. One problem with site-based measures is that there is poor demographic data on visitors. Where visitors are requested to provide such information, the responses may be biased. Moreover, visitors who block cookies will not be "unique" but be counted multiple times.

For ad-based measurement, Golden Years would hire a company to tag the advertisements on Golden Years and measure how many clicks they receive. It determines a CTR, and sends this information to Golden Years and the advertisers. Golden Years uses the data to charge advertisers and to demonstrate the effectiveness of ads. One company that provides such

124 Delo, Cotton. "Your Guide to Who Measures What in the Online Space." *Advertising Age*. September 18th 2011. Last accessed July 11, 2017. ► http://adage.com/print/229858.

125 Sullivan, Danny. "Nielsen NetRatings search engine ratings." *Search Engine Watch*. August 21, 2006. Last accessed July 11, 2017. ► https://searchenginewatch.com/sew/study/2067079/nielsen-netratings-search-engine-ratings.

126 Nielsen. "Online Measurement." Last accessed July 11, 2017. ► http://nielsen.com/us/en/measurement/online-measurement.html.

127 Delo, Cotton. "Your Guide to Who Measures What in the Online Space." *Advertising Age*. 19 Sept. 2011. Last accessed at ► http://adage.com/article/media/guide-measures-online-space/229858/.

128 Visible Measures. "About Us." Last accessed July 11, 2017. ► https://www.visiblemeasures.com/about/.

129 Richard, Dan. "comScore and Quantcast – How They Work and Why They Are the Gold Standard of Guess-work." *Learning Teaching and Rambling*. November 12, 2012. Last accessed July 13, 2017. ► http://www.danrichard.com/2012/11/12/comscore-and-quantcast-how-they-work-and-why-they-are-the-gold-standard-of-guess-work/.

tracking is Google Doubleclick. Doubleclick places cookies on ads, and when the ads are clicked they records information about the user's browser.[130] With additional information about the user (e.g. browsing history), Doubleclick can also decide what ad is best to show to a user. Doubleclick is free to advertisers as long as fewer than 90 million advertisement impressions are shown.[131]

Through the ad-based measures, GYM could identify which types of products its viewers are interested in. It could obtain data about households and their interest in products. Such data could also be used for promoting the magazine and the cable channel to particular advertisers.

We compare three options for Golden Years: user-based—comScore; site-based—Google Analytics; and ad-based—Google Doubleclick. Which approach is best for Viacom Golden Years?

Golden Years estimates about 100,000 unique visitors and 500,000 page views monthly. At that rate, user-based measurement companies could have trouble effectively measuring because panels underrepresent small websites and would underrepresents senior citizens even more.

A site-based analysis by Google is free for websites, whereas comScore is not. But when users delete cookies they cause Google Analytics to count returning visitors as unique when they are not. Thus, in this case, the site-based approach is more economical. Its disadvantage in the past was weak demographic information on visitors. This has been improved through the hybrid approach.

Suppose Viacom has collected data on the website use through a variety of techniques. What would it be looking for?

Table 9.2 shows visits to the Golden Years website portal, time spent, return visits, and so on. The portal has a low percentage of mobile viewers (1.8%), but this can be expected because mobile users use the internet more for shopping, social networking, news and information (not major topics of the Golden Years web page) and because older demographics use mobile browsing less than online browsing.

Visits measure the total number of hits on the website. A higher number means more interest. The average visitor makes two visits, which is somewhat low but still shows that many visitors are coming back.

Bounce percentage is the percentage of viewers that view only one page during a visit, which is an indication of loss of interest.[132] Golden Years web portal's 50% is considered a very good (i.e. low) rate and shows that the web page interests its visitors.

Higher page views per visitor also indicate more interest in the site. Golden Year's average views per visitor are 2.5 (500,000 views for 200,000 visits). This is an intermediate result that demonstrates viewers are interested in keeping browsing. It can also indicate that they find what they want without visiting too many pages.

Greater time on site indicates more interest too. The average time spent on websites is only 33 seconds.[133] Golden Years' time spent on site (online) is nearly three times this average, and again indicates that visitors are interested by the web page.

Table 9.3 looks at the age distribution of visitors.

There were relatively few unique viewers, just 100,000, whereas top websites have over 220 million unique viewers.[134] In the population younger than 45 years, the portal had about a thousandth of 1% viewership on the web page, which is very low. But then, this is not the target audience. The target population of 65+ had 0.1% viewership, 100 times higher, but still not very high. However, ages 55–64 had a relatively similar showing (0.09% viewed web pages), which is almost as high as for the older target population, despite it not being targeted by marketing. This leads to the following interpretation: Golden Years' current target population of ages 65+ shows limited interest, but these people have not grown accustomed to using the internet. Conversely, people aged 55–64 have adapted more of their activities to the internet. The data suggests that as younger generations reach 65+, they may be more drawn to Golden Years. Thus, the Golden Years website has growth potential, especially with the "graying" of the large baby boomers' generation.

Table 9.2 Golden Years web portal visitors (schematic)

	Unique visitors	Visits	Page views	Average time on site	Bounce percentage (%)
Mobile Web	5000	8000	9000	1:00	40
Online	95,000	192,000	491,000	1:30	50
Total	100,000	200,000	500,000		

Table 9.3 Percentage of age cohorts that viewed the web page (schematic)

Age	# of unique visitors	# in population	% of population that viewed web page
<45	3000	189,000,000	0.0016
45–54	24,000	45,000,000	0.05
55–64	34,000	37,000,000	0.09
65+	39,000	39,000,000	0.1

130 Geary, Joanna. "DoubleClick: What is it and what does it do?" *The Guardian*. April 23, 2012. Last accessed July 11, 2017. ► https://www.theguardian.com/technology/2012/apr/23/doubleclick-tracking-trackers-cookies-web-monitoring.

131 Geary, Joanna. "DoubleClick: What is it and what does it do?" *The Guardian*. April 23, 2012. Last accessed July 11, 2017. ► https://www.theguardian.com/technology/2012/apr/23/doubleclick-tracking-trackers-cookies-web-monitoring.

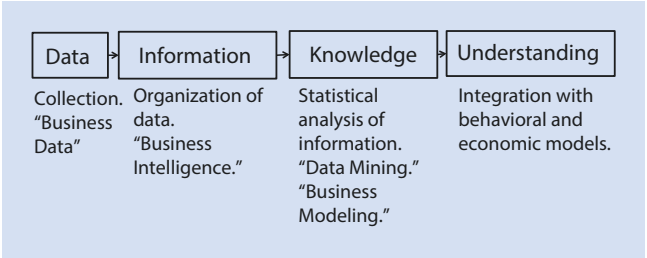
132 Stauffer, Ron. "Bounce Rate Chart." *Infront Webworks Web Design*. Last accessed July 11, 2017. ► https://www.infront.com/blogs/the-infront-blog/2013/2/8/bounce-rate-chart.

133 Crocker, Andrew. "Website Analytics What is a Good Average Time on Site?" *HubPages*. September 26, 2011. Last accessed July 13, 2017. ► http://thranax.hubpages.com/hub/What-is-a-Good-Average-Time-on-Site.

134 comScore. "comScore Media Metrix Ranks Top 50 U.S. Web Properties for August 2012." Last accessed July 11, 2017. ► https://www.comscore.com/Insights/Press-Releases/2012/9/comScore-Media-Metrix-Ranks-Top-50-US-Web-Properties-for-August-201.

9.3 Analyzing the Data

We have looked at how to measure and collect data. The next step, is how to organized and interpret it.[135] Information and computer science likes to differentiate between several steps of transformation in the chain from raw data to wisdom or understanding. The first step is the transformation of data into information.



The first step is to organize the raw data in a manageable way, to transform it into useful information. This is the basic approach of what is generically known as "business intelligence." It was—and often still is—the major way of deploying data. A second and more ambitious step is to take this organized information and transform it into "knowledge" by subjecting it to analysis. One way to do so is in a qualitative fashion, by processing the information, as people and organizations typically do, through judgment and experiences. This is "expert-based information processing." The alternative path is a statistically-based quantitative approach of analyzing the data.

We now deal with the first element, the organization of data into information. This will be followed by a section about qualitative approaches, followed by a section detailing the various analytical approaches of "data mining."

9.3.1 Transforming Data into Information: Market and Audience Metrics

Organizing raw data in the media field results in audience metrics. There are several such measures developed in particular for broadcasting.

9.3.1.1 Ratings, Share, Cumulative Audience, and Other Measures

The rating of a program is its share in total audience. For example, a TV rating = viewers of a program (×100) ÷ TV households. In the USA, there are around 110 million TV households. If 22 million households watch the show *Grey's Anatomy*,

$$\text{Rating} = \frac{22 \times 100}{110} = 20$$

The next metric, share, is also a market share, but only as applied to the consumers at that given moment. Share is the percentage of TV sets in use (or persons viewing) tuned to a program at its time slot, also known as HUT (Households using TV).

$$\text{Share} = \frac{\text{Viewers} \times 100}{\text{HUT}}$$

For example, if 66 million households watch any TV during the *Grey's Anatomy* time slot (=HUT). Then the share = 22 million HH × 100/66 million HH (HUT) = 33.3.

The share is greater than the rating since it is the percentage of actual watching households rather than of all potential ones. However, that also means that a program aired when hardly anybody is watching TV, such as 5 am on a Sunday morning, may have a tiny audience (and rating) yet a high share.

Examples of ratings and share in the highest ranked US program series are in ◘ Table 9.4.

◘ **Table 9.4** Highest-ranked US regular program series

Season	Program	Rating	Share
1950–51	Texaco Star Theatre	61.6	81
1951–52	Arthur Godfrey's Talent Scouts	53.8	78
1952–53	I Love Lucy	67.3	68
1953–54	I Love Lucy	58.8	67
1991–92	60 Minutes	21.7	36
1992–93	60 Minutes	21.6	35
1993–94	Home Improvement	21.9	33
1994–95	Seinfeld	20.4	31
1995–96	E.R.	22.0	36
1996–97	E.R.	21.2	35
2009–10	Dancing with the Stars	13.1	20.0
2016–17	The Big Bang Theory	3.4	12.5

Table compiled using Janssen, Sarah, ed. "Highest-rated Television Programs by Season, 1950–2016." *The World Almanac and Book of Facts 2017*. New York: Simon and Schuster, 2017

135 Some of these issues are discussed in: Phalen, Patricia F. "Audience Research and Analysis." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006; Beam, Randal A. "Quantitative Methods in Media Management and Economics." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006; Doyle, Gillian and Simon Frith. "Methodological Approaches in Media Management and Media Economics Research." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006; Hollifield, C. Ann and Amy Jo Coffey. "Qualitative Research in Media Management and Economics." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

One use of ratings is for gross ratings points (GRP). One GRP is equal to 1% of the audience. A weekly GRP is the sum of ratings over that time period. If an advertiser uses four different weekly programs with respective ratings of 15, 22, 19, and 27, the weekly GRP becomes the sum, or 83 GRP. The number of GRPs can exceed 100. 1 GRP = (110 million/100) = 1.1 million households.

The cumulative audience (CUME) or "reach" measures the number of viewers, listeners, readers, or visitors who use a specific media product at least once per week.[136]

The average quarter-hour (AQH) figure is the average number of persons who listen to (or watch) a station for at least five minutes during a week.

Example

Suppose that Radio Station #1 has a CUME of 20,000, which is high for the market, and an AQH of 150, which is low in that market. The station therefore attracts large numbers of people but does not keep them and therefore has few listeners at any given time. The station seems to promote itself well but does not provide good programming to keep all listeners tuned in.

In contrast, Radio Station #2, has a CUME of 10,000 (low in that market), but an AQH of 2500, (high). This means the station seems to have a small but loyal audience and 25% of its overall listeners are listening at any moment. This increases the chance that advertisements will be heard by that audience, because it stays tuned in.

The average frequency (AF) is a calculation that uses some of the measures above. It shows how many times an advertisement must be played or shown so the average user will be exposed to it a certain number of times, as desired by the advertiser's marketing plan. This frequency is the number of ad exposures divided by the overall cumulative audience. The number of exposures is the number of advertisements times the average audience.

$$\mathrm{AF} = \frac{\text{number of spots per week} \times \mathrm{AQH}}{\mathrm{CUME}}$$

To meet the target AF, the number of advertisements per week = (AF × CUME)/AQH.

For example, assume Radio Station #1 has an AQH = 150 and a CUME = 20,000. To obtain a desired AF of 3, the advertiser calculates the number of spots per week, using the above equation: (3 × 20,000)/150 = (60,000/150) = 400. The result means that it needs 400 ad spots per week to reach the average listener three times. On the other hand, Radio Station #2 has an AQH = 2500 and a CUME = 10,000. To obtain an AF of 3 (AF), the number of spots per week is: (3 × 10,000)/2500 = 30,000/2500 = 12. This indicates that on Radio Station #2 one only needs 12 ad spots per week to reach the average listener three times. This will be much cheaper because it is more targeted. However, Radio Station #1 will reach twice as many people overall because it has a higher CUME.

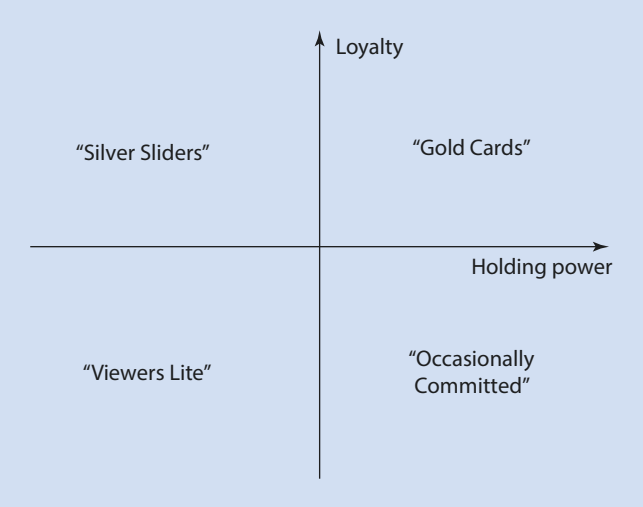


Fig. 9.3 Quad measures and audience categories

Impressions

This is the number of times an advertisement is viewed, listened to, or displayed. It is measured by different metrics, most often by the number of viewers for the TV program, or the visitors to the page when the ad is displayed, or the number of click-throughs.

Cost Per 1000 Impressions

The cost per 1000 impressions (CPM) is the cost associated with 1000 views of content, video, audio, and so on.[137]

9.3.1.2 Quads and Q-Ratings

Audience ratings or share measure only the number of viewers. They do not measure the quality of viewing. They do not determine the intensity of preference of the audience. To measure this intensity may take "attitude measurement" techniques such as focus groups and in-depth interviews. These, however, are expensive and slow to generate.

One form of presenting and analyzing intensity is by organizing users into four big groups, called quads (quadrants). Two factors are taken into account. The first is the program's "holding power." This is measured by the average tuning length of the episode. Second, the "loyalty" to the program is considered, as measured by the frequency of viewing. These factors indicate program liking and involvement, and stickiness for advertising. For programs with a high stickiness the viewer is less likely to switch channels during commercial breaks.

Quads analysis distinguishes four viewer types (Fig. 9.3). There are committed audiences ("gold cards") who watch over 75% of an episode and watch over 55% of episodes shown in an analysis period. There are "occasionally committed," who watch 75% of a program, but less than 50% of episodes. "Silver sliders" watch less than 75% of a program but do so regularly.

136 Search Microservices. "What is reach? – Definition from WhatIs.com." Last accessed July 11, 2017. ► http://searchsoa.techtarget.com/definition/reach.

137 AMA. "Dictionary." Last accessed July 11, 2017. ► https://www.ama.org/resources/Pages/Dictionary.aspx?dLetter=C.

Finally, "viewers lite" watch less than 50% of a program, and do so rarely. Looking at audiences this way, measurements seem to show that cable networks have a more fickle audience (fewer "gold cards") than broadcasting channels.

Another two-factor combination is the Q-rating. A program (or a star, or a brand) can be rated on how well it is liked. A program's Q Score is a measure of how much an audience "likes" the show, performer, or brand. The Q metric is a derivative of ratings and overall recognizability.[138] It is the ratio of a favorite score to the familiarity score.

$$Q = \frac{\text{"Favorite" Score}}{\text{"Familiarity" Score}}$$

Familiarity measures the proportion of respondents who recognized the show or performer. Respondents also indicate which are their favorites. Respondents are asked to rank the item in question according to these options: A. "one of my favorites"; B. "Very good"; C. "Good"; D. "Fair"; E. "Poor"; F. "Never heard of." The *Q*-rating is the ratio of "one of my favorites" (i.e. A) to all of the rest which are familiar (i.e. A–E, but not F).

$$Q = \frac{A \times 100}{A + B + C + D + E}$$

The *Q*-rating of a star or brand may be high if it is well liked by those who recognize them, even if the familiarity is low.[139]

For an advertiser, a well-liked show may be more valuable than a show with higher ratings but lower liking, like the evening news, which is considered useful but is not beloved. People who like a show bond with it and probably with its sponsors. The *Q*-rating can be high if a performer is extremely well liked by a small core group. Conversely, the *Q*-rating can be low if a performer is widely known but gets only a tepid liking. Notable *Q* scores are those surveyed for Albert Einstein—56, Mickey Mouse—44, Elvis Presley—33. On the other hand, low scorers were Howard Stern—10, Larry King—7, and Larry Ellison—6.

9.3.1.3 Stratification of Data

Newspapers and magazines use metrics of circulation and readership. Circulation is based on number of copies circulated (which is higher than sold), while readership is calculated by using the circulation number and multiplying it by a "pass on" rate found by surveys. Books use sales as the metric, music uses sales (both physical and digital) and streams (defined as the number of times an item is played for more than a certain amount of time). Cinema, theater, and live performances use tickets sold.

Websites count "users" or "unique visitors." Unique visitors are based on cookies that identify a user's computer. For online TV, the basic metric is streams, which means the number of times the video is accessed during a time period (Nielsen uses +3 days from the live initial showing).

For online media, some of the audience metrics are similar to those of TV and radio. Others make more use of the capabilities of interactive media where users can be identified and counted:

- *Clicks*.
- *CTR*: number of clicks divided by number of views of an advertisement or post.[140]
- *Ad views* (may be substantially different from content views).
- *Number of actions*: the desired action can be defined to be, for example, website conversion (i.e. registration of a new user), page like, link click, video play, share, app install, event RSVP.[141]
- *Total reach*: includes direct users and those shared by them with friends or as the result of clicking on an ad.
- *Organic reach*: Total number of people who saw a post in a news feed or otherwise but not as the result of an ad.
- *People talking about this*: the total number of people generating stories during the past week about the post or content, which includes comments, likes, shares, offer claims, mentions, and so on. This kind of metric measures the "buzz"—the number of people talking or writing about something (but not the number of people exposed to these messages).[142]
- Likes: Facebook lets its users express their sentiment. However, the "likes" of a company page do not represent how many people actually see the content of the page (number of views).[143]
- *Number of retweets*: the number of times an ad/tweet has been "reshared" by another user.[144]
- *Number of mentions*: the number of times a second user uses an earlier Twitter handle in one of his posts.
- *Link shares*: number of times a URL has been shared.
- *Follower growth*: increase in follower base.

There are also economic metrics associated with the audience metrics, such as

- *Cost per click (CPC)*: cost associated with each click on an ad.[145]
- *Cost per action*: cost associated with each of the single actions that are monitored.[146]

138 Phipps, Jennie L. "Favorites Are Good Buys; TVQs, Cable Qs Measure Series' Popularity with Targeted Viewers." *Television Week* 22, no. 16. (April 2003): 41–42.

139 Lowry, Brian. "Q Marks Spot in the Hunt for What Sells." *Los Angeles Times*. September 12, 2001. Last accessed July 11, 2017. ► http://articles.latimes.com/2001/sep/12/entertainment/ca-44798.

140 Google. "Clickthrough rate (CTR):Definition." Last accessed July 13, 2017. ► https://support.google.com/adwords/answer/2615875?hl=en.

141 Loomer, Jon. "How to Measure Facebook Advertising Success: Monitor These 5 Metrics." *Jon Loomer Digital*. September 10, 2013. Last accessed July 11, 2017. ► http://www.jonloomer.com/2013/09/10/facebook-ads-metrics/.

142 Bhandari, Rishi, Jonathan Gordon, and Andris Umblijs. "Getting beyond the buzz: Is your social media working?" *Financial Times*. Last Accessed July 11, 2017. ► http://www.ft.com/cms/s/0/811df72c-c477-11e1-a98c-00144feabdc0.html?ft_site=falcon&desktop=true#axzz4mYdPU7aR.

143 Krug, Sammi. "Reactions Now Available Globally" *Facebook*. February 24, 2016. Last accessed July 11, 2017. ► https://newsroom.fb.com/news/2016/02/reactions-now-available-globally/.

144 Egeland, Chad. "5 Metrics You Should Be Tracking on Twitter, But Probably Aren't." *Social Media Today*. February 7, 2015. Last accessed July 11, 2017. ► http://www.socialmediatoday.com/content/5-metrics-you-should-be-tracking-twitter-probably-arent.

145 Google. "Cost-per-click (CPC): Definition." Last accessed July 13, 2017. ► https://support.google.com/adwords/answer/116495.

146 Loomer, Jon. "How to Measure Facebook Advertising Success: Monitor These 5 Metrics." *Jon Loomer Digital*. March 11, 2014. Last accessed July 11, 2017. ► http://www.jonloomer.com/2013/09/10/facebook-ads-metrics/.

9.3.1.4 Case Discussion

Q-Ratings

Looking at the rankings of American TV stars in 2010, one could find at the time that a good number were in the "veteran" category.

- Dan Rather: 75 (very high);
- Tom Hanks: 56;
- Oprah Winfrey: 90 (huge);
- Barbara Walters: 85 (huge).

Thus many of GYC's most likely on-air personalities will be "tried and true" performers who have been with GYC's target demographics for decades, and thus have a high likeability and trust.

9.3.2 Transforming Information into Knowledge: Qualitative Analysis

The next step in the use of the data is the transformation of business information into knowledge. One important way to do this is in a non-statistical way, instead going through the judgment process of experts, both external and internal to the organization. They will make their judgment based on their own internal computation, experience, and gut feeling. How can one use these expert judgments in a methodical way? We describe three such approaches: comb analysis, the Delphi methodology, and opinion leaders' predictions and evaluations.

9.3.2.1 Expert Surveys: Comb Analysis

Retailers are closer to customers than a manufacturer is. They are experts on buyers. Comb chart analysis is a technique for seeking the opinions of the producer for the criteria most important to consumers for a product selection and comparing it with the opinions of the retailers.[147] For instance, if the computer maker Dell wants to know why it is selling fewer desktops to the electronics retail chains than HP does, it could use a comb chart analysis. There are three steps. Researchers first ask the retailers to rate (e.g. on a 1–5 scale) the importance to its customers of various purchase criteria such as price, brand, reputation, service, and product innovation.

Figure 9.4[148] shows the retailers' evaluation of importance of Dell's score. The comb analysis indicates that Dell needs to lower its prices—the most important purchase criterion. But it can also cut on design and the cost associated with it.

9.3.2.2 Expert Surveys: The Delphi Methodology

The Delphi methodology was created in the 1950s by the RAND Corporation think tank. The goal is to reach consensus by experts on a certain topic. The Delphi method combines quantitative and qualitative data. It uses a group process consisting of about 10–15 experts. Anonymity is protected. The researchers solicit written responses to questions while preventing direct communication among the respondents. In the first round of questions, questions have several answers with scores ranging from one to ten. In the second and subsequent rounds, participants are provided with information on how the group rated the same questions and a summary of comments made by each participant. Then the participants receive the same questions again. The Delphi rounds continue until a predetermined level of consensus is reached or no new information is gained.[149]

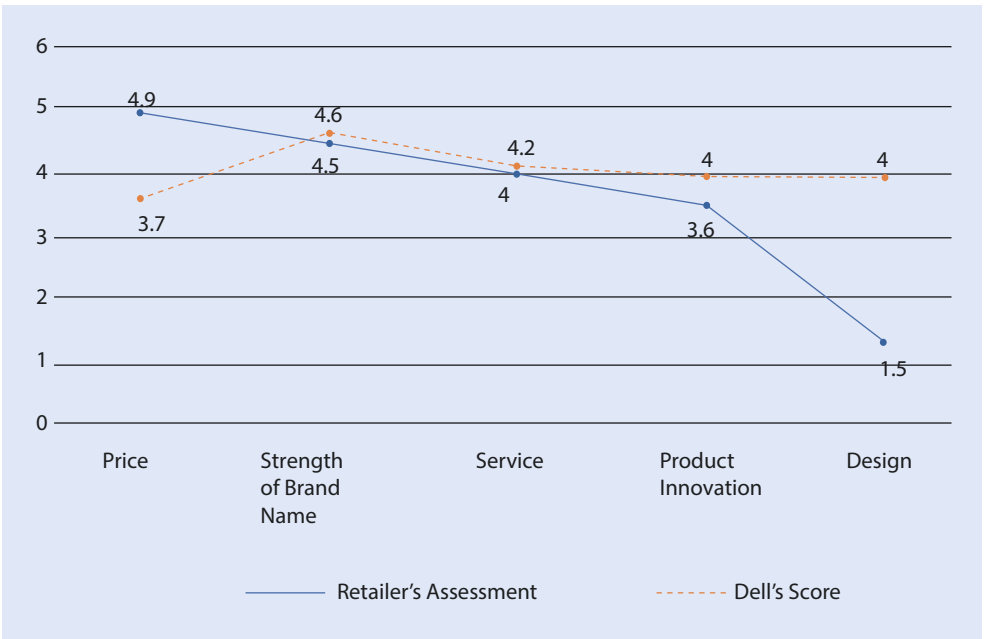


Fig. 9.4 Comb analysis: divergences in evaluating product factors by Dell and its retail distributor

147 Koch, Richard. *The Financial Times Guide to Strategy.* (London: FT Prentice Hall, 2000), 193.
148 Graph based on Koch, Richard. *The Financial Times Guide to Strategy.* (London: FT Prentice Hall, 2000), 193.
149 Green, Jeremy et al. "Forecasting market demand for new telecommunications services: an introduction." *Telematics and Informatics* 19, no. 3 (August 2002). Last accessed July 11, 2017. ► http://www.sciencedirect.com/science/article/pii/S0736585301000041.

It should be noted that experts, too, can be quite wrong, even on issues central to their expertise. Lord Kelvin, one of the world's foremost physicists, proclaimed in 1895 that "Heavier-than-air flying machines are impossible." Maréchal Foch, leader of the French military, opined in 1911 that "Airplanes are interesting toys that are of no military value." The Royal astronomer, Richard Wooley, predicted in 1956 that "Space travel is utter bilge." Lord Rutherford, then the world's foremost physicist of nuclear particles, stated in a major scientific address in 1933 that "Anyone who expects a source of power from transformation of these atoms is talking moonshine." Going to the other extreme, John von Neumann, another celebrated scientist, predicted in 1956 that "A few decades hence, energy may be free, just like unmetered air."

9.3.2.3 Surveying Trendsetters and Opinion Leaders

A third way to access experts is to survey the opinion of critics. Professional critics and reviewers are prime examples for opinion leaders, as well as predictors, of their respective audiences. Critics often function to represent the tastes of their audience, and they are therefore "leading indicators" just as much as they are opinion shapers.[150] Research findings have concluded that positive or negative critics' reviews are a statistically insignificant predictor of box office performance for the early weeks of a film, when a media company's marketing effect may carry more weight. They are, however, a statistically significant predictor of box office performance for later weeks as well as of cumulative box office. These findings support the predictor role of critics better than they support the opinion leader perspective, which would imply that the greatest influence of the review should be immediately following the review.

9.3.2.4 Case Discussion

Delphi Survey

To conduct an expert survey, Viacom could assemble a panel of distinguished gerontologists, marketers specializing in retirees, social workers, and some "wise old men and women." Sample questions could be, "On a scale of 1–10, please answer the following." The results, after three rounds, might show, for example, that:

- Retirees do not get enough shows: 8.2;
- Retirees do not resent old-people oriented shows: 8.9;
- Retirees will watch such a channel more than seven hours per week (8.5).

9.3.3 Transforming Information into Knowledge: Data Mining: Overview of Techniques

The next step in the quantitative interpretation of data is the transformation of information into knowledge through statistical techniques. This is described as business modeling or business analysis. More popularly, it is known as data mining. This activity is a central part of what has become known (and feared) as "Big Data."

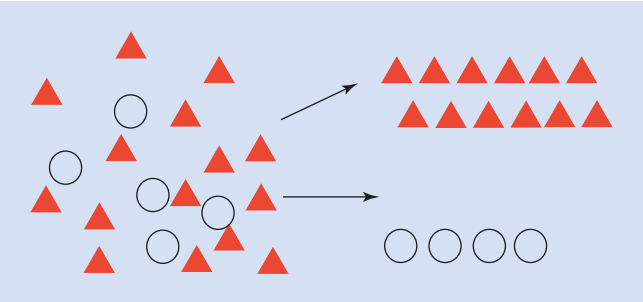


Fig. 9.5 Classification

There are several basic techniques for data mining in audience and market research. They are included in the software packages offered by companies such as Oracle, IBM, Microsoft, SAS, and Statsoft.

9.3.3.1 Organizing and Classifying the Data

In this technique gets segmented by category, for example male or female, age, group, watching or not watching and so on, and its behavior is observed (Fig. 9.5). This is similar in concept to the organization of data described above for the creation of basic media metrics.

9.3.3.2 Attribute Importance

This technique finds the factors that have the most influence on a target attribute. For example, the factors most likely to influence customers to purchase a certain product or to respond to a marketing campaign. The technique works by considering each attribute and weighting its importance against the other attributes. The factors are then ranked from strongest to weakest.

9.3.3.3 Anomaly Detection

This technique identifies unusual cases based on deviation from the norm. For example, an "outlier" point might merit attention (Fig. 9.6).[151] It could be an error, flagging a needed change in the data collection, it might help identify a potential earlier adopter and innovator, or it might point to someone who abuses the system, such as an identity thief.

9.3.3.4 Clustering

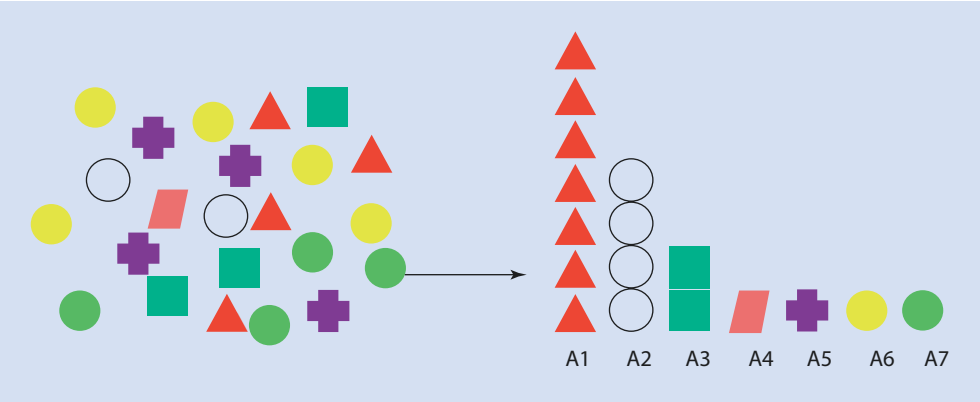
This kind of analysis helps to find groupings within the data, which may represent customer segments. What are the customer categories that are most likely to spend more than $1000 per year on books?[152] This kind of data analysis might help design different marketing approaches to different user categories.

150 Eliasburg, Jehoshua and Steven M. Shugan. "Film Critics: Influencers or Predictors." *Journal of Marketing* 61, no. 2 (April 1997): 68–78.

151 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper*. February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf. Copyright Oracle and its affiliates. Used with permission.

152 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper*. February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf.

Fig. 9.6 Attribute importance



To identify clusters, algorithms try to find a grouping of data points with a small distance between them, which means that they are similar. A "centroid" point represents the most representative point in a cluster (Fig. 9.7).[153] The algorithm searches for "clouds of observations" where observations occur frequently and which are clearly distinct from other clouds, with space between them in which no (or very few) observations occur.

9.3.3.5 Association

An association rule may be "Given past choices of film viewing by a viewer category, a new film x might be expected to be chosen, with a certain statistical confidence." This kind of analysis can be used to find cross-sell opportunities, with Product A often associated with Product B and indicating root causes of user behavior (Fig. 9.8).[154] The associations that are identified can help design recommendations, promotions and product bundles.

9.3.3.6 Feature Extraction

The number of attributes or variables may be large. A set of statistical techniques reduces them to underlying essential attributes. This results in a smaller number of variables (Fig. 9.9).[155]

One such technique for feature extraction is principal component analysis (PCA) PCA aims to identify the main factors for behavior, and identifies the variables of a dataset which explain most of the variance in the data (Fig. 9.10).

9.3.3.7 Correlation

This approach tries to find the interrelationship among various factors, such as age and the frequency of watching a particular program.

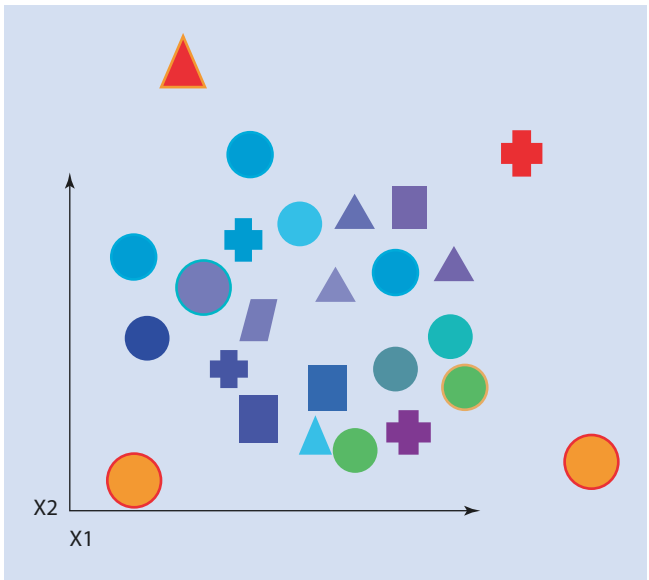


Fig. 9.7 Anomaly detection

The strength of the linear association between two variables is quantified by the correlation coefficient.[156] The correlation coefficient $\rho(x, y)$ takes a value between −1 and 1. The larger (or smaller) the number, the stronger the correlation of the two variables. +1 or −1 indicate perfect correlation (all points would lie along a straight line in this case). A positive correlation shows a positive association; that is, increasing the value of one variable corresponds to a higher value in the other variable. For example, the older the observed person, the higher the frequency of watching a given program. In contrast, with a negative correlation, the older a person, the lower the frequency of watching the program. A correlation coefficient close to zero indicates no association between the variables. An example is the question whether there is a correlation between movie theater ticket sales and a film's budget. An analysis of almost 12,000 movies was conducted, looking at the film's budget in relation to how many tickets it sold. While one would assume that a bigger budget, which brings

153 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf. Copyright Oracle and its affiliates. Used with permission.

154 B Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf. Copyright Oracle and its affiliates. Used with permission.

155 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf. Copyright Oracle and its affiliates. Used with permission.

156 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf.

Fig. 9.8 Clustering

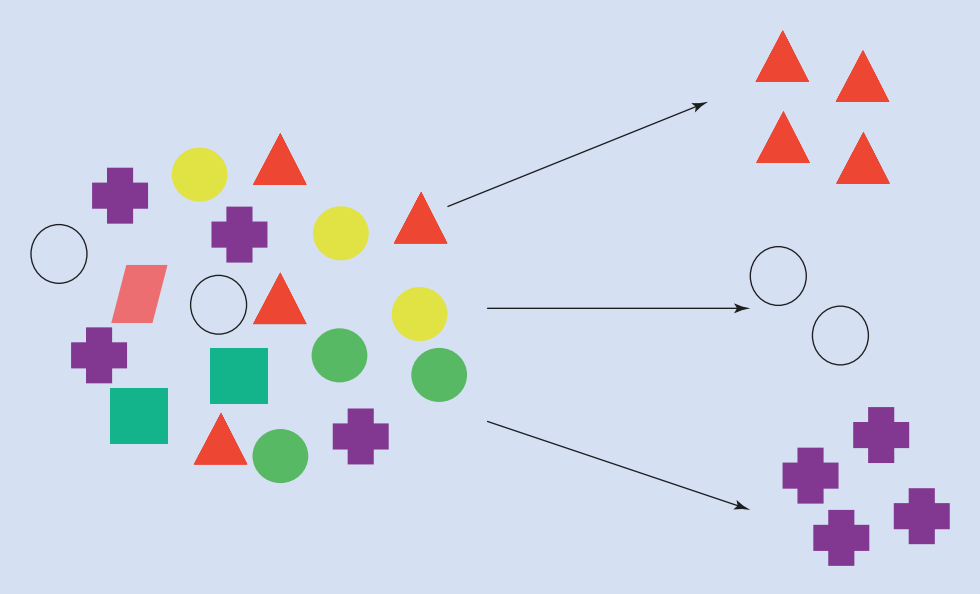


Fig. 9.9 Association

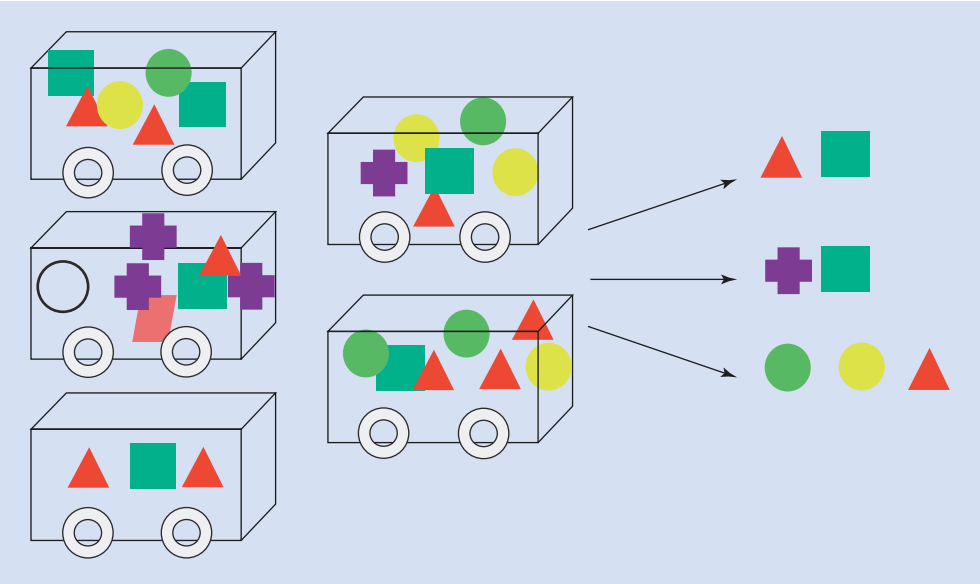


Fig. 9.10 Feature extraction

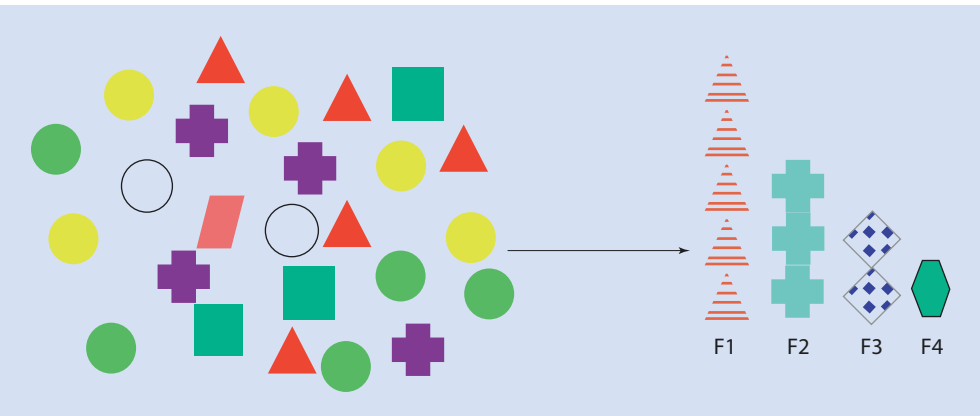


Table 9.5 Correlation matrix of demand factors (schematic)

	Age	Newspaper	Income	Education	Hours TV
Age	1.0000				
Newspaper	0.6056	1.0000			
Income	0.1952	0.4974	1.0000		
Education	0.0601	0.7312	0.5246	1.0000	
Hours TV	0.6590	−0.2897	−0.4082	−0.5847	1.0000

with it better known movie stars, larger budget for effects, and so on, would result in high ticket sales, no such correlation was found.[157]

Correlations depict the relation between two variables: if positive, both variables increase simultaneously; if negative, one variable increase while the other decreases. If the correlation is zero, no relation of the variables' behaviors can be detected. For instance, there might be a correlation between Twitter volume and TV ratings.[158] Twitter usage grows while, at the same time, more TV ratings are generated, or vice versa. Nevertheless, this does not necessarily mean that one of the two cases causes change in the other because correlation needs to be distinguished from causation. Correlation may exist but it does not necessarily give an indication about the reason why. Other factors might be influential and thus cause a certain effect.[159]

The strength of how two factors correlate with one another can be calculated by calculating the (Pearson) correlation coefficient. The formula for the correlation coefficient r is the co-variance of the two variables X and Y, divided by the product of the standard deviations S of the two variables.

$$r = \frac{n(Sxy) - (Sx)(Sy)}{\sqrt{\left[nS^2{}_x - \left(S^2{}_x\right)\right]\left[nS^2{}_y - \left(S^2{}_y\right)\right]}}.$$

The co-variance is s a measure of the joint variability of two random variables. The standard deviation is s a measure to quantify the dispersion of a set of data values around its means such as $\bar{X}$ and $\bar{Y}$

$$r = \frac{1}{n-1}\Sigma\left(\frac{x-\bar{x}}{s_x}\right)\left(\frac{y-\bar{y}}{s_y}\right)$$

Where there are more than two variables, the relations among each pair can be presented in a correlation matrix. In this, one may find the interrelationship between various factors, such as age, education, and the frequency of watching TV (see Table 9.5). For example, newspaper reading has a positive correlation with age of 0.6056, but a negative correlation of −0.2897 with TV watching (Fig. 9.11).

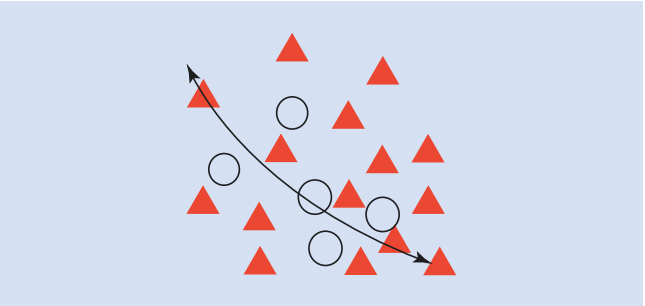


Fig. 9.11 Regression

9.3.3.8 Regressions and Econometric Estimation

Regressions add more factors than a simple one-on-one correlation. The technique identifies how several factors explain the target variable and the impact of other exogenous factors (Fig. 9.11).[160]

So far, we have used relatively simple statistical tools with a simple variable, such as yes/no or a single value such as number of minutes. We can expand this to analytical methods using multiple variables.

Econometrics is the estimation of statistical relations of several variables. It typically uses cross-section observations over several data points or a time series analysis over several time periods. It allows the synthesis of large amounts of information. It also provides a framework for a systematic analysis through explicit assumptions, which is known as modeling. An example is the explanation of how sales—which is known the "dependent," or "explained," or the "left-hand" variable—are related to the several "independent," or "explanatory," or "right-hand" variables, such as price.

157 Olson, Randy. "Does a bigger film production budget result in more ticket sales?" *Randal S. Olson*. December 29th, 2014. Last Accessed July 11, 2017. ► http://www.randalolson.com/2014/12/29/does-a-bigger-film-production-budget-result-in-more-ticket-sales/.

158 Nielsen. "New Study Confirms Correlation Between Twitter and TV Ratings." March 20, 2013. Last accessed July 11, 2017. ► http://www.nielsen.com/us/en/insights/news/2013/new-study-confirms-correlation-between-twitter-and-tv-ratings.html.

159 Rouse, Margaret. "Correlation." *WhatIs.com*. November 2016. Last accessed July 11, 2017. ► http://whatis.techtarget.com/definition/correlation.

160 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper*. February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf. Copyright Oracle and its affiliates. Used with permission.

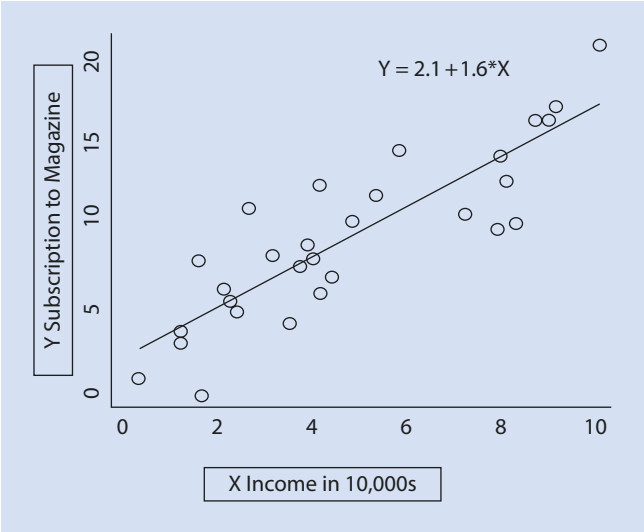


Fig. 9.12 Econometric Regression Analysis: Magazine subscriptions and income—sample scattergram

Given adequate data, an econometric technique can identify the key variables that may affect sales, such as price and advertising effort. It uses control variables to adjust for factors that might have affected sales, such as the state of the economy, the growth of population, or the season.[161] One can also add demographic variables such as age, education, and gender, or psychographic variables that reflect the buyer's lifestyle, such as their activities, interests, and opinions (known as AIOs).

$$\text{Unit sales} = a + b_1\ \text{price} + b_2\ \text{advertising} + c_i\ \text{control variables} + \mu$$

The a and the several b and c coefficients are parameters that are estimated in the regression. The μ is in the unexplained residual, also known as the error term.

The most common form of a regression technique is called Ordinary Least Squares (OLS). One can estimate OLS regression using readily available statistical software packages such as STATA, SAS, EXCEL, or Minitab.[162] The analyst defines the variables and the model and inserts the data. OLS estimation results in parameter estimates for the coefficients a, b_1, b_2, c_i that best fit the data. The best fit is defined as the lowest sum of the squares of the difference between the actual value of the data and the value predicted by the equation (Fig. 9.12).[163]

A statistical measure known as the R-square reflects the overall fit of the model: what percentage of the observed variation in the dependent variable is explained by the independent variables. An R^2 above 0.8 would indicate a fairly good fit of the model. The statistical significance of each individual coefficient is measured by the t-statistic. The rule of thumb when interpreting results is that t-statistics must be greater than 2 (or –2) to be statistically significant.

Often, relations among variables are not linear but exponential. For example, higher income may lead to a higher consumption, but not in a linear fashion but rather as that when one doubles or quadruples income one consumes more in the same proportions. In such situations, a logarithmic model allows to determine exponential growth rates, and other non-linear relations. For example, one could define a model as:

$$\text{Sales} = a(\text{price})^{b_1}\ (\text{advertising})^{b_2}\ (\text{other variables})^{b_i}.$$

To calculate those parameters a, b_1, b_2, b_i, one takes the natural logarithms (ln), which transforms the exponential relation into a linear one, and that find the linear "least square," best fit line with the parameters a, b, and c.

$$\ln\text{sales} = \ln a + b_1 \ln\text{price} + b_2\,\text{advertising} + b_i \ln\text{other variables} + u$$

The coefficients of the logarithmic models are mathematically the "elasticities" or the "sensitivities" of the explained (or left-hand) variable "sales" with respect to changes in the explanatory (or right-hand) variables of price, advertising, and so on.[164]

As mentioned before, the elasticity of sales with respect to price (price elasticity) is defined as the percentage change in sales as a result of a percentage change in price. This can be expressed as:

$$\text{Price elasticity} = \frac{\%\ \text{change in sales}}{\%\ \text{change in price}}$$

When demand is said to be elastic, it means that a relatively small difference in price will affect the quantity demanded considerably. In contrast, where elasticity is low, it would take a relatively high change in price to make much difference in the quantity demanded.

Beyond the models described—the linear and the logarithmic models—there are many other specifications for econometric demand estimation with increasing complexity.

Let us now look at examples.

The Demand for Live Entertainment

What factors affects people's demand for live entertainment? One study, for the English city of Leeds, looked at a variety of factors associated with the frequency of attendance of live entertainment events (the dependent variable).[165] The factors (the independent variables) included measures for an individual's general media consumption (television watching per week in hours, radio listening in hours), price consciousness (a person's idea of a reasonable price of a ticket for an evening

161 Nagle, Thomas T., and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making,* 2nd ed. Hoboken: Prentice Hall, 1995.

162 Princeton University, Data and Statistical Services. "Interpreting Regression Output." Last accessed July 11, 2017. ► http://dss.princeton.edu/online_help/analysis/interpreting_regression.htm.

163 Statsoft. "Elementary Concepts in Statistics." Last accessed July 11, 2017. ► http://www.statsoft.com/textbook/elementary-concepts-in-statistics/.

164 AmosWeb. "Elasticity and Demand Slope." 2000–2001. Last accessed July 11, 2017. ► http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=elasticity+and+demand+slope.

165 Cameron, Samuel. "Determinants of the Demand for Live Entertainment: some survey-based evidence." *Economic Issues* 11, no. 2 (2006): 51–64.

Table 9.6 Econometric estimation of demand factors for live entertainment

Variable	Coefficient	Standard error
LEEDS (dummy = 1 for city resident of Leeds)	−0.940	1.405
TVHRS (hours of TV watched per week)	0.036	0.032
RADIOHRS (hours of radio watched per week)	−0.009	0.022
ALONE (dummy = 1 if regularly attends events alone)	−0.515	1.616
NUMPARTY (number of people in a party for an evening out)	0.076	0.108
URGE (maximum price would ever pay for a ticket divided by RSNPRICE) × 100	−0.005	0.005
RSNPRICE (idea of a reasonable price for a ticket for an evening out)	−0.172	0.100
FEMALE (dummy = 1 if female)	−17.915	7.928
SINGLE (currently single)	1.658	1.355
GROSSINC (gross income of family unit)	0.000	0.000
NOCCUP (no current occupation)	−0.611	1.300
DEGPLUS (highest qualification is a degree)	−0.351	0.875
AGE	−0.272	0.158
AGESQ	0.003	0.002

Cameron, Samuel. "Determinants of the Demand for Live Entertainment: some survey-based evidence." *Economic Issues* 11, no. 2 (2006): 51–64
Dependent Variable =1 If attend > 12 or more events per year; 0 Otherwise. Estimation method: ML

out, and willingness to spend beyond it), gender, marital status, attendance alone or in group, income, employment, age, and education.

The study (Table 9.6) finds that income effects were not noticeable and statistically insignificant. The coefficient for the perceived reasonable price of live entertainment (RSNPRICE = −0.172) was negative—lesser demand at higher prices—but of low statistical significance. Age was associated with reduced demand. Active TV watching was also correlated with attendance of live events. Women attended live events much less in a less, while single people attended them more. Those who tended to go out alone had a lower attendance, as did those unemployed or with a higher education level. None of the results are surprising, but the study adds quantification about which factors seem to be associated with a greater difference and by how much.

The Effects of the General Economy on Advertising Revenue

The overall economic conditions in a country affect the volume of advertising. This is of great importance to publishers, TV networks, websites, and advertising agencies. In the past, advertising has been closely related to economic growth. As gross domestic product (GDP) rises, so does advertising, but is this true for all countries and for all media? And is it also true for economic downturns, which would show that the rise in advertising is not just a time trend independent of GDP?

An econometric study of eight major countries found that advertising spending declined by 5% for each 1% reduction in GDP.[166] A strong correlation between the economy and advertising was found for Germany, Spain, Italy, and Finland. Only a moderate correlation was found for France. In Japan, advertising spending was the least associated with the state of the economy. Among different types of media, print media was most sensitive to changes in GDP—on average, there was a 15% decline for a 1% decline in GDP. In the USA, a lower relation was observed for newspapers (a decline 5.5%) and for magazines (a decline by 2.5%). Electronic media were less associated with GDP. A 1% decline of GDP was associated with a decline in advertising spend on TV of 4% (3% in the USA) and with a decline for radio advertising of 8% (2.5% in the USA).

There are several problems with regression analysis. Data is often insufficient and unreliable, and the results can only be valid over the range levels for which data was available. Predictions based on the regression analysis require the assumption that future behavior is like that of the past. There are other more technical problems with econometric analysis. They include

166 Picard, Robert. "Effects of Recessions on Advertising Expenditures: An Exploratory Study of Economic Downturns in Nine Developed Nations." *Journal of Media Economics* 14, no. 1 (2001): 1–14.

serial correlation, multicollinearity, heteroscedasticity, lags, and endogeneity.[167] Are the results stable over time and robust to the addition of other variables? And most importantly, can one infer causality? Typically, all one can claim is a statistical association. For example, the sales of automobiles may be strongly correlated to the price trends of real estate. But do auto sales cause real estate prices to fluctuate? More likely is that both are affected by overall economic conditions. Or the causality might be the other way: that falling real estate prices lead people to feel poorer than before and therefore to spend less on new cars.

In particular, results are sensitive to the specification of the model.

The initial model and its specification affect the result and the predictive value of a model. An example follows: Companies want to estimate the demand for newsprint, the paper that is used to produce newspapers.[168] This is of great importance to newspaper companies and commercial printers who want to evaluate future prices for their most expensive input—paper. The higher the demand, the higher prices are likely to be. These estimates are also crucial for paper and forestry companies, which must make long-term investments in the planting and growing of new trees.

There are several approaches to forecast newsprint demand. One approach is the model of the United Nations Food and Agriculture Organization (FAO). The FAO model estimates future consumption based on price, national income (GDP), and previous consumption. When estimated, the results are as follows:

$$\begin{aligned}\text{Newsprint Consumption} = &-0.02\,(\text{newsprint price})\\ &+0.45\,(\text{GDP per capita})\\ &+0.46\,(\text{lagged demand of the previous year}).\end{aligned}$$

The FAO model seems to find that consumption alone is only very slightly affected by price (−0.02). More seriously, it finds that demand rises strongly with national income. The track record of prediction? Since GDP has been rising, demand should also have been rising. But in fact the demand for newsprint declined after 1987, despite rising GDP, and the FAO model did not predict this scenario.

A second model is the Regional Plan Association (RPA) Model. This uses several variables, and finds that:

$$\begin{aligned}\text{Newspaper Consumption} = &-0.22\,(\text{newsprint price})\\ &+1.23\,(\text{GDP per capita})+1.0\,(\text{population})\\ &-0.02\,(\text{technological change})-0.95\,(\text{print media price index})\\ &+0.28\,(\text{capital price})-0.07\,(\text{TV/radio price})\\ &-0.06\,(\text{computer price})+0.1\,(\text{demand calibration dummy}).\end{aligned}$$

In this approach, the print media price index shows other input prices in the print industry, which negatively affect overall newsprint demand. The price variables of TVs, radios, and computers reflect the potential substitution impacts of electronic media. Technological change represents innovations in products. Income and population size have a strongly positive association.

A third alternative econometric approach is the Bayesian Model. It incorporates other information (e.g. subjective expert knowledge) into econometric forecasting models. In deriving the "Bayesian prior," experts are asked to give quantitative responses for relevant expectations of economic growth on economic and lifestyle development, trends from media to electronic media.

A fourth approach is the Newspaper Circulation Model. This refers to newspaper circulation to explain the demand in the newsprint market rather than seek an explanation based on prices, income, or other economic variables. The equation for this model is:

$$\ln\left(d_{\text{news},t}\right)=\gamma_0+\gamma_1\Delta ln\left(\text{circ}_{\text{news},t}\right)+\gamma_2\ln\left(d_{\text{news},t-1}\right)+\mu_t$$

where $(d_{\text{news},t})$ = the quantity of newsprint consumption in the USA in year t.

$\Delta\ (\text{circ}_{\text{news},t})$ = the change in the volume of newspaper circulation. Since 1987, there has been a decline in the volume of newspaper circulation (circ). A decline in newspaper circulation (Δcirc) would lead to a decline in demand for newsprint. And this is indeed the findings of the circulation model: a reduction of 3.1% in newsprint consumption for each 1% of circulation decline. This model, which is based on changes in newspaper circulation, captures reality best, much better than models based on GDP, prices, or expert predictions. But even that model greatly overestimated demand, because it could not foresee the much steeper drop in circulation caused by the internet. Thus, the expert model failed to predict this decline, by a wide margin (◘ Fig. 9.13).

167 Serial correlation is the connection between a specific variable and itself over different periods of time. This generally presents itself when the variable has an effect on its own future value. Multicollinearity exists when a multiple regression model has two or more variables that are highly correlated. This means that one of those variable can be predicted from the other. Heteroscedasticity refers to a set of variables with different variance, which reduces the statistical significance of the results. Lags refer to the dependent variable associated with independent variables of an earlier time period. Endogeneity refers to a situation where the independent variable depends on the dependent variable too, thus not really being independent.

168 Hetemäki, Lauri and Michael Obersteiner. "US Newsprint Demand Forecasts to 2020." *IASA Interim Report.* 2001. Last accessed July 11, 2017. ► https://www.researchgate.net/publication/233742337_US_Newsprint_Demand_Forecasts_to_2020.

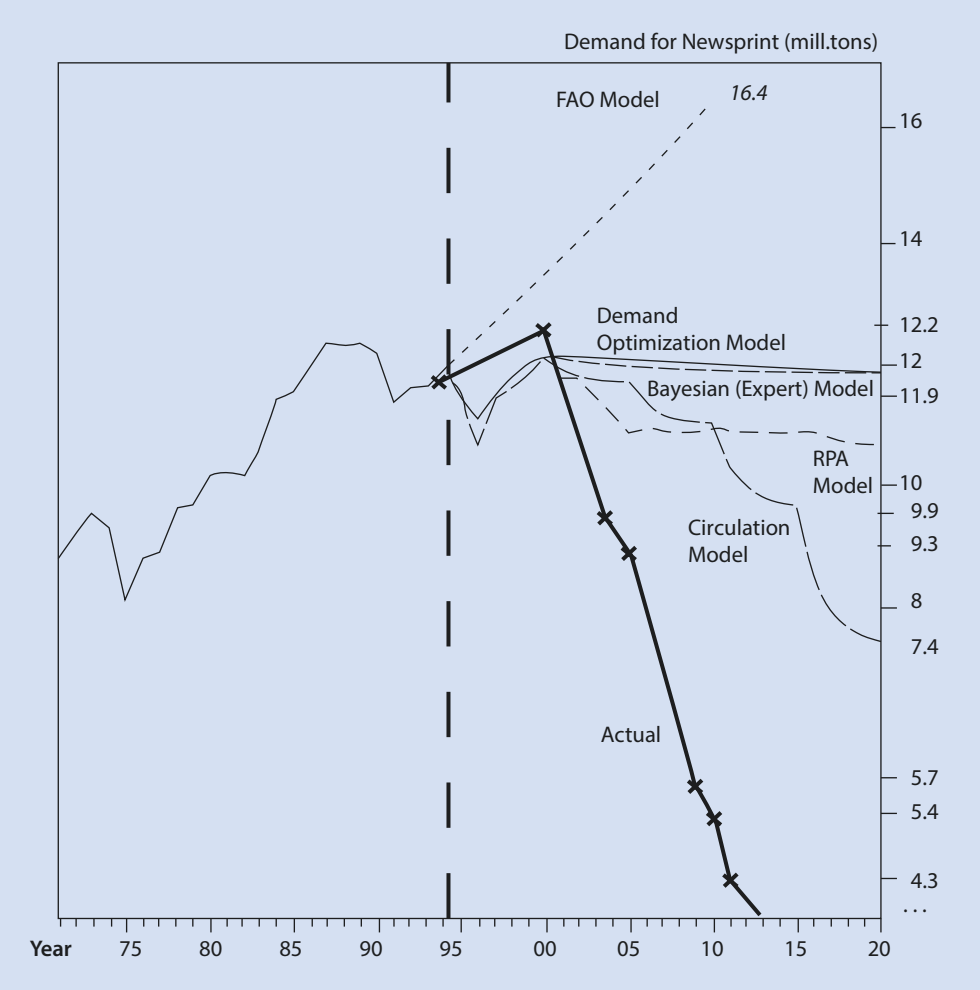


Fig. 9.13 Estimates of newsprint demand, based on different models

Case Discussion

Econometric Demand Estimations

How can Viacom use econometric techniques to estimate the demand for subscription orders for its GYC programs? What price should Viacom charge, what factors affect demand, and by how much?

One needs to specify a model for statistical estimation. For example, suppose we define such a model by the following equation. *L* is the likelihood in target population ordering a subscription of GYC.

The likelihood *L* (in %) of ordering the GYC= $\alpha + \delta$ price of channel + β_1 age of user + β_2 income of user + β_3 education of user + γ_1 adventure (films in hours/week) + γ_2 romance + γ_3 sports + γ_4 documentaries/news (h/week) + γ_5 late night programs + γ_6 films + ε male (*Y*/*N*) + *u*

Using observations of several hundred users, one can estimate the parameters for this equation using a statistical package. Suppose the result shows that we find that the likelihood of ordering the GYC is:

Likelihood (%) = 2.30–1.35* Price + 1.3 age (years above 55) + 1.3* Income ($ thousand) – 1.30* Education (years) – 1.1 Action (hours) + 0.50 Romance (hours) + 0.60* Sports (hours) + 1.35* Documentaries/news (hrs) + 0.75* Rural + 0.75* late night service – 3.8 × Male + *u*.

(Asterisks denote that the coefficient is statistically significant at the 95% confidence level.) The findings show that income is a positively correlated factor for the likelihood of ordering GYC, and statistically significant; that education has a positive correlation but is not significant; that action films, in hours shown, are not significant, that romance is not significant; that sports (in hours) are significant; that late night (yes/no) is positive and significant; that documentaries have a positive, high, and significant effect; and that rural location has a significant and positive correlation. Age (defined as years above 55 year) has a significant and positive impact on the likelihood of ordering the channel. For every additional year of age, the probability rises by 1.3%. The impact of the price of the channel, too, is significant. For every dollar of a price increase for a subscription, the likelihood of subscribing drops by 1.35%

9.3.3.9 Modeling a Demand System

Once one estimates econometric relations, one can combine several equations into a more complex model. An example is the estimation of film box office revenues. One can try to estimate a film's anticipated revenues based on a variety of factors, such as the performance of previous movies belonging to the same genre, the track record of the same actors and directors, the previews, and so on. Various relationships (equations) are then incorporated into a multiequation model.

There are various computer models designed to make predictions on the success of films to provide statistical help in deciding which projects. The past relations of the variables are used to predict future outcomes. An example is the Motion Picture Intelligencer (MPI).[169] MPI is based on the ticket-buying behaviors of past movies. It factors in advertising expenditures, the number of theaters planned for a release, the time of year of the release, and any foreseeable competition from other movies.

Another model, MOVIEMOD, is not based on actual sales data but on focus groups.[170] Subjects are shown the movie. They then fill out post-movie evaluations, including their word-of-mouth intentions. In a Dutch application of MOVIEMOD, managers used the model to identify a final plan that allegedly resulted in an almost 50% increase in the test movie's revenue performance. The box-office sales were within 5% of the MOVIEMOD prediction. These models predict which movie scripts will have a good shot at being hits and which will be flops.

This was taken one step further to select movie project for green-lighting, based on a statistical analysis of the project rather than on "gut feeling." Researchers at the Wharton School created a computer application and model that reads storylines electronically and analyzes the script elements—such as happy endings or a sympathetic heroine—that appeal to moviegoers.[171] The researchers used a technique called natural language processing. They asked human raters to answer 22 yes/no questions about each film they evaluated and fed those answers into their program. This model was then applied to script summaries of 281 movies. The median return on investment for these films was 27.2%. The researchers broke the film into two groups, one to calibrate the model and the other to make predictions. Using this model, the authors were able to predict whether a film would perform better or worse than a median return two-thirds of the time. In fact, the top 30 films that the model rated would have had an overall ROI of 5.1%.[172]

Another model, that of MPI, claimed to have correctly predicted the success or failures of all 81 movies, in 1997.[173] But the equations, methods, and data behind the models are proprietary and undisclosed, and their success rate is murky.

9.3.3.10 Cross-Elasticities of Demand

A related analytical approach using econometric data is to identify the impact of competition on a company's products and sales.

Below, a demand model for each firm i is based on its own advertising and prices (A_i and P_i) but also on the price and advertising of its rival j, that is, on (A_j and P_j)

$$Q_i = e^{\alpha_i} P_i^{-\eta_i} A_i^{\beta_i} P_j^{\varepsilon_i} A_j^{-\gamma_i}$$

- Q_i – demand for firms i's product
- P_i – firm i's price
- A_i—firm i's advertising expenditures;
- α—parameter for brand specific effects;
- η and β—own price and advertising elasticities;
- ε and γ—cross-price and cross-advertising elasticities.[174]

Suppose that two video game companies (Nintendo and Sega) compete in the home video game market. Both face a demand for their products that is determined by both firms' current prices and of their advertising expenditures. An econometric study of cross-elasticities of demand finds the following:

- $-\eta_i > 1$, negative and diminishing own price elasticities;
- $\varepsilon_i > 1$, positive and diminishing elasticities for rivals' prices;
- $\beta_i < 1$, positive but diminishing marginal returns to own advertising;
- $\gamma_i < 1$, negative and diminishing marginal effects for advertising by rival.

Consumers' sensitivity to Sega's price as well as to its advertising is higher than for Nintendo's. Similarly, Sega's consumers are less sensitive to prices by competitor Nintendo than the other way around, though the effect is small and the difference slight. Both customer categories are only slightly affected by the other company's advertising effort with a low statistical significance. Nintendo's customers are less sensitive to its prices, which give the company an advantage over its rival.

9.3.3.11 Statistical Inference: Sampling and Statistical Confidence

There are two ways to measure a target market. One can measure the entire group that one is interested in. An example of this would be an analysis of, say, all women of age 23–30. Alternatively, one could look at a smaller group, a sample, as

169 Wood, Daniel B. "Can Computer Help Hollywood Pick Hits?" *Christian Science Monitor* 89, no. 27 (January 3, 1997): 1.

170 Eliashberg, Jehoshua et al. "MOVIEMOD: An Implementable Decision-Support System for Prerelease Market Evaluation of Motion Pictures." *Marketing Science* 19, no. 3 (Summer 2000): 226–243.

171 Knowledge@Wharton. "Revenge of the Nerds, Part V: Can Computer Models Help Select Better Movie Scripts?" November 29, 2006. Last accessed July 13, 2017. ► http://knowledge.wharton.upenn.edu/article/revenge-of-the-nerds-part-v-can-computer-models-help-select-better-movie-scripts/.

172 Knowledge@Wharton. "Revenge of the Nerds, Part V: Can Computer Models Help Select Better Movie Scripts?" November 29, 2006. Last accessed July 13, 2017. ► http://knowledge.wharton.upenn.edu/article/revenge-of-the-nerds-part-v-can-computer-models-help-select-better-movie-scripts/.

173 Wood, Daniel. "Can Computer Help Hollywood Pick Hits?". *The Christian Science Monitor*. 1997. Last accessed July 11, 2017. ► http://www.citi.columbia.edu/B8210/cindex.htm.

174 Shankar, Venkatesh and Barry L. Bayus. "Network Effects and Competition: An Empirical Analysis of the Home Video Game Industry." *Strategic Management Journal* 24, no. 4 (April 2003): 375–384.

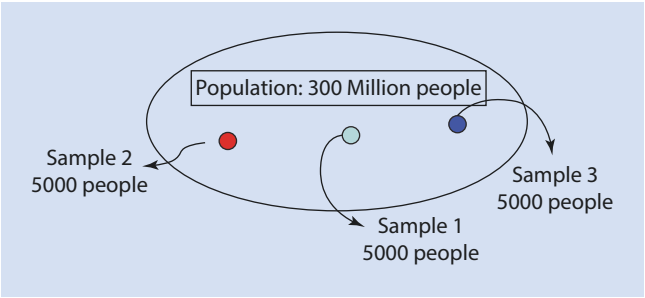


Fig. 9.14 Sampling

a representative of the larger population.[175] This is cheaper, faster, and more practical; but it may provide incomplete and unrepresentative coverage.

After choosing a sample and measuring its response, the researchers must address the question of how the sample relates to the overall population. Suppose one takes three independent samples of 5000 people from the overall national population and asks all sample groups the same question about whether they watched the GYC last week (Fig. 9.14).[176] There is an excellent chance that each sample result will differ.

One would expect that the three samples would yield similar but not identical estimates. For example, we might find that the results of Sample 1 are $p = 25\%$, of Sample 2 are $p = 27\%$, and of Sample 3 are $p = 24\%$. Which one is right? If we take a lot of samples, we would find that their results are distributed in a normal distribution around a peak, which corresponds to the true number.[177] But finding that true peak will take a lot of sampling and thus is not practical. Owing to constraints of time and money, researchers typically take one sample and follow up with "inferential statistics" to state how certain they are of the result. 65, 95, or 99% confidence levels are often chosen. One starts with the center of the distribution of the observed sample. One standard deviation from the center will include about 65% of all sampling results, two standard deviations will include about 95%, and three will include 99%. In other words, 95% of samples will lie within about two standard deviations from the observed sample.

A standard deviation measures the dispersion of a set of data from the mean average. It tells us how tightly all the various sampling results are clustered around the mean in that set of data. When the examples are pretty tightly bunched together, the bell-shaped curve is steep and the standard deviation is small. When the observations are widely spread apart and the bell curve is relatively flat, the standard deviation will be large. The following is the standard deviation (SD) formula:

$$\mathrm{SD} = \sqrt{\frac{L}{in}\sum_{i}^{n}\left(x_1 - \bar{x}\right)^2}$$

A z-score (or standard score) is a statistical measure of comparing a single sample result to a dataset that is normally distributed. It uses the standard deviation of the sample mean for comparison. A z-score can be calculated using the following formula.

$$z = \left(X - \bar{x}\right) / \mathrm{SD},$$

where X is the observed value, $\bar{x}$ is the sample mean, and SD is the standard deviation of the sample. A z-score indicates how far in a normal distribution an item is deviated from its distribution mean, in terms of standard deviations. It is obtained from tables.

A z-score of + 1 or – 1 represents data that is one standard deviation greater or lesser than its mean. About 68% of data in a normal distribution falls between one standard deviation from the mean (z-score between −1 and 1). About 95% of data in a normal distribution falls between two standard deviations from the mean (z-score between about −2 and 2). About 99% of data falls between three standard deviations from the mean (z-score between about −3 and 3.)

For example if the sample mean is 0.25, with a standard deviation of 0.02 for 5000 observations, there is a 65% chance that the true population mean is between 0.23 and 0.27 (one standard deviation from 0.25). There is a 95% chance the population mean is between 0.21 and 0.29 (two standard deviations). And a 99% chance it is between 0.19 and 0.31 (three standard deviations). The potential error, owing to the sample being "off," is the term e.

$$e = z\sqrt{\frac{pq}{n}}$$

p = proportion that answered positively
$q = (1 - p)$ those who answered negatively

Suppose these are the parameters:
- $p = 0.25$ (25% of sample watched the program)
- $q = 0.75$ (75% did not watch)
- $n = 5000$ (sample size)

and we chose a 95% probability, which means, from a table that $z = 1.96$

$$e = 1.96\sqrt{\frac{0.25 \times 0.75}{5000}} = 0.012 \text{ or } 1.2\%$$

If there are 100 million TV households in the USA, then the number of American households that watched GYC last month, with 95% certainty, lies between 23.8 and 26.2 million (25 million ± 1.2 million).

This method works for yes/no type of questions (watched/didn't watch). However, it does not work well for continuous types of data, such as determining the average amount of time spent watching a particular program. For this type of calculation one uses a related method.

175 There are several types of samples. In a "random sample," each unit in the population has an equal chance of being selected. A "stratified random sample" is when one defines sub-groups and selects random samples from each sub-population group and pools them. A "convenient sample" uses accessible observations, for example choosing students on campus for an academic marketing research study by a professor. The "judgment" sample is chosen according to the estimate of someone familiar with the characteristics of the overall population.

176 Except for "actual," source is reported in Hetemäki, Lauri and Michael Obersteiner. "US Newsprint Demand Forecasts to 2020." *IASA Interim Report*. 2001. Last accessed July 11, 2017. ► https://www.researchgate.net/publication/233742337_US_Newsprint_Demand_Forecasts_to_2020.

177 This follows the "Central Limit Theorem:" the true percentage of people watching a program will be at the peak of the distribution of the multiple samples.

Similarly to before, one estimates the mean of the population by finding the mean of the sample and adding/subtracting an appropriate margin of error. The confidence interval (CI) equation is as follows:

$$u = \bar{X} \pm e$$

where:
- u: mean of the population
- $\bar{X}$: Mean of the sample
- e: margin of error

The margin of error (e) is determined by the standard deviation (SD) and the sample size n. The differences are that instead of a "z score" one now looks up in a statistical table a "t score," and that the numerator is the standard deviation.

$$e = t\left(\frac{\text{SD}}{\sqrt{n}}\right)$$

$$u = \bar{X} \pm t\left(\frac{\text{SD}}{\sqrt{n}}\right)$$

Like the z-score, the t-score is determined by the level of confidence (0.90, 0.95, 0.99) that is desired and the sample size n. It can be found in used tables by inputting values for n and r.

If Nielsen claims its measurement results are within the 95% confidence (r = 0.95), what does that mean? It means that if its study was repeated 100 times, then in 95 of the cases the result would be in the stated interval.

Case Discussion

Statistical Sampling

The Simmons market research firm conducts a survey to determine how much time the test market spent watching GYC. Simmons interviewed 1320 people who watched at least some of GYC; the average amount of time spent watching the channel was $\bar{x}$ = 120 minutes. To determine the value for t, we first choose the desired confidence level r, at r = 0.95, which means that the test will be reproducible 95% of the time. Given the sample size of 1320 and the level of confidence desired, from the t-tables, we find t = 2.086. The standard deviation (SD) is calculated as follows:

$$\text{SD} = \sqrt{\frac{\Sigma\left(X - \bar{X}\right)^2}{n-1}}$$

$$\text{SD} = \sqrt{\frac{\left(\text{Response\#1} - 120\right)^2 + \ldots + \left(\text{Response\#1320} - 120\right)^2}{1320 - 1}}$$

Assume for this example that SD is 50. Since we know t, SD, and X, the CI is:

$$u = 120 \pm 2.086\left(\frac{50}{\sqrt{1320}}\right)$$

$$u = 120 \pm 3$$

This means that we can assume, with 95% certainty, that the people who watched some of GYC watched it on average for between about 117 and 123 minutes.

9.3.3.12 A/B Testing

A/B testing has achieved much attention among online businesses. However, it is neither new as a statistical technique nor as a practical application by marketers and product developers. The internet, however, has made such testing more convenient. It is easy to split traffic to receive several versions of a website (A and B) and then analyze their effectiveness. Indeed, one can readily go beyond A and B to "N" versions, creating A/B/N tests. There are statistical packages for such testing for website operators and designers, some of them are free, (e.g. Google Website Optimizer).

Basically, A/B testing means presenting alternative products to random samples of users visiting a website, or reached by email, and observing the different rate of "conversions," or desired acts, such as clicks, email responses, subscriptions, and orders. If Version A, say the one executed in the color green, has more conversions than Version B (the one in red), then A seems to be superior and should be chosen. But can we be sure? It could be a fluke, after all, especially if the sample is small. This then gets us into the statistics of sampling and confidence levels described above.

Elements frequently tested are
- Button type;
- Headings and layouts;
- Pricing and promotion;
- Text;
- Deadlines.

To create reliable comparisons, versions should be tested simultaneously, because the visitors on a Sunday morning might be quite different from those on a Monday morning. Only new users should be tested because returning users have already formed expectations.

Suppose a website wants to test the conversion rate of people moving from the homepage to other parts of the website and increase it by at least 20%. It creates an A/B test with four options (treatments): control, A, B, and C. The data collected shows (◘ Table 9.7):

Options A and C show at least a 20% conversion rate performance. But how does one know that the variation is not random? Suppose that instead of 188 visitors there only had been 10. Would we still be confident?"

The focus of analysis is the difference between the two conversion rates. If the difference is large enough we conclude that the treatment did alter user behavior. We want to show, let us say, with 95% confidence, that the two distributions shown are different from each other. Statistically, the difference of two normally distributed random variables is itself normally distributed.[178] Thus the difference of the conversion rates is normally distributed, and we can use a z-test to measure for statistical significance.

The z-score for X is given by

178 Farmer, Jesse. "An Introduction to A/B Testing." *20bits*. January 19, 2009. Last accessed July 11, 2017. ► http://20bits.com/article/an-introduction-to-ab-testing.

Table 9.7 A/B Test for effectiveness of options

Treatment option	Visitors	Visitors registered	Conversion rate (%)	*Z*-Score
Control	182	35	19.23	N/A
Option A	180	45	25.00	1.33
Option B	189	28	14.81	−1.13
Option C	188	61	32.45	2.94

Based on graph from Farmer, Jesse. "An Introduction to A/B Testing." *20bits*. January 19, 2009. Last accessed July 11, 2017. ► http://20bits.com/article/an-introduction-to-ab-testing

$$z = \frac{p - p_c}{\sqrt{\frac{p(1-p)}{N} + \frac{p_c(1-p_c)}{Nc}}}$$

where

- N = the sample size of the experimental treatment;
- Nc = the sample size of the control treatment;
- P_c = the conversion rate of the control;
- p = the conversion rate of each one of the experiments.[179]

We can reject the null hypothesis with 95% confidence if the *z*-score is higher than 1.65.[180]

How large a sample is needed for testing? A popular rule of thumb is that 100 observations are required for significance.[181] But this does not account for the great differences in variance, objective of measurement, desired statistical significance, and so on. The statistical A/B testing package will be helpful to identify the desired sample size when the desired parameters, such as terms of type I errors (false positives) and type II errors (false negatives), are plugged in.

Case Discussion

A/B Testing and Pricing Application

Researchers can conduct controlled research by manipulating important variables, such as price data, and observe their effect on consumer behavior. For magazine test marketing, conducting an A/B test, Golden Years could send out letters offering annual subscription to people aged 55 and over. 20,000 people would get an offer to subscribe for $10 per year, while a similar number of people would get an offer to buy the magazine for $20, $30, and $40.

Wouldn't it be easier and cheaper to mail to only 2000 people? Yes, but recall an earlier discussion of confidence intervals. To obtain 95% CI:

1. p = sample proportion;
2. n = sample size;
3. 1.96 is "*z*-score" for 95% CI (for a 2-tailed test) as found in tables.

$$p \pm 1.96 \times \sqrt{\frac{p(1-p)}{n}}$$

Suppose a sample = 2000, and 4 people subscribed, so $p = 0.002$

$$CI = 0.002(\pm)1.96 = \sqrt{\frac{(0.002)(0.998)}{2000}}$$

$$CI = 0.002(\pm)1.96 \times 0.001$$

$$CI = 0.002(\pm)0.00196 = 0.00004 \text{ to } 0.00396$$

Multiplied by the overall target population of 76 million people aged 55+ in the USA, this results in a range of expected number of subscribers that is somewhere between 3040 and 300,960 people. This is a very wide range, all the way from almost no sales to a large number. In comparison, a larger sample of 20,000 would show a narrower range of 114,000 to 205,000, that is, a spread of 91,000 people.

Viacom now conducts four tests, for different prices, with samples of 20,000 each.

A. A $10 subscription option. The results are that 42 of 20,000 people subscribed to the magazine, that is, $-p = 0.0021$.

Calculation of CI:

$$CI = 0.0021(\pm)1.96\sqrt{\frac{(0.0021)(0.9979)}{20{,}000}}$$
$$= 0.0021(\pm)1.96(0.00032)$$

$$CI = 0.0015 \text{ to } 0.0027 \text{ or } 0.15\% \text{ to } 0.27\%$$

Viacom can be 95% confident that .15% -.27% of people age 55+ will subscribe to GY Magazine at $10 a year. With an overall US population aged 55+ of 76,000,000, there would be an estimated 114,000–205,000 subscribers.

Other price options. A similar analysis finds, for a subscription price of $20, a 95% CI of 76,000–167,200 people. For a $30 subscription price, the CI is 45,600–105,400, and for a $40 subscription option, the CI is 7600–53,200.

The expected sales and revenues are then (subscribers × subscription price)

- At $10 per year, $160,000–$1.6 million;
- At $20 per year, $121,000–$2.43 million;
- At $30 per year, $76,000–$2.28 million;
- At $40 per year $30,500–$1.22 million.

The estimated subscription numbers show that GY maximizes revenue at up to $2.4 million, at the subscription price of $20, when it can expect 121,000 subscribers. Should Viacom therefore pick this price of $20? Not necessarily. The added revenue from charging $20 compared to $30 is about $150,000. However, at a price of $30, an estimated 45,000 fewer magazines

179 Farmer, Jesse. "An Introduction to A/B Testing." *20bits*. January 19, 2009. Last accessed July 11, 2017. ► http://20bits.com/article/an-introduction-to-ab-testing.

180 This is due to it being a 1-tail rather than 2- tailed test where the score would have to be 1.96.

181 Lorang, Noah. "A/B Testing Tech Note: determining sample size." *Signal v. Noise by Basecamp*. September 20, 2011. Last accessed July 11, 2017. ► https://signalvnoise.com/posts/3004-ab-testing-tech-note-determining-sample-size.

would be printed. Each magazine's estimated printing and distribution cost is $0.50, and the lower print run would save 45,000 × 0.5 = $22,500 monthly and $270,000 annually. Pricing the magazine at $30 could therefore gain GY $120,000 in net profits: $270,000 – $150,000 = $120,000.

Therefore, should Viacom price GYM at $30? Again, not necessarily. Diminished advertising revenues because of the lower readership must also be considered. If ad revenues from the extra circulation of 45,000 gain more than $120,000, then pricing at $20 would actually be better. A normal cost per 1000 impressions (CPM) for consumer magazines range from $30 to $60. Assume a CPM of $30 and 50 ads per monthly issue. (The low number is because GYM is a new untried magazine, with an older demographic.) Using the assumption that there are 50 advertisements per magazine, the extra ad revenues are $810,000 per year, which is much greater than the $120,000 in added cost of circulation. Therefore, Viacom should price at the lower level of $20.

On that logic, should Viacom lower the price further to $10 for extra advertising revenues? At that price circulation is about 160,000 (39,000 more than circulation at $20), but at half the price. The impact on circulation revenues = −$830,000. The increased circulation cost = $0.5 × 12 × 39,000 = $234,000. The increased ad revenues = $30 × 39 × 12 × 50 = $702,000.

$$\begin{aligned}\text{The net gain (loss)} &= -\$830,000 - \$234,000 \\ &\quad + \$702,000 \\ &= -\$362,000\end{aligned}$$

Therefore, the lower price of $10, despite circulation increase, will not be profit maximizing. A price of $20 is the better choice.

Using these numbers, we can also calculate the price elasticity of demand.

$$\text{Own Price Elasticity} = |\eta| = \frac{\dfrac{Q_2 - Q_1}{\left(\dfrac{Q_2 + Q_1}{2}\right)}}{\dfrac{P_2 - P_1}{\left(\dfrac{P_2 + P_1}{2}\right)}} = \frac{\%\Delta Q}{\%\Delta P}$$

The price elasticity between $10 and $20 is found by the ratio of the percentage change in quantity

$$\text{align} = \frac{\dfrac{121,000 - 160,000}{120,000 + 160,000}}{2}$$

and the percentage change in price = $\dfrac{\dfrac{20-10}{20+10}}{2}$.

Thus the price elasticity from $10 to $20 of Q = % Change in Q/% Change in P = −0.28/0.67 = 0.42. In contrast, the price elasticity between $20 to $30 = 1.14, which is near 1. The price elasticity from $30 to $40 = 2.99, which is highly elastic. Revenue is maximized at elasticity = 1. Thus, the optimal price is somewhere near $20. Since $20 is the optimal price, estimated circulation is about 121,000 nationally. Actual test marketing in New York State, with reported audited circulation figures, finds an actual circulation that, projected to the national market, is about 133,000. Together, these numbers give strong indication of circulation in that range, which is fairly low for a consumer magazine.

9

9.3.3.13 Bayes Analysis

A Bayesian Analysis tries to establish the probability of an event occurring when it is conditioned on another event, whose occurrence also happens with a certain probability. It predicts based on conditional probabilities. Bayes' Theorem calculates a probability by looking at several dimensions in the historical data. It finds the probability of an event occurring, given the probability of another event that has already occurred. Suppose that B represents the dependent event, and that A represents the prior event. Bayes' theorem states that

$$\text{Prob}\,(\text{B given A}) = \text{Prob}\,(\text{A and B}) / \text{Prob}\,(\text{A})$$

Another way to express this is Prob (B given A) = Prob (A given B) × Prob (B)/Prob (A).)

Therefore, to determine the probability of B given A, the rule counts the number of cases where A and B occur together, and divides this by the number of cases where A occurs alone.

For example, what is the probability of a customer responding to a TV advertisement for *Golden Years Magazine*? Assume that 0.5% of the target population has been subscribing, and the probability of a person both seeing the TV ad and subscribing (Prob (A and B) is 1%. Most people would intuitively think that the probability of a customer responding to a TV advertisement is therefore either 0.5% or 1%. But actually it is neither. When the probability of watching the ad is Prob (A) 5%, then the effectiveness of the ad is Prob (B given A) = Prob (A and B)/Prob (A) = $\dfrac{0.01}{0.05} = 0.2 = 20\%$,

This is pretty respectable showing for the ad's persuasiveness—20% of those who were exposed to it. This is much higher than what one might intuitively consider.

9.3.3.14 Factor Analysis and Principal Components

Factor analysis helps to find relationships of underlying data, when variables cannot be easily measured directly but where these variables (characteristics) are highly correlated with each other.[182] The basic idea is that several observed variables have similar patterns of responses because they are all associated with an underlying variable. The primary objective of factor analysis is to determine the common factors affecting several variables; that is, what sets of variables "hang together." It also helps identify which factors are most important.[183] Factor analysis is done by identifying the correlations (or co-variances) between the observed variables. The variable measures that are highly correlated with each other, (either positively or negatively) are likely influenced by the same underlying factors. Using this

182 Rummel, R.J. "Understanding Factor Analysis." *The Journal of Conflict Resolution* (December 1967): 444–480. Last accessed July 11, 2017. ► https://www.hawaii.edu/powerkills/UFA.HTM#*.

183 Factor analysis defines a number of factors, equal to the number of variables. Each of these factors captures part of the overall variance in the observed variables. A measure known as eigenvalue shows how much a factor explains the variance of the observed variables. Where a factor has an eigenvalue ≥1, it explains more variance than a single observed variable. Thus, if the factor for socioeconomic status has an eigenvalue of 2.3 it would explain as much variance as 2.3 of the three variables that have been used. This factor therefore captures most of the variance in those three variables, and would be used in further analyses, while the factors that least explain variance may be discarded. DeCoster, Jamie. "Overview of Factor Analysis." *Stat-Help*. August 1, 1998. Last accessed July 13, 2017. ► http://www.stat-help.com/factor.pdf.

technique one might, for example, find a pattern of attitudes for one category of users, as distinct from the attitudes of another group. The attitudes of internet users might be very different if they are farmers than they if they are urban managers.

Principal Component Analysis is a statistical procedure similar to factor analysis.[184] It identifies and finds a small number of "components" that account for the variability of a larger number of variables. This generates a "data reduction" which simplifies a model and permits a researcher to reduce the number of variables while retaining the information that they hold.

One study using factor analysis explored ways to help newspaper editors select stories or features that would not be duplicative in terms of reader interest, thus leaving space for more variety. It analyzed how the readership of a newspaper feature story is related to the readership of other feature stories. For example, if readers of the comic strip "Spider-Man" and "Mary Worth" also read "Dick Tracy," it may make more sense to drop "Dick Tracy," because its readership already gets other things it likes,[185] and replace it with another comic strip. The factor analysis shows that these three comic strips move strongly together.

9.3.3.15 Conjoint Analysis

Conjoint analysis methodology—also discussed in ▶ Chap. 3 Production Management in Media and Information, and in ▶ Chap. 11 Pricing of Media and Information, is another standard market research tool.[186] Conjoint analysis is used to measure the tradeoffs people make in choosing among products and services.[187] The foundation of this technique is the assumption that a product can be disaggregated into individual attributes. For example, a TV set has attributes such as size, price, style, picture sharpness, and color. The respondent is asked to choose between different levels of a pair of product attributes.[188] This enables the researcher to identify the value that a consumer attaches to each product attribute.

Table 9.8 Conjoint Analysis: Example: the importance of attributes of MP3 players (Scale 1–10)

Quality:	8.24
Styling:	6.11
Price:	2.67
User friendliness:	7.84
Battery life:	4.20
Customer service:	5.66

Nagle, Thomas T., and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making,* 2nd ed. Hoboken: Prentice Hall, 1995

The data is then analyzed with statistical tools, and the utility of a consumer's relative strength of preference for each level of each product attribute is determined. The value of a product, it is assumed in this methodology, is equal to the sum of utilities to the consumer. This enables the researcher to predict the prices which the consumer would pay for various combinations of attributes in a product. It helps to set prices and target buyers, even before the product is developed. The methodology works best for products that are evaluated by consumers based on separable attributes. But this is often not the actual buying experience, because consumers often do not put much attention on specific product attributes.[189]

This statistical analysis is calculation-intensive, but computer packages are available that generate an optimal set of tradeoffs for each participant. The following example about an MP3 player, illustrated in Table 9.8, is an example of how conjoint analysis attributes importance to products. Acceptance likelihood is calculated by adding up the sums of the attribute level utilities contained in the product profile.[190]

Case Discussion

How Could Viacom Make Use of Conjoint Analysis for Its Golden Years Channel?

It may ask a sample of people aged 65+ which package they would value. These packages vary along the following attributes:

- Monthly price of the GYC (from $1 to $4);
- Feature movies shown on the GYC (frequency from 1 to 4);
- *Golden Years* channel added for free (yes/no);
- Bundled with other channels on cable system (from 10 to 40).

Participants are asked to choose from pairs of package attributes. Each package describes two to four attributes. Participants are asked to choose among parts of packages. From the tradeoffs, utilities are then calculated by a statistical program. They are provided in Table 9.9, for example, as the utility of a movie frequency of one per day =0.103. The overall utility is calculated for each package by adding up the utilities of the attributes (Table 9.10).

Package #1 would have been the most attractive in terms of content, but the price of the channel is set too high. Package #7 has a low price but a small number of channels. Package #5 has a low price, 20 channels, the GYC, and a movie frequency of three per day. It is the most preferred by the senior consumer.

184 DeCoster, Jamie. "Overview of Factor Analysis." *Stat-Help*. August 1, 1998. Last accessed July 13, 2017. ▶ http://www.stat-help.com/factor.pdf.
185 Cobbey, Robin F. and Maxwell E. McCombs as cited in Meyer, Philip. *The Newspaper Survival Book: An Editor's Guide to Marketing Research*. Bloomington: Indiana University Press, 1985.
186 Green, Paul E., and Vithala R. Rao. "Conjoint Measurement for Quantifying Judgmental Data." *Journal of Marketing Research* 8, no. 3 (August 1971): 355–363.
187 Populus. "Conjoint Analysis." Last accessed July 11, 2017. ▶ http://www.populus.com/files/Conjoint%20Introduction_1.pdf.
188 Nagle, Thomas T., and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making,* 2nd ed. Hoboken: Prentice Hall, 1995.
189 Nagle, Thomas T., and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making,* 2nd ed. Hoboken: Prentice Hall, 1995.
190 Populus. "Conjoint Analysis." Last accessed July 11, 2017. ▶ http://www.populus.com/files/Conjoint%20Introduction_1.pdf.

Table 9.9 Cable TV feature valuation (schematic)

Attribute	Level			
Movie frequency	1 per day 0.103	2 per day 0.271	3 per day 0.311	4 per day 0.315
Golden age channel	Yes 0.769	No 0.231		
Price of package	$10 0.738	$20 0.217	$50 0.035	
Other channels	10 0.001	20 0.125	30 0.403	40 0.471

Table 9.10 Respondent's utilities for selected GYC packages

Package configuration					Utilities	Overall utility
Package number	Channels	Golden age channel	Movie frequency per day	Price		
#1	40	Yes	2	$50	0.471 + 0.769 + 0.271 + 0.035=	1.546
#2	40	No	3	$20	0.471 + 0.231 + 0.311 + 0.2217=	1.23
#3	30	Yes	1	$20	0.403 + 0.769 + 0.103 + 0.217=	1.492
#4	30	No	4	$20	0.403 + 0.231 + 0.315 + 0.217=	1.166
#5	20	Yes	4	$10	0.125 + 0.769 + 0.315 + 0.738=	1.947
#6	20	No	3	$10	0.125 + 0.231 + 0.311 + 0.738=	1.405
#7	10	Yes	2	$10	0.001 + 0.769 + 0.271 + 0.738=	1.779
#8	10	No	3	$10	0.001 + 0.231 + 0.311 + 0.738=	1.281

Populus. "Conjoint Analysis." Last accessed July 11, 2017. ▸ http://www.populus.com/files/Conjoint%20Introduction_1.pdf

9.3.3.16 Diffusion Models

Generally, the adoption of a new product follows an S-curve pattern (Fig. 9.15). Such an S-curve helps to predict demand for a new product. Adoption rises slowly at first. It then accelerates as the pace of adoption picks up. In time, however, the market becomes saturated and the adoption rate of new users slows down.

$$\text{Cumulative sales} = \frac{a}{1 + be^{-kt}}$$

where t is time and a, b, and k are constants for saturation level and steepness, and e is the base of natural logarithms, about 2.718.[191] This S-curve of adoption is called a diffusion, logistic, or "epidemic model." The latter term derives from the notion that a product will spread like a virus epidemic as it catches on.[192] Examples for diffusion are the adoption of smartphones, the audiences of a word-of-mouth hit movie, or the diffusion of Internet Protocol Version 6 (IPv6).

Different S-shapes occur with different parameters a, b, and k. One has to determine, from early data, what the parameters are for a projection of the rest of the S-curve.

To find acceleration inflection and the saturation level,[193] and can compare the new product with an earlier and similar product. One can then use a historical diffusion index (HDI) to compare a product with a predecessor.

$$\text{HDI}_t = \frac{\text{Penetration } A_t \times 100}{\text{Penetration } B_t}$$

For example, compare the diffusion of DVD players to the diffusion of VHS video cassette recording players 15 years

191 McBurney, Peter, Simon Parsons, and Jeremy Green. "Forecasting market demand for new telecommunications services: an introduction." *Telematics and Informatics* 19, no. 3 (2002): 225–249.

192 Wilson, Ralph. "The Six Simple Principles of Viral Marketing." *Web Marketing Today*. February 1, 2005. Last accessed July 11, 2017. ▸ http://www.wilsonweb.com/wmt5/viral-principles.htm.

193 Carey, John and Martin Elton. "Forecasting demand for new consumer services: challenges and alternatives." *New Infotainment Technologies in the Home: Demand-Side Perspectives*. (Mahwah, NJ: Lawrence Erlbaum Associates), 35–57.

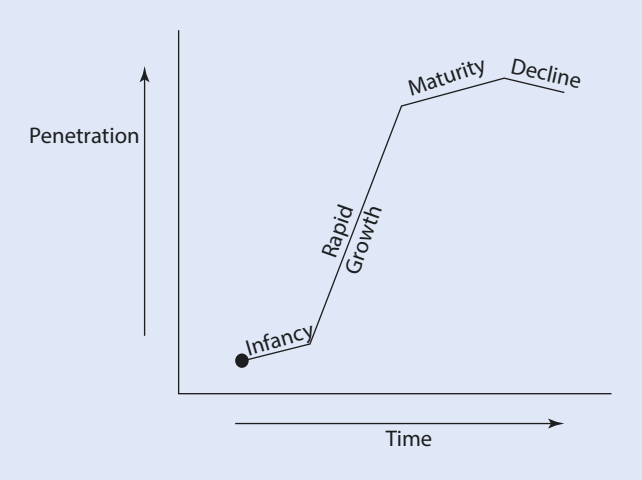


Fig. 9.15 Stages of product penetration

earlier. VHS was in 95% of US households in 2008, which was its maximum market demand. DVD was in 75% of households in 2008. This means the HDI = (75 × 100)/95 = 79%. Thus, the DVD market in 2008 was still 21% below its potential, measured by VHS. Second, the VCR reached a 75% penetration after 12 years, while DVD took only six years. Hence the DVD penetration rate has been double that of VCR. The VCR took four years to rise from 75% to 95%, and assuming that DVDs maintain their penetration pace, it will likely take another 4/2 = 2 years to reach 95%. One can make similar comparisons of DVD with Blu-ray DVD. However, it was quite possible that consumers do not greatly value high-definition over standard-definition quality, or that they shift to on-demand online video, and both diffusion speed and maximum market demand may be lower for Blu-ray may therefore be lower. And that is what indeed happened. So, the problem with the diffusion approach is that there are many differentiating variables and they make comparisons among products unreliable.

The Bass Diffusion Model is a way to predict the gradual penetration of a product. It is discussed in ▶ Chap. 10 Marketing of Media and Information. The model has been widely used in marketing forecasts, especially for new product and technology.[194]

Case Discussion

Tracing the Diffusion

Viacom can try to forecast GYC's market penetration by analyzing the growth of similar channels, for example the History Channel and the American Movie Classic, which have a similar target audience (Fig. 9.16).

Golden Years projections shows a slow growth in the first two years, rapid growth in the following three years, and slow growth and a plateau after six years. The History Channel started more slowly but reached a somewhat higher level than AMC. (Viacom should analyze the reasons for this. Perhaps it was greater advertising?) Both channels plateaued at a level of about 70%. Based on this data, it is likely that the GYC will plateau at approximately 72.5% (average of THC and AMC) after six or seven years (average). After two years, GYC can expect to be at a level of at least 5%, and after three years at a level of 22.5%. These projections indicate a strong penetration pattern into the target audience cohort. If Viacom's actual performance will not be near these levels, it will need to review its marketing and content strategies.

9.3.3.17 Positioning Analysis

Positioning means determining how a specific product should be perceived by consumers relative to competing products. It is a particularly important managerial decision to make in a cluttered and competitive market. Good positioning has three aims:[195]

- Differentiation from competing products;
- Addressing the right customer target group;
- Articulation of the key product characteristics.

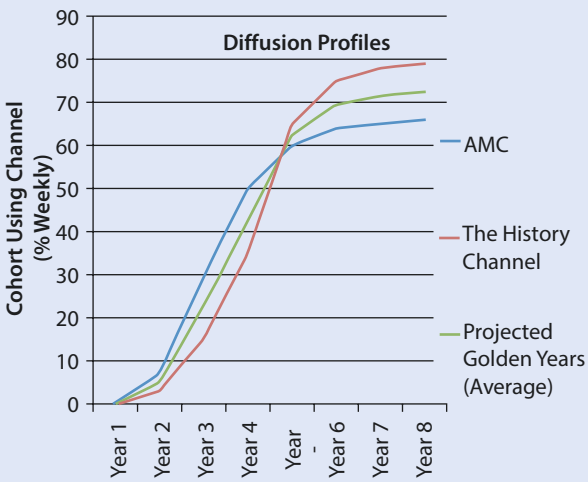


Fig. 9.16 Diffusion path for channels targeting 55+ audience (schematic)

194 The model makes several simplifying assumptions: the market potential remains stable over time; the model is binary (that is, it assumes that a customer either adopts or does not adopt an innovation); and market and product characteristics have no influence on product diffusion.

195 On The Mark. "Product positioning in Five Easy Steps." Last accessed July 11, 2017. ▶ http://www.otmmarketing.com/Portals/42226/docs/product_positioning.pdf.

One of the ways in which firms analyze positioning is by using a positioning map, which allows the firm to show the relationship between the primary benefit that its product creates relative to those of rival products in the market. To do this the firm must define the market, plot positions on the map, and estimate sales figures. The map will show a comparison of the positioning of the different products.[196]

Case Discussion

Positioning Analysis

Viacom could model the market in several steps. First, it would identify the advertising value of different cohorts of the viewing audience. It would show a bulge for the baby boomer generation (post-1945 cohort). Second, Viacom would identify the TV viewing habits in terms of minute/day of different age groups. Multiplying the number of people in each age cohort times their viewing time permits a calculation of "attention time" by age cohort. Next, Viacom can then value this attention time. Different age cohorts have different value for advertisers. Advertisers value and prefer younger audiences because of longer payback for investment in customer acquisition, less rigid consumption routines, and greater susceptibility to advertising. This curve then depicts the value of attention time by age cohort.

This market positioning of various channels can now be mapped in a Fig. 9.17 and under-served niches be observed. Audience for a channel are shown by the triangles. Each channel has a central age cohort where its appeal is strongest. To the left and right of that peak, audiences decline. Where the channel is very age-targeted such decline would be steep, whereas some channels appeal across a wide age range and their audiences drop off gently. Furthermore, channels vary in popularity, as shown by their vertical positioning. Channels with a high market share are higher up vertically on the graph. A number of audience triangles are shown schematically. Nickelodeon and MTV appeal to younger cohorts and are at the left; CNN and History Channel are more appealing to older viewers. Where the triangle is flat, it appeals to a wider range of cohorts. To find under-served niches one looks at this map. A firm would avoid a position where there exists domination by a strong brand (e.g. Nickelodeon) but instead look for a low peak of audience triangle (e.g. History Channel), and where there is a distance of competitors from target cohort.

By proceeding in this way, a firm can usually identify and calculate where a niche exists. There appears to be a fairly wide niche on the right of the graph, where advertising value is still fairly high (though declining) and where there are few competitors, and those that exist (CBS, History, CNN, ABC) are fairly distant.

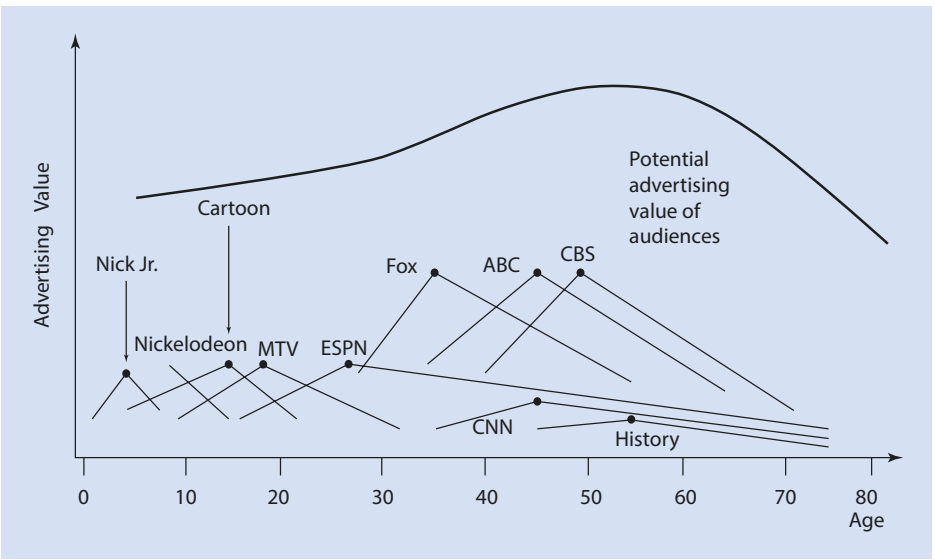


Fig. 9.17 Competitive positioning of channels (schematic)

9.3.3.18 Autonomous Data Mining

The various data mining techniques can be applied in two ways: "supervised" and "unsupervised" learning. In supervised learning, the data analyst identifies a target attribute and several variables, sets the questions for the data, and then the program finds the strength of relationship, categories, and other features. In contrast, in unsupervised learning the analyst does not specify target attributes, particular association, or

196 D'Aveni, Richard A. "Mapping Your Competitive Position." *Harvard Business Review*. November 2007. Last accessed July 11, 2017. ► https://hbr.org/2007/11/mapping-your-competitive-position.

even goal. Instead, the data mining program will find associations and clusters in the data by itself, if such exist.[197]

9.3.3.19 What to Do with Data Mining

Beyond methodology, there are two larger questions regarding data mining of audience preferences and behavior.

1. Does it really work?
2. Does it work too well? (the "creepiness" factor).

In concept, data mining enables companies to determine relationships between factors such as price, product characteristics, customer demographics, economic indicators, competition, and sales and customer satisfaction.[198] Examples of the application of data analysis are everywhere. For example, the music industry tracks the performance and potential of music instantaneously from data on streaming and downloading. The information generated by digital platforms such as Spotify and Twitter is analyzed for insights. Music labels can see what songs perform with various audiences and their behavioral patterns. Next Big Sound is a music data analytics firm owned by Pandora which tracks hundreds of thousands of artists and analyzes data on their performance, sales, downloads, trends, and the characteristics of their fan base.[199] It looks at the use patterns of streams on digital platforms (such as Pandora, Google Play, YouTube), who the followers are on social media, what they are saying, and so on. The company claims that it can predict from the data, with a 75% probability, which artist will sell a million within a year. Another company, House of Blues Entertainment, uses a specialized algorithm to identify characteristics of new and upcoming artists that make them potentially attractive to different categories of concertgoers who have bought tickets or downloaded music in the past.[200] It then targets those consumers with marketing information. One of the major three music companies, Universal Music Group, is also generating specific insights from streaming usage—what kinds of people are listening to particular songs or artists, what else they listen to, and what songs resonate with particular audiences. It then aims to generate content and market it more effectively. Universal Music Group has a 16-person team engaged in its Artist Portal and in interpreting the information it generates.

This being part of marketing operations, stories of accomplishment are well publicized. Yet it is important not to be swayed by anecdotal stories of success.[201]

Google Flu: Google tried to use Big Data information (specifically user searches of symptoms) to predict and analyze trends for the flu "faster" than the Centers for Disease Control (CDC). For a while it worked and the company received highly favorable publicity.[202] In subsequent years, however, Google's methodology could not identify flu outbreaks reliably.

2016 US Presidential Election: All Big Data analytics showed that Hillary Clinton was going to win the election, with a high certainty.[203]

Microsoft's attempt at an AI Bot: Microsoft built an automated system that was meant for showcasing machine learning, where a Twitter bot would interpret data and "learn" to interact with people. This system backfired because it began writing "unacceptable" material, advocating genocide, writing obscene material, denying the existence of the Holocaust, and more.[204]

We have covered a number of statistical techniques of data mining:

- Correlation analysis
- Econometric modeling
- Cross-elasticities
- Multi-equation models
- Conjoint Analysis
- Tradeoff modeling
- Factor Analysis
- Diffusion Models
- Positioning Analysis

The purpose of this discussion is not to make you an expert in the use of these tools, but to give you a broad understanding of what they are and for what purposes they can be used.

197 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf.

198 Frand, Jason. "Jason Frand's Homepage." Last accessed July 11, 2017. ► http://www.anderson.ucla.edu/faculty/jason.frand/teacher/technologies/palace/datamining.htm.

199 Peoples, Glenn. "New Report from Next Big Sound Explores Band-Brand Digital Relationships." *Billboard*. January 22, 2015. Last accessed July 11, 2017. ► http://www.billboard.com/biz/articles/news/digital-and-mobile/6450357/new-report-from-next-big-sound-explores-band-brand.

200 Levine, Robert. "Data Mining the Digital Gold Rush: 4 Companies That Get It." Billboard. Last accessed July 11, 2017. ► http://www.billboard.com/articles/business/6524078/big-data-mining-digital-gold-rush-companies-that-get-it.

201 McGlohon, Mary. "Data Mining Disasters: a report." Last accessed July 11, 2017. ► http://www.cs.cmu.edu/~mmcgloho/pubs/accidents-sigbovik08.pdf.

202 Leber, Jessica. "The Failures of Google Flu Trends Show What's Wrong with Big Data." *Fast Company.* March 13, 2014. Last accessed July 11, 2017. ► https://www.fastcompany.com/3027585/the-failures-of-google-flu-trends-show-whats-wrong-with-big-data.

203 Lohr, Steve and Natasha Singer. "How Data Failed Us in Calling an Election." *New York Times.* November 10, 2016. Last accessed July 11, 2017. ► https://www.nytimes.com/2016/11/10/technology/the-data-said-clinton-would-win-why-you-shouldnt-have-believed-it.html.

204 Victor, Daniel. "Microsoft Created a Twitter Bot to Learn from Users. It Quickly Became a Racist Jerk." *New York Times.* March 24, 2016. Last accessed July 11, 2017. ► https://www.nytimes.com/2016/03/25/technology/microsoft-created-a-twitter-bot-to-learn-from-users-it-quickly-became-a-racist-jerk.html.

9.4 Conclusions and Outlook

9.4.1 Case Discussion

Conclusion

What conclusions can be reached from the case discussion of Viacom Golden Years? We now have some findings (hypothetical) of audience and markets for the cable pay channel, the magazine, and the website. Should Viacom go ahead with GYM?

For the Golden Years Cable TV Channel, What Do We Find?

- A Delphi study confirms the experts' overall view that there is room and demand for such a channel. Delphi experts believed in the potential in a market, niche, and expected about three hours of weekly watching.
- Focus groups show an active support for the concept.
- Nielsen results shows that senior-oriented channels have fairly substantial audiences: Fox News ranked #4 among cable channels, History Channel #5, Nick at Nite #11, AMC #12, TV Land #22.
- A Simmons market survey found in test market among viewers of GYC a viewing of 120 min ± 3 for a week.
- An econometric analysis shows that the likelihood of subscribing to GYC is positive and significant with age and income, with sports and news programming, rural location, and female households. Audience surveys and advertising-based measures show a strong demand by users of GYC (and users of the Golden Years website) for travel, drugs, and insurance. These are large markets for advertisers.
- Niche analysis and positioning studies shows a gap in supply for channels aimed at older cohorts.
- A diffusion analysis shows a likely slow but steady growth in audience.
- Q-score review shows strong Q-scores especially for older, trusted performers.
- Focus groups and surveys (mall, phone, and follow-up) confirm demand. Conclusion: Viacom should go ahead with GYC based on demand analysis, but subject to an analysis of cost.

For *Golden Years Magazine*, What Is the Evidence?

- Test marketing in New York State shows ABC national audited circulation figures of about 133,000 subscribers, and demand experiments with differentiated subscription offers show an optimal circulation of about 120,000. Both figures are low and unlikely to generate a profit.
- Demographic trends (seniors) are favorable, but in general magazine circulation and advertising are in decline. Conclusion: Given the various negatives, and considering that Viacom has no experience as a magazine company, it should not proceed with the magazine. (This assumes that the magazine does not generate significant spillover benefits to the GYC cable channel or to the web portal that would justify it to function in the role of a "loss leader".)

For the Golden Years Web Portal, What Is the Evidence?

- From site-based Google Analytics data, Viacom finds that the 65+ year cohort is fairly low in visitor count. However, the 55–65 year cohort is fairly strong, even though it is not the target audience. This suggests that low scores for 65+ are due to lower internet familiarity. Conclusion: the trends suggest growth potential. Because the return rates and page views of visitors are solid, Viacom should take a chance with growth potential and go ahead with the Golden Years Portal.

Should Viacom Modify the Content of GYC?

- An econometric study shows strong positive correlations of its content with sports and news/documentaries. There were also correlations to romance and a female audience. There are also a positive effect of late-night programming. Programming decisions should take these preferences into account.
- A conjoint analysis found that consumers base 72.3% of their decision to subscribe on price, 39.6% on the number of films a day, 18.2% on discount coupons, but a negative 3% on easy listening hours. Therefore, Viacom should avoid easy listening hours on GYC and increase the frequency of films per day. Viacom should also lower the cable channel price, since users seem to be very price sensitive.
- For the Golden Years web portal, the audience research found that there was an unexpectedly large interest in the 55–65 year cohorts. This suggests editorial and pricing policies to attract and keep such viewers who are still outside the core 65+ target.

What Consumer Price Should Viacom seek for the Golden Years Channel?

- The econometric study found a price elasticity of about 1% for each dollar of a lower price.
- The marketing experiment found an optimal price (and an elasticity of about 1) near $20 per year.
- The conjoint analysis found the price accounted for 72% of the buying decision.

9.4.2 Challenges in Audience and Market Research

This should be the golden age of demand research. Many of the data constraints of the past have been lifted and data processing and distribution have become easy and cheap. But even with these better tools it is much harder to do demand research today than in the past. It is harder to estimate demand for new products and services in a rapidly changing environment, with fragmented audiences, much greater choice, and shorter attention spans.

9.4.2.1 Challenge #1: Co-ordinating and Integrating User Data Flows

Media firms want to know who they reach across the various distribution platforms, and advertisers want to know the total reach of a campaign. Content-providing networks need to demonstrate the reach of their program, regardless of when it was watched and on what platform. Industries seek measurements that cross the boundaries of platforms, devices, time, and location of usage. This is technologically complex, expensive to develop, and hard to operate reliably in real time.

To generate a new type of ratings service a company must first develop the technology necessary to assess viewership on a new platform or device. To satisfy advertisers, a new system must be accredited, in the USA, by the Media Ratings Council. As a way to generate new methods in audience measurement for television and cross-platform media, a Coalition for Innovative Media Measurement was formed in 2010 by major media firms. This looked at several dozen companies and methodologies for their digital video tracking sector in order to identify cross-platform measurement standards.

Controversies over methodology have slowed down the inclusion of new approaches. For example, online video sites such as Hulu are not included in Nielsen cross-platform rating measurement, because the rules are that shows qualify for TV audience measurement only if they air *all* of the commercials that are included in the television broadcast. But Hulu (and similar online sites) carry only a fraction of these commercials, since viewers will not sit still for lengthy commercial breaks.

Another problem is human/behavioral. People are much more willing to let their TV devices be tracked than to have their internet activities monitored.[205] Therefore, cross-platform tracking alters the samples.

To be effective in measuring across platforms requires a presence by measuring companies on these platforms, or at least close partnerships. This strengthens measurement companies that operate in several media segments. There are significant economies of scale, economies of scope, and network effects, that together generate advantage to market leaders such as Nielsen, comScore, and potentially Google. Nielsen is active in measuring in the following media segments:

- TV and cable (Nielsen Media Research);
- Radio (Nielsen Audio (BDS and Arbitron);
- Film (NRG);
- Newspapers (NMR);
- Books (BookScan);
- Music (SoundScan);
- DVD (VideoScan);
- Websites (NetRatings);
- Social media (SocialTV);
- Telephone (Nielsen Mobile/Telephia);
- Consumer product retailing (HomeScan);
- Neuroscience (NeuroFocus).

Google's cross-media measurement product is called Google Attribution 360.[206] It integrates digital and broadcast data, and combines it with an analysis of digital marketing performance across all channels, including media such as radio, television, print, out-of-home, and digital. The company partnered with Kantar to develop this cross-platform media measurement.[207] Google maintains its own measurements using its several platforms (Android, Web Search, ChromeOS, Chrome Browser, Google TV, Google Play).

Thus a handful of such cross-platform measurement companies play an enormously important role for media transactions everywhere, whether for advertisement placement or for content development decisions.

9.4.2.2 Challenge #2: Individualization

The logic of increasingly targeted audience research is to drill down to the individual. The collection technology is capable of individualization and can track individual media behavior rather than broad aggregates, and to do so for an individual's overall media consumption. This means a device that people carry with them, probably a smartphone app of some sort that can identify media watermarks in the digital flow of information, regardless of the platform or location in which they are received.

The trends go into that direction. Cellphones have been used in media measurement beyond their role in measuring their own usage as media devices. Researchers can use specially adapted mobile phones to measure what TV programs consumers watch.

Mobile research aims to gather data from cellphones for media measurement. Its advantage is near-constant presence at a user's side and the identification of location. On top of this, smartphones are increasingly used as payment devices. Thus, location, transaction, media consumption, and personal information could be correlated. One could then measure, in real time, the effectiveness of advertising, promotions, and differentiated pricing. In consequence, Nielsen set up the measuring service Nielsen Mobile, and expanded it by acquiring the company Telephia in 2007. The company measures consumer behavior on mobile platforms.

One firm, Integrated Media Measurement Inc. (IMMI), worked with a panel of smartphone users to observe how they consumed TV programming of the Olympic Games. The cell phone could identify digital watermarks and also identified online activities performed with the smartphones and location information. Data gathered from cellphones, computers, and laptops were transmitted to IMMI's central database.

There are significant privacy issues here. There are also important questions about whether individualization means that some consumers will get better deals than others. The airline model of highly differentiated pricing will spread. It also means that some of the content will be individualized, and that the concept of the mass-audience served by mass-media and measured in highly aggregate ways will become anachronistic.

205 Roberts, Johnnie L. "We Need a One-Size-Fits-All Ratings System." *TheWrap*. March 06, 2011. Last accessed July 11, 2017. ► http://www.thewrap.com/couch-potatoes-multiplatform-viewers-needs-nielsen-rating-too-25126/.

206 Google. "TV, Digital, & Marketing Mix Modeling." Last accessed July 11, 2017. ► https://www.google.com/analytics/attribution/features/.

207 Informitv. "Informing internet television and video." Last accessed July 11, 2017. ► http://informitv.com/2011/07/08/google-and-kantar-develop-measurement-panel/.

9.4.2.3 Challenge #3: The Internationalization of Media Audience Research

The third challenge is the internationalization of media consumption and supply, and hence of measurements. This includes the standardization of audience measurement across countries and media. Nielsen is active in over 100 countries. It also provides a measurement base that is generally accepted by partners to contingent transactions based on those numbers. Similarly, Google's measurements operate for numerous countries users and websites.

There are different business arrangements among media companies, advertisers, retailers, producers, and artists. All these are based on some quantifiable measures. If these measuring methodologies (and possibly companies associated with them) are changed, the measured numbers will inevitably be different (as has been discussed earlier) in ways that will significantly harm some of these stakeholders. The result will be controversies and calls for political intervention. (An example for different methodologies: in the USA, *Billboard* counts 150 streamed single records as the equivalent of one sale, for purposes of its charts. In the UK, however, it takes only 100 downloads to be counted as one sale. In other words, in the UK download services get a significantly high weight.

9.4.2.4 Challenge #4: Restrictions on Data Collection and Use

Many countries have enacted privacy laws that restrict the collection and use of individual data. In addition to affecting the practices of audience research, these laws vary greatly. European countries are more concerned with the use of individual data than the USA or many Asian countries. The EU's strict General Data Protection Rules (GDPR) came into force in 2018. The Organisation for Economic Co-Operation and Development (OECD) lists several data collection and distribution principles.[208] These include a Collection Limitation Principle (limits to the collection of personal data); a Purpose Specification Principle, and a Use Limitation Principle (use must be specified and disclosed and the subsequent use limited to the fulfillment of those purposes, unless consent is given); as well as principles of disclosure, individual rights, and accountability. In the past, the practices of data collection and analysis were shielded by being aggregate and anonymous. With individualization, however, this will cross into personal identification. Thus, as technology is becoming more powerful in collection, interpretation, and dissemination, the legal rules will create a significant pushback.

9.4.2.5 Challenge #5: Creation of New Research Methodologies

In the past, data collection methods had been inaccurate and slow. Given the relatively leisurely collection methods, analytical tools were similarly sluggish. On top of that, most of the academic demand models could not even be realistically applied in a business setting. They included variables and information that were not available in a way to satisfy rapid operational needs of companies.

This was less of a problem because even the existing data was poorly utilized by media companies. In 1981, an academic social science panel set up by the prestigious National Research Council in the USA looked into newspaper audience research. Its report observed that data was being collected at a high cost but only lightly examined.[209]

Today, we have moved from data shortage to glut, and the main problem is how to analyze the data effectively and rapidly. It is here that social and behavioral scientists need to make progress, and it is here that media audience practitioners and media academic researchers must collaborate.[210] In the near future, the tools of online tracking will permit a real-time observation of overall audience, global aggregations, large samples, customer individualization, and the tracking of their consumer behavior. This will add power to data collection. But how is that data used? Current methodologies are limited.

Today's audience research instruments, described in this chapter, are probably just the beginning of the development of next generation tools that will utilize, in much more advanced ways:

- Behavioral research;
- Audience instant feedback;
- Trendsetters tracking;
- Cross-cultural sampling;
- Online and mobile tracking;
- Social network analyses;
- Semantic analyses;
- Internet-of-things sensor networks.

9.4.2.6 Challenge #6: Semantic Mining and Unstructured Data

The ability to combine structured data with unstructured material – that is, "text" – is an important frontier for media and audience research.[211] There are no strong methodologies to integrate non-quantitative "fuzzy" information. For example, social media tweets, blogs, and so on are analyzed and combined with structured Nielsen data to extract more information about audience views of a program.

208 OECD. "OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data." 2013. Last accessed July 13, 2017. ► http://www.oecd.org/sti/ieconomy/oecd-guidelinesontheprotectionofprivacyandtransborderflowsofpersonaldata.htm.

209 Meyer, Philip. *The Newspaper Survival Book: An Editor's Guide to Marketing Research*. Bloomington: Indiana University Press, 1985.

210 Noam, Eli. "Research Demands on Demand Research." In *Telecommunications Demand and Investments: the Road Ahead.* Eds. James Alleman et al. New York: Springer, 2014.

211 Berger, Charlie. "Oracle Data Mining 11 g Release 2: Competing on In-Database Analytics." *Oracle White Paper.* February 2012. Last accessed July 13, 2017. ► http://www.oracle.com/technetwork/database/options/advanced-analytics/odm/twp-data-mining-11gr2-160025.pdf.

Companies have been using Twitter and Facebook as means for finding demand for their products as well as views about their brands. They can track responses to film trailers or music tracks. Companies thus hire Big Data analyzers who mine through Twitter and Facebook to locate mentions of their clients. This allows for real-time knowledge of what people are saying about the company.

As an example, in 2012 a leaked document showed that the telecom company Verizon planned to charge an extra $2 fee for paying a cellular phone bill online. This information quickly spread over the internet with a strongly negative reaction. Verizon noticed a huge amount of traffic online complaining about the fee. The hashtags #2dollarmovement and #OccupyVerizon went viral within an hour of the leak. Within a day Verizon reversed course and canceled its plans for the fee, stating that "at Verizon, we take great care to listen to our customers."[212]

Major companies are not the only ones looking for trends from social networks. A team of researchers at the University of California developed an algorithm that uses the number of positive and negative Twitter comments to evaluate companies' standing through a "smart crowd" evaluation, and to use such judgment to make stock trades. The model, it was claimed, outperformed the Dow Jones Industrial Average and other models by as much as 11%.[213]

9.4.2.7 Challenge #7: Create Linkage to Behavioral Models

Corporate demand research often has little connection to academic marketing literature, and has a weak connection only to behavioral research literature or to behavioral economics. There is no strong operational link of demand estimation to behavioral models of psychological or sociology.

The problem is on both sides. For researchers it is a challenge to create linkage of economic and behavioral data with demand. Behavioral economics is in its early stages and relies mostly on individualized, traditional, slowpoke data methods of surveys and experiments. Psycho-physiological methodologies, as described earlier in this chapter, are similarly in a very early state of usefulness.

9.4.2.8 Challenge #8: Integration with Media Managers

Collecting data and transforming it into information and knowledge is one thing. Making it operationally useful inside media organizations is another. New data products might not be known to or utilized by the media manager and creators, or are resisted since it might affect their content making decisions.

According to one distinguished newspaper editor and scholar, Phillip Meyer, one of the major purposes of research is that it "stimulates newspaper management to try imaginative and risky policies that it would not have attempted in the absence of the research."[214] Media companies periodically commission costly study and data collections but then barely use them; or they use the results mostly for simple cross-tabulations of superficial relationships. As Meyer observed, "Part of the problem of analyses of the data by media companies is that they have no 'theoretical model,' i.e. a structure to study the data. This then leads to a superficial browse through numbers, without a roadmap or methodology."

9.4.3 Conclusion on Marketing Research

Demand analysis becomes more important:

- The greater the uncertainty;
- The greater the upfront investment;
- The greater the economies of scale and network effects;
- The more competitive alternatives there are;
- The shorter the product cycle.

Recall the earlier question about whether the audience's demand shapes the content supply or whether the supply—by large media firms—shapes viewer preferences and demand? Are media demand-driven as much as the audience research techniques imply? Or are they supply-driven as marketing activities imply? As is often the case, both sides are partly right. Advertising, public relations, and media content itself all shape the public. But audiences also reward originality, and many do not want to be pandered to. Thus, creativity is required not only in the media product itself, but also in understanding an audience's needs, tastes, preferences, desires, and fears. These demand factors are often subconscious, and unarticulated by the audiences.

Would a lot of advertising and other forms of marketing make a difference in user preferences to media content? Yes, up to a point. But this would be a costly effort, and be countered by rivals' ad spending. Although there will be occasional exceptions and some nudging at the margins, it is not likely to be an economically rational decision to spend large promotional budgets in a sustained way to reshape audience preferences.

Is the determination of audience preferences—demand analysis—a "bean-counting" by uncreative minds, a tool for pandering to audiences rather than for leading them? A manager should not make the choice between creative "gut" judgment and qualitative analysis. If used effectively, they are complementary.[215] The avant-garde media manager may

212 Barrett, Brian. "Victory! Verizon Drops Its Absurd $2 Online Payment Fee." *Gizmodo*. December 30, 2011. Last accessed July 11, 2017. ► http://gizmodo.com/5872159/verizon-drops-its-absurd-2-online-payment-fee.

213 Waugh, Rob. "The Tweets ARE paved with gold: Twitter 'predicts' stock prices more accurately than any investment tactic, say scientists." *Daily Mail Online*. March 26, 2012. Accessed July 11, 2017. ► http://www.dailymail.co.uk/sciencetech/article-2120416/Twitter-predicts-stock-prices-accurately-investment-tactic-say-scientists.html.

214 Meyer, Philip. *The Newspaper Survival Book: An Editor's Guide to Marketing Research*. (Bloomington: Indiana University Press, 1985), 23.

215 Holden, Reed and Thomas Nagle. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. Hoboken: Prentice Hall, 2001.

be three steps ahead of the audience, too for popular success. The conventional media manager follows the audience by one step, in effect letting audience research make content decisions. The moderately successful media manager is probably one step ahead, using audience research as a starting point. And the successful innovator can be two steps ahead, with a creative understanding of the audience, market, and society, and using research to lower the risk.

Reliance on the gut feeling intuition of single-minded entrepreneurs and of internal advocates can be the most expensive way to learn. If a film has a cost of $50 million with a probability of 20% to gross $250 million, then improving the odds by a mere 2 points to the level of 22% by smarter demand analysis raises expected profits by $5 million, or 10% above the previous expected profit of $50 million. Whereas the film's expected profit was at a breakeven (zero), it is now profitable, with an ROI of 10%.

And therefore we should disagree with William Goldman's classic Hollywood adage that "nobody knows anything." Of course, nobody knows everything. But one can improve the odds on getting it right, and that is enough for a competitive advantage. Understanding one's audience is a relatively cheap investment with a high return. Demand analysis is the key to improving the odds.

We are just at the beginning.

9.5 Review Materials

Issues Covered

In this chapter, we have covered the following issues:

- Why market and audience research are important but particularly difficult for media firms.
- How media companies organize themselves to perform market research.
- How the data collection technology and methodology impacts business decisions.
- Which ways to collect data at the user level and the provider exist.
- How to apply techniques for data mining analysis.
- What the techniques of data mining for demand analysis are.
- How to co-ordinate multiple data flows of demand.
- How the individualization of demand analysis is a challenge.
- How to audience research is becoming globalized.
- How privacy restrictions affect data collection.
- What the business impacts of collection methodologies are.
- Why new research methodologies will be needed in the future.
- Whether media managers should be driven by demand numbers.
- How forecasting methodologies are used.
- How the internet enables new approaches in demand measurement and analysis.

Tools Covered

We used tools for demand and market research:

- Automatic metering.
- Controlled and uncontrolled experiments.
- Personal interviews.
- Panel data use.
- Surveys (mail, phone, internet).
- Focus groups.
- Psycho-physiological techniques.
- Mobile research.
- Self-reporting and auditing.
- Click-counting.
- Measuring internet traffic: site-level measurement, user-level measurement, and usercentric measurement.
- Audience metrics (ratings, CUME, AQH, average frequency of exposure, quads, and *Q*-ratings).
- Statistical inference, sampling, and CIs.
- Correlation coefficient.
- Econometric demand estimation.
- Epidemic models of diffusion.
- Delphi and comb analysis.
- Audience model-building.
- Feature extraction (e.g. PCA).
- Clustering.
- Conjoint analysis.
- Attribute importance.
- Anomaly detection.
- Nielsen and Arbitron methodologies.
- POS measurement into issues.
- Positioning analysis.
- Bayesian analysis.
- A/B testing.
- Metcalfe's formula and upward-sloping demand schedules.
- Effects of the macro economy on advertising.

9.5.1 Questions for Discussion

1. Since the 1980s, media technology has led to a fragmentation of audience on many levels. Is there still something that can be called "the mass audience"?
2. *Fashion and Food* is a new magazine on upscale shopping. How can one determine who will be interested in the magazine?
3. How can internet research enhance a film distributor's knowledge about the audience and demand for a particular movie?
4. What kind of data is needed to enable a producer to use regression analysis to predict demand and potential sales for a mobile phone? A book?

5. How can qualitative audience measurements help TV broadcasters?

6. Describe how a laptop maker would use the conjoint analysis technique to design and market its product. At which stages should this technique be used?

7. Compare the usefulness of a Delphi survey versus a survey of the general public. When would you use each one?

8. Propose how to conduct demand experiments for a new video game console.

9. If a magazine publisher considered publishing a new business magazine for college students, describe techniques to see if there is demand for such a magazine. What would be the pros and cons of each technique?

10. Discuss the advantages and disadvantages RFID tags have over conventional barcodes.

11. How can a website company measure the audience engagement with its product on the provider level (sell-side)? What are the advantages and disadvantages of various techniques?

9.5.2 Quiz

1. Which of the following media mediums require the least participant collaboration for audience research?
   A. Radio;
   B. Internet;
   C. Television;
   D. Books.

2. A banner ad is a type of:
   A. Active advertising exposure;
   B. Passive advertising exposure;
   C. Click through;
   D. Target ad.

3. Which of the following is *not* a tool to forecast demand for new products?
   A. Consumer surveys;
   B. Producer surveys;
   C. Comb analysis;
   D. Z-score;
   E. Historical analogy test.

4. Who created the Portable People Meter System?
   A. VNU;
   B. Nielsen;
   C. MediaMetrix;
   D. Arbitron;
   E. Nickelodeon.

5. What is an audience "share"?
   A. The percentage of time each family member spends watching TV;
   B. The percentage of TV sets in use (or persons viewing) tuned to a program;
   C. The number of TVs in a household;
   D. The amount of time spent watching a TV program;
   E. The percentage of TV sets per town.

6. When should management utilize the Delphi methodology?
   A. To predict the future of a product;
   B. To compare purchase criteria with the producer's opinions;
   C. To study "network effects";
   D. To gain the opinions and suggestions of experienced experts on audience needs, attitudes, and priorities.

7. What method should management use to compare its products with those of a competing firm?
   A. Metcalfe's law;
   B. Log-file analysis;
   C. Comb analysis;
   D. Audience metrics.

8. What should the management of a motion pictures firm ask itself in order to estimate demand for a movie?
   A. Does the genre cater to overlapping audiences?;
   B. What was the demand for movies with the same actors, genre, or director?;
   C. How many times was the movie trailers viewed via the internet?;
   D. What is the lifecycle for similar movies?;
   E. All of the above.

9. What is *not* a method of psychophysiology?
   A. Electrodermal activity;
   B. Mood regulation;
   C. Respiratory sinus arrhythmia;
   D. Facial electromyography.

10. Which of the following is *not* a problem of user-centric Internet audience measurement?
    A. Click fraud;
    B. Meters are "black boxes" and require industry validation;
    C. Small sites are at a disadvantage;
    D. Poor site diagnostics.

11. The management of a new magazine would most likely use which of the following techniques to measure its circulation?
    A. Folio 400 reports;
    B. Direct mail test;
    C. Self-reporting;
    D. Surveys.

12. Why is audience research important for media firms?
    A. To know how many people are utilizing their products and services;
    B. To know who and how many people are reached by their products and services, and what the audience actually wants;
    C. To estimate future profits;
    D. To study audience demographics;
    E. All of the above.

13. What does evolutionary psychology suggest about why people seek entertainment?
    A. As forms of entertainment evolved, so did human intelligence;
    B. Dinosaurs were actors in prehistoric movies until they were all killed off;
    C. The desire for "play" or entertainment is an intrinsic human character;
    D. The desire for entertainment is a learned human behavior;
    E. Entertainment helped the time pass before the advent of TV.

14. What are the problems or econometric demand estimation?
    A. Insufficient and unreliable data;
    B. Need to assume a specific mathematical model for relationship between price and sales;
    C. Predicting the future requires assumption that behavior is like the past;
    D. If specification is incorrect, the results will be incorrect;
    E. All of the above.

15. Which statement is right about the problems with econometrix models?
    A. The models estimate elasticities exactly;
    B. Econometric models are good at forecasting future performances;
    C. Results rarely turn out to be statistically significant;
    D. Econometric models often face methodological problems of how to interpret the results.

16. In data mining, the clustering technique is useful for:
    A. Finding natural groupings within the data;
    B. Predicting a continuous numerical outcome;
    C. Identifying unusual or suspicious cases based on deviation of the norm;
    D. Producing attribute as linear combinations of existing attributes.

17. Which of the following is not a reason why advertisers distrust sitecentric data?
    A. No demographic profile information is given;
    B. All page requests, regardless of whether from a work-based or a home based computer are included;
    C. Pages sent from web servers are not necessarily received;
    D. Returning users are counted;
    E. A, C, and D.

18. If an advertiser purchases for an advertising message a GRP (Gross Rating Point) of 180 and a net reach of 60%, then:
    A. The average viewer has seen the spot 30 times;
    B. The average viewer has seen the spot three times;
    C. The average viewer has seen the spot once;
    D. The average viewer has seen the spot 0.3 times.

19. Under what circumstances would one apply a conjoint analysis?
    A. If the company wants to predict the overall brand perception and acceptance based on familiarity and how much the brand is liked;
    B. To identify the potential market for a product and contrast the position of competitive products according to their target demographics;
    C. To illustrate and predict how a new product will be accepted by the population;
    D. If the company wants to vary the product attribute mix according to estimated customer preferences in order to add value to the customer perception of the product.

20. What is the correct order of the data use methodology?
    A. Data collection → Problem definition → Data analysis → Knowledge deployment;
    B. Problem definition → Data collection → Data analysis → Knowledge deployment;
    C. Data collection → Problem definition → Knowledge deployment → Data analysis;
    D. Knowledge deployment → Problem definition → Data collection → Data analysis.

21. Which of the following is a characteristic of the Conjoint analysis?
    A. It assumes a rational buying process where a typical buying experience constitutes of aggregating the value of individual attributes to make a purchasing decision;
    B. It is calculation-intensive;
    C. It is a market research tool;
    D. It predicts the prices which the consumer would pay for different attribute combinations;
    E. All of the above.

22. What are challenges in audience and market research?
    A. Different data privacy laws in different countries;
    B. Applying and using data resources by media managers;

C. An increasing fragmentation of audiences;
D. All of the above.

23. What data mining technique refers to segmenting data by category?
A. Clustering;
B. Organizing and classifying data;
C. Attribute importance;
D. Feature extraction.

24. If two filmmakers would want to fine tune their movie, what data collection would they be most likely to use?
A. In-person surveys;
B. Production focus groups;
C. Marketing focus groups;
D. A laboratory experiment.

25. What is Business Intelligence (BI)?
A. BI refers to the process of organizing raw data in a manageable way and to transform it into useful information;
B. BI is the analysis of organized information and transforming this information into knowledge;
C. BI describes qualitative data analysis;
D. BI refers to the whole data analysis process that includes raw data transformation, further quantitative analysis tools mixed with qualitative ways of judgment.

Quiz Answers

1. B
2. B
3. C
4. D
5. B
6. D
7. C
8. E
9. B
10. C
11. B
12. E
13. C
14. E
15. D
16. A
17. E
18. B
19. D
20. B
21. E
22. D
23. B
24. B
25. A

Marketing

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10.1 Marketing—General

For years, the sky was the limit for the information sector. Information became cheap, global, and plentiful. Information products became faster, smaller, and more widespread. Information industries became convergent, competitive, and innovative.

But since 2000, the media and information industries have experienced a series of calamities: the dotcom bubble, the telecom crisis, the music bust, the cable cord-cutting, the e-publishing lack of monetization, the PC and consumer electronics sales drop, the semiconductor boom and bust, and the newspaper implosion. In this stressful environment, how do firms respond? The situation is a major challenge for strategists, technologists, and content creators. But also it is in particular a challenge for marketers, who are called upon to keep their companies afloat by generating sales. Of course, marketing has always been important in media. A Hollywood saying goes: "There are no bad movies, only bad marketing campaigns." But an environment of supply glut, limited attention, shortening product cycles, and price deflation has made the task harder than ever. It is therefore not surprising that the importance of media marketing has increased by leaps and bounds.[1]

What do we mean by media marketing? One must distinguish two very different meanings:

1. The marketing of products generally, using media. For example, the promotion of cornflakes or automobiles on television or on websites.
2. The marketing *of* media and media-tech products themselves.

We will focus on the second meaning, the marketing of media, but often make connections that apply to the first.

Closely related chapters are ▶ Chap. 9, Demand and Market Research for Media and Information Products ▶ Chap. 11, Pricing of Media and Information ▶ Chap. 12, Distribution of Media and Information, and ▶ Chap. 14, Strategy Planning in Media and Information Firms.

In this chapter, you will learn what marketing is; the Four Ps: product, pricing, placement, and promotion; the use of word of mouth; the advertising system; how to set an advertising budget; how to allocate among media types; how to promote to advertisers; how to use the internet for marketing; and how to analyze marketing performance.

10.1.1 What is Marketing?

There are elaborate definitions of marketing but the basic one is simple. Marketing is the process of creating demand for a firm's products. This is not just a modern activity. It goes back to the mists of history, ever since farmers and artisans tried to interest others in their products. Advertising, a major component of marketing, already existed in Ancient Egypt, Greece, and Rome. By the 1600s, advertisements were regularly printed in newspapers.[2]

Marketing Versus Distribution The two terms are often used interchangeably but they are different. Marketing is the creation of the market. Distribution is the delivery of the product to the market. Several scenarios and combinations are possible:

1. Both marketing and distribution: Many local daily newspapers operate both marketing and distribution by running their own trucks to wholesalers or retailers, as well as marketing the paper to readers and advertisers.
2. Marketing but no distribution: for example, magazines usually sub-contract distribution to specialist wholesale companies but do the marketing themselves.
3. Distribution but no marketing: for example, free newspapers are widely distributed but not marketed to readers. (They are, however, marketed to advertisers).
4. Neither marketing nor distribution: for example, most independent film production firms neither market nor distribute their films, leaving this to a studio distributor.

Marketing Versus Sales Marketing is the strategic and planning function, the creation of awareness and interest in the product, and the setting of pricing. The sales function executes the strategy through deals with customers and outlets. Sales and marketing activities are closely co-ordinated, with a feedback loop from salespeople based on their experience with customers. Marketers, in turn, use the information to improve products and marketing plans.

Strategic Versus Tactical In strategic marketing, possible markets are identified, assessed, and targeted. Promotional approaches are selected, prices set, budgets allocated, and results evaluated. Tactical marketing, in contrast, executes this strategy, updates the approaches used, and refines pricing.[3]

Upstream Marketing Versus Downstream Marketing In the marketing of media, there are two fundamental directions of activity:

1. marketing of media products to audiences (downstream);
2. marketing of media outlets to advertisers (upstream).

1 McDowell, Walter S. "Issues in Marketing and Branding." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

2 Eyre, Rachel and Michael Walrave. *The Media Communications Book*. New York: Oxford University Press, 2002.

3 Crosby, John V. *Cycles, Trends and Turning Points: Marketing & Sales Forecasting Techniques*. Chicago: NTC Business Books, 2000.

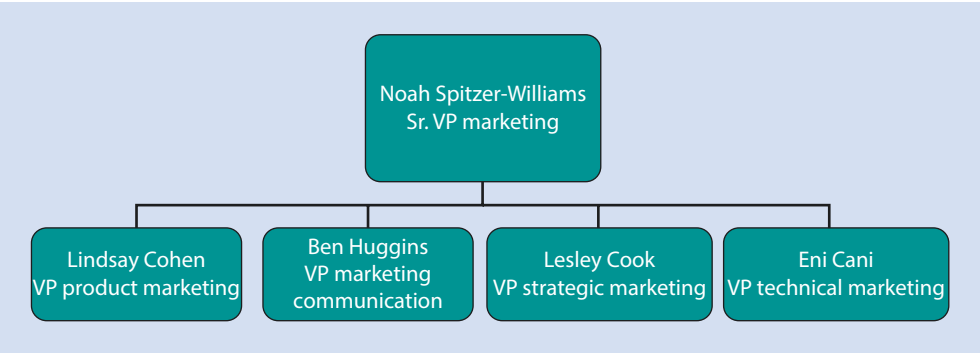


Fig. 10.1 Apple iPod marketing management team

Typically, media firms must market in both directions—upstream and downstream.[4] This is a major difference with the marketing of most other products, where marketing is purely downstream. However, this duality has been spreading to other industries as firms add advertising opportunities for third parties to their base products. Airlines, supermarkets, gas stations, or restaurant chains are examples. Similarly, several media industries in the past had only limited upstream marketing to advertisers, for example recorded music, telecom networks, and consumer electronics devices. However, one of the effects of the migration of many media activities to online connectivity has added advertising dimensions to these media.

10.1.2 The Marketing Function: Structure and Organization

Most companies have someone in charge of the marketing function with a title such as chief marketing officer (CMO) or, in the case of smaller firms, director of sales and marketing. The CMO reports to the chief executive officer (CEO) and typically oversees vice-presidents of sales and of marketing, and often of customer relations and marketing communications. She manages and co-ordinates marketing operations, creates a budget, plans and manages the marketing department, and integrates marketing decisions and activities with the business strategy.

For the upstream sale of advertising by a media company, the person in charge has a title such as vice-president (VP) of advertising, associate publisher/advertising director, advertising director, national sales manager, or sales manager.[5]

CMOs live dangerously. Their tenures are short because they often take the blame if revenues are disappointing. The average CMO tenure in the USA was measured as 22.9 months, in contrast with the much longer 53.8 months of the average CEO.[6] In Brazil, similarly, the average CMO tenure is just 26 months. On a positive note, marketing executives tend to be relatively mobile across firms and industries.

In the past, marketing operations were often organized by geography (e.g. California; East Coast; Asia). Later, marketing departments became composed of brand managers who were focused on a particular product and its success. Taking the next step, marketers also focused on customer relationships and on categories of customers. Account managers were established as the single point of contact with major accounts, selling the entire range of products and services, and across regions. An emerging fourth dimension is marketing on particular platforms, such as digital marketing. Firms often integrate these dimensions in a matrix system that combines regions, products, customer classes, and platforms.

Marketing and sales are often part of a specific business unit dealing with a particular product. An example for product marketing is the 2012 team for Apple's iPod (Fig. 10.1). It, in turn, is part of Apple's much larger marketing organization.

1. Senior VP marketing: involved with all aspects of marketing; has knowledge and experience in both the technical and marketing areas ("talks both languages").
2. VP strategic marketing: responsible for research and development of product, focuses on product's benefits, deploys consultants and research firms.
3. VP technical marketing: involved in new products, product roadmap, and rollout stages, involved with engineers.
4. VP product marketing: supervises individual product teams that define, develop, and launch marketing campaigns for product.
5. VP marketing communications: in charge of promotions and public relations (PR), direct ads, and product packaging.

4 Several media industries had only limited upstream marketing to advertisers, for example recorded music, telecom networks, and consumer electronics devices. However, one of the effects of the migration of many media activities to online connectivity has been to add advertising dimensions to these media.

5 Daly, Charles P., Patrick Henry, and Ellen Ryder. *The Magazine Publishing Industry.* Needham Heights, MA: Allyn & Bacon, 1997.

6 Association of National Advertisers and Booz Allen Hamilton. "Marketing Department Priorities Often Differ From CEO's Agenda." October 11, 2004. Last accessed on May 10, 2010. ► http://www.boozallen.com/publications/article/659394.

10.1.3 How Does the Marketing of Media Products and Services Differ from Regular Marketing of Other Products?

The marketing of media has many similarities to general marketing but there are also special aspects.

- For most products, revenue is generated by sales to end users or intermediate distributors. In the media industry, this is not the case. Media products are often given away rather than sold to identifiable users. Broadcast TV, radio, free and online newspapers, and website information are examples.
- As mentioned, there is often a simultaneous "two-sided" marketing that involves content being pitched to audiences for their attention and audiences subsequently being pitched to advertisers.
- Low marginal costs and high fixed cost provide strong economics of scale. They create incentives for investment in marketing campaigns ahead of the market in order to build market share. In addition, many marketing activities, such as advertising or PR, have scale elements themselves and hence favor large firms. To advertise nationwide rather than locally is less expensive, especially if transaction costs are factored in.
- It is frequently difficult to exclude unauthorized consumption—piracy, for example—and it is hard for marketers to "compete with free."
- Often there is a short product cycle and a short marketing window (for theatrical films only a few weeks).
- Changing distribution technology creates numerous new distribution channels and fragmentation of markets, often moving away from the mass-audience to a "long tail." This creates thin and specialized audiences, requiring specialized marketing.[7]
- Media products are often unique one-shot productions. As a film marketer noted, "if we release twenty-eight films, we need to create twenty-eight different audiences and twenty-eight different marketing campaigns."[8]
- A special complicating factor is that several media industries are in decline. From 1950 to 2000, newspaper penetration in the USA dropped from 38% to 24% of the population. Circulation increased by 19%, but population was up 70%. After 2000, strong declines in absolute terms began, driven by online-based news, totaling by 2016 a loss of about a third of circulation.
- There is high uncertainty and instability of demand for content. Users often do not know, articulate, or communicate their preferences well. Many products are "experience goods," which are hard to sample in advance by consumers.
- Many products are "intangible"; that is, they are not physical objects but ephemeral.
- There is a skewed distribution of success. The top five products in many media segments can generate between one- and two-thirds of revenues, although they may represent a tiny fraction of the total number of products released.[9] There is a large increase in the number of product makers. Success is increasingly rare in statistical terms. Compared with 1998, fewer than half the new releases make it to the bestseller lists, reach the top of audience rankings, or win a platinum disc.
- In US network TV, only about a quarter of new primetime shows survive beyond their debut season, whereas in the mid-1980s about a third managed at least a second season.[10]
- There are strong "network effects." User preferences are often shaped by the usage of others. The demand for some products depends on the supply of other products. Network effects are often fad and hit driven.
- The excess supply of information, together with a low marginal lead in terms of competition, creates price deflation to near marginal cost levels. This price does not cover the full cost of production. Therefore, the product must be strongly differentiated from those of rivals, since price competition would be ruinous.

10.1.4 Limited Attention

Perhaps the most significant special aspect of marketing of media to audiences is a huge excess supply. There is a significant and growing number of competing products in the media market. Books do not seem to be at the dynamic end of media, and yet in 2015 there were 575,000 new titles published in the European Union (EU). In Britain, 184,000 books were published (versus 133,224 in 2009).[11] In the USA, 305,000 new books were published (versus 275,232 in 2008),[12] plus about 350,000 self-published ones. In China, the number was 444,000 in 2015 (versus 136,226 in 2008).[13]

In the USA 25000 different magazines appear regularly. There are over 600 full-time simultaneous TV channels. In Europe, the numbers are even larger, though covering multiple language markets. Each year millions of new online sites are created, and tens of thousands of songs written and copyrighted. And, of course, there is a huge inventory of existing content, the output of millennia of

7 Anderson, Chris. "The Long Tail." *Wired*. October 1, 2004. Last accessed July 12, 2017. ► https://www.wired.com/2004/10/tail/.

8 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood*. New York: Random House, 2005.

9 Aris, Annet. *Value-Creating Management of Media*. Hoboken: John Wiley & Sons, 2005.

10 Aris, Annet. *Value-Creating Management of Media*. Hoboken: John Wiley & Sons, 2005.

11 International Publishers Association. Annual Report October 2013 October 2014. Last accessed July 12, 2017. ► http://www.internationalpublishers.org/images/reports/2014/IPA-annual-report-2014.pdf; The Publishers Association. UK Book Industry In Statistics 2009. Last accessed November 16, 2010. ► http://www.publishers.org.uk/index.php?option=com_docman&task=doc_download&gid=177&Itemid=.

12 RR. Bowker LLC. "Bowker Reports U.S. Book Production Declines 3% in 2008, but "On Demand" Publishing More than Doubles." Last accessed November 16, 2010. ► http://www.bowker.com/index.php/press-releases/563.

13 International Publishers Association. Annual Report October 2013 October 2014. Last accessed July 12, 2017. ► http://www.internationalpublishers.org/images/reports/2014/IPA-annual-report-2014.pdf; General Administration of Press and Publication of the People's Republic of China. "General information of the national press and publishing industry in 2007." Last accessed July 12, 2012. ► http://www.gapp.gov.cn/cms/html/21/490/200808/459129.html.

civilization. The more efficient distribution technology is, the faster this cumulative process advances. It is the challenge of marketers to deal with the huge abundance of products.

Marketing of media therefore means competing for the consumers' time/attention budget, not only their money budget. And the more efficient the distribution technology, the greater this overabundance and competition for "mind share." In 1960, the mass-media supplied to an average American household was about 3 million words per day (including unwatched TV, unread papers, and unlistened-to radio). By 1980, this figure had increased by 267% to 11 million words. By 2000, this had risen to 75 million words. An estimate of the annual growth rate of business information is 12%; 8% for scientific information; and 5% for entertainment.[14] All growth numbers are accelerating.

While supply is growing exponentially, the demand is growing much more slowly, owing to limitations of attention, time, and budget. This raises the intensity of competition in a predictable trend. Fragmented audiences mean greater marketing efforts are needed. In 1965, 81% of women aged 18–34 could be effectively reached with three TV ads. By 2000, 97 ads were needed,[15] and the number keeps rising.

The bottleneck is not production of information, and certainly not its distribution, but rather its consumption. Content production and distribution are growing but attention is hardly growing. There are limits to human information handling and processing. Sustainable reading speeds, which include the comprehension of information and its absorption, are about 50 bits per second. The speed of speaking and listening comprehension are somewhat slower. The universality of these ceilings indicates that the constraints exist within our mental processes. The human processing capacity exhibits a peaked performance curve. When inflow loads are either light or heavy, processing is low. At one end, boredom sets in, and at the other, information overload creates stress and a shuts down absorption. The peak processing capacity exists at a happy medium between being given too little and too much information. This defines the best range for content, and similarly for marketing messages.

The mismatch of growing content supply and the relatively static attention time increases the marketing effort required to gain attention for one's products. Marketing costs for the average Hollywood movies have climbed from $12 million in 1991, to $22 million in 1997, $31 million in 2001, and $35 million in 2006. (The Motion Picture Association of America subsequently stopped reporting these figures.) For some films, marketing expenses were easily double that figure. In addition, not included are barter deals such as product placement of a fast-food chain in return for co-promotion efforts by that chain; the value of promotion by sister TV companies through, for example, placement on talk-show programs; post-theatrical promotion of home video sales, and videos on demand.

In this cornucopia of content, what are the strategies to gain attention? There are several. First, one can pay for attention. Consumers can be paid directly for reading advertisements or for providing their demographics. For example, the dot-com company Cybergold tried unsuccessfully to pay consumers through money, coupons, or other benefits to watch online ads. However, most efforts to structure such a direct payment system have failed for now. What has happened instead is that many media companies "pay" consumers by providing them with desirable entertainment content for nothing in exchange for slices of their attention. This is the base of much media advertising and of many media activities.

A second method is to increase information consumption by inducing consumers to add time allocation to media and advertising. This means slipping information into previously information-free situations, such as billboards, TV screens on subway stations and gas stations, and smartphones everywhere.

The third way is to change the way in which information is presented, packing more content and sensory impact into each time unit. There has been a shift to a dense form of presentation with more visual and symbolic information. Television advertisements are an example of dense information, providing a high number of messages and stimuli in a brief time span. Human beings are able to process purely visual information at a rate similar to broadband, in the megabit range, while written information is absorbed at the much slower rate (about 300 words per minute, or 200 bits per second). Ears are even slower at about 200 words per minute or about 150 bits per second. For entertainment, this means a move from written communication to a visual one. Even for inter-personal written communication, acronyms and emotions are on the rise.

A still more powerful way to increase information consumption is to make it more efficient through various information-screening techniques. A principal role of media in a situation of information abundance is screen information. The value added of many media then is the information subtracted. It takes a multitude of sources, facts, and sentiments, selects them according to their value, narrows them down to their important core, and organizes them coherently.

The alternative way in which to gain attention for one's content and usage is to compete against rival content by increasing the marketing effort. The most fundamental problem for marketing media is the rising competition for attention; there is an increased creation and production of information, and thus a growing competition for scarce attention. This leads to rising costs for seeking attention for media products. The result is a squeeze: a price deflation for media products, but at the same time a cost inflation for the marketing of these products. This price/cost squeeze is the fundamental problem for media marketing. It is partly alleviated by the greater need for all other industries to gain attention, that is a growing advertising volume, which benefits those media companies that are platforms for such advertising. Such advertising, however, is declining in price in terms of unit cost, owing to the increased supply to advertisement placement opportunities.

14 Studies of quantifying information production include, in particular, Pool Ithiel de Sola. "Tracking the Flow of Information." *Science* 211, no. 4611 (1983): 609–613; Pool, Ithiel de Sola et al. *Communications Flows: A Census in the United States and Japan.* Amsterdam: Elsevier, 1984; Neuman, W. Russel, Yong Jin Park and Elliot Panek. "Tracking the Flow of Information into the Home: An Empirical Assessment of the Digital Revolution in the U.S. from 1960 - 2005." *International Journal of Communication* 6 (2012): 1022–1041.

15 Aris, Annet. *Value-Creating Management of Media.* Hoboken: John Wiley & Sons, 2005.

To conclude, the special aspects of marketing media and information products are:

1. simultaneous "dual" marketing;
2. low or zero marginal cost and high fixed cost;
3. "free" products;
4. often oligopolistic market structure;
5. incentives for investment in marketing ahead or market;
6. rapidly changing distribution technology
7. fragmentation of mass-media: The long tail;
8. unique products;
9. often short product cycle, short marketing window;
10. especially high uncertainty and instability of demand;
11. intangible products;
12. network effects;
13. excess supply;
14. the limited attention budget.

For these reasons and other reasons, marketing is particularly important in the media and information field, and it is particularly difficult.

10.2 Case Discussion

Condé Nast's *Fly & Sky* Magazine

Throughout this chapter, we will follow the marketing strategy of a major media company Condé Nast for a new magazine project, *Fly & Sky*, a hypothetical project.

Condé Nast is owned by Advance Publications, a privately held company controlled by the Newhouse family. In 2015, Advance Publications took in $8 billion in revenue and had 25,000 employees. Advance Publications has a wide diversification of media including 25 newspapers plus, cable channels, and magazines. It owns 87 cable TV systems (under the banner of Bright House), serving 2 million households. A three-way consolidation merger with Time Warner Cable and Charter communications in 2016 created the second largest cable company in America, in which the Advance/Newhouse partnership owns a 14% stake.[16] Advance also owns 12 TV stations, 40 City business journals, and free newspapers. Advance also controls the online social news sites Reddit, Backchannel, and Ars Technica.

When it comes to magazines, Advance used to publish *Parade* magazine, inserted into the Sunday editions of more than 700 newspapers, with a circulation of 22 million, before it was sold in 2014. In particular, Advance owns Condé Nast (founded in 1909 and acquired in 1959) and Fairchild Publications (founded in 1892 and acquired in 1991 from Disney). These two magazine groups were consolidated in 2005. It also owns, since 1995, the magazine group American City Business Journals with its over 40 regional magazines.

Magazines are one of the least concentrated segments of the information industry. Entry barriers are relatively low. Magazine companies have multiple titles and magazines are increasingly specialized. There is a sizeable revenue from high-priced copies at the news-stand but most sales are by subscription. The industry is moving fast into e-publishing. Overall, the market for magazine publishing has declined, however.

The Condé Nast magazine title lineup is sprawling. Perhaps best known are the *New Yorker*, *Vanity Fair*, *Vogue*, and *Wired*. Other Condé Nast magazines include women-oriented magazines such as *Allure*, *Brides*, *Elegant Bride*, *Glamour*, *Modern Bride*, and *Teen Vogue*. Condé Nast is less strong in men's magazines, where its main presence is *GQ*. Other attempts were *Details* and *Cargo*, which were shut down, and *Golf Digest* and *Golf World*, which went to online-only distribution.

Perhaps the biggest success in male-oriented magazines is *Hemmings Motor News*. This is an 600-page(!) monthly magazine heralded as the "bible" of car collectors, with its guides, almanacs, extensive classifieds section, and website. Its headquarters is in tiny and remote Bennington, Vermont. Hemmings reaches 210,000 subscribers plus 50,000 readers at newsstands, selling at $6 per copy. Advance also publishes several other car-related magazines, including *Hemmings Muscle Machines*, *Classic Car*, *Sport and Exotic Car*, *The Collectible Vehicle Value Guide*, and *Special Interest Autos*. The *Hemmings Motor News* website includes classified ads, product directories, car clubs, a parts locator, T-shirts, memorabilia, and access to customer service.

Hemmings has been successful despite modest beginnings. Terry Ehrich, a Harvard-educated businessman, bought *Hemmings Motor News* in 1969, when it was making $250,000 annually and selling around 30,000 copies. It is now making more than $20 million annually and sells over 260,000 copies a month. It includes around 20,000 pages of advertisements per year.[17]

Condé Nast is now considering (in our hypothesis) the launch of a new magazine in order to increase its male readership. This is *Fly and Sky*, a magazine with a focus on aviation. Its goal is to duplicate the success of *Hemmings Motor News*. What marketing strategy and efforts should Condé Nast undertake to make its new magazine successful?

16 James, Meg. "Charter completes purchase of Time Warner Cable, Bright House." *Los Angeles Times*. May 18, 2016. Last accessed July 5, 2017. ► http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-charter-time-warner-cable-20160517-snap-story.html.

17 Kiener, Robert. "Hitting on All Cylinders – Hemmings Motor News – Brief Article." *Nation's Business*. June 1999. Last accessed June 20, 2012. ► http://findarticles.com/p/articles/mi_m1154/is_6_87/ai_54695735/.

10.3 Product Design

10.3.1 The Marketing Role in Product Design

The field of marketing is full of easy-to-recall catchphrases and terminology. Among these are the Four Ps of marketing:

- product;
- positioning (or placement);
- price;
- promotion.[18]

We will discuss these four dimensions sequentially as applied to the media and information sector. We begin with product design.

Even if the marketing is creative, it must be promoting a distinct and attractive product to be successful over the long run.[19] An effective product leads a firm out of commoditization space, which enables higher prices. However, it carries a higher risk, a potentially large development cost, and a higher chance for consumer disfavor. Originality is one dimension of a new product. It may make a product "cool,"[20] convenient, or effective. But originality must also deal with the fact that familiarity is comforting. New products have therefore a broader appeal if they are familiar in style, appearance, or operation to previous products. Having to learn new procedures and functions or understand new genres discourages many consumers from choosing a new product.

In the past, product design was supply-side oriented, from the producer/creator to the user. This was classically expressed by Henry Ford, who proclaimed that a customer for his cars "can have any color that he wants as long as it is black." Production efficiencies rather than marketing demands set the tone. The opposite approach—a demand-side orientation—was to purely cater to the preferences of the market. Social critic H.L. Mencken satirized tabloid newspapers that serviced the preconceptions of their audience: "No one ever went broke underestimating the intelligence of the American public." In time, product design became increasingly an interactive process of both supply and demand considerations. Technology products companies created "MTS-circles" (marketing–technical–sales) where engineers and designers accompany sales and marketing people on their customer visits in order to understand the users of their products and their needs.

Going one step further, customers provide input into the design process directly. How would one gauge public needs as they relate to a firm's products? Traditionally, there have been user surveys, focus groups, and test marketing. More recently, there have been online social platforms for feedback. The coffee shop company Starbucks used crowdsourcing for customer feedback on its products. The results need not be earth-shaking but can provide small improvements. One idea received was to create plugs for coffee lid holes to prevent sloshing.[21] The toymaker Lego created an online collaborative platform to engage users. Registered users can invent and design their own Lego model creations.[22] What such customer involvement shows is that the traditional separation of producers and consumers is softening. The results are better products, greater customer loyalty, and positive word of mouth (WOM).

In film, the involvement of consumer panels in product design is frequent. As mentioned films have often been test-screened for different endings.[23] To design the most appealing content products, media companies have increasingly turned almost to an engineering approach in which popularity factors of performers, plots, and style are put together in carefully designed products, tested out, and then produced and marketed. Music bands recruit performers as new members to appeal to the desired fanbase. Reality shows craft their formats and participants in almost scientific ways.[24]

A fundamental problem is that for users to have a meaningful input they must judge unfamiliar products. In response, the founder of Sony Akio Morita stated, "We don't believe in market research for a new product unknown to the public … so we never do any. We are the experts."[25] Steve Jobs of Apple similarly disdained consumer surveys for new products. This is not to say that he ignored consumers. His view was that a product should have its own style and identity. He kept fussing over minor aspects of packaging that seemed unimportant to pure techies. The goal was to elevate the product into an experience.

The integration of product creation and marketing has its limits when the creators themselves are drawn into the marketing orbit. Newspaper publishers came up with the concept of the "total newspaper," attempting to co-ordinate editorial and business departments in order to create an audience-oriented newspaper.[26] The stories and topics that were covered, it was hoped, would reflect audience interests more

18 Ehmke, Cole, Joan Fulton and Jayson Lusk. "Marketing's Four P's: First Steps for New Entrepreneurs." *Purdue Extension*. May 2005. Last accessed July 12, 2017. ► https://www.extension.purdue.edu/extmedia/ec/ec-730.pdf.

19 Eastman, Susan, Douglas Ferguson, and Robert Klein. eds. *Media Promotion and Marketing For Broadcast Cable and the Internet*, 5th ed. (New York: Focal Press, 2006), 217.

20 Lamb, Charles W., Joseph F. Hair, and Carl D. McDaniel. *Marketing*. Cincinnati, Ohio: South-Western College Publishing, 1996.

21 Starbucks. "My Starbucks Idea." Last accessed July 12, 2012. ► mystarbucksidea.force.com.

22 Lego. "Lego's Design By Me." Last accessed May 18, 2011. ► http://designbyme.lego.com/en-us/default.aspx.

23 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood*. New York: Random House, 2005.

24 Kotler, Philip and Gary Armstrong. *Principles of Marketing*. 15th ed. Upper Saddle River, NJ: Prentice Hall, 2013.

25 Cooper, Lee G. "Strategic Marketing Planning for Radically New Products." *Journal of Marketing* 64 (January 2000): 110.

26 Dennis, Derrick. *Media Management in the Age of Giants*. Hoboken: Wiley-Blackwell, 2003.

closely than in the past when editors and journalists selected them. But most journalists believe that integrating marketing into the editorial side is bad for newspapers and magazines' quality and credibility, and hence harms long-term brand reputation.

10.3.2 Statistical Tools for Product Design

Given the great uncertainties about media products, companies have looked for statistical tools that identify the product design that improves the odds of success. For example, there are models to forecast box-office performance based on the past track record of actors, directors, and sub-genres. This might help in the selection and design of films or TV series. However, to date these models have not worked well, or else the success rates for new films and TV shows would be more impressive.

For other products and services, the method of conjoint analysis is used in planning the design of a product. This is a statistical technique for analyzing customers' responses to the various features of products. It is based on the tradeoff that surveyed individuals reveal for various features of a product. (For a discussion of conjoint analysis, see ▶ Chap. 9, Demand and Market Research for Media and Information Products.)

10.3.2.1 Case Discussion

Fly & Sky—Conjoint Analysis

Condé Nast is exploring the proposed aviation magazine *Fly & Sky*. In designing an attractive package, it is considering several design attributes for the magazine—the length, target audience, and the extent of pictures.

Conjoint analysis helps determine how each factor impacts the utility of the customer. Suppose there are three major attributes, each with two levels:

- page count per issue: 50 versus 200;
- pictures and graphics portions: 20% versus 50%;
- page format 8″ × 11″ versus 6″ × 9″.

Eight different options ratings are shown to a sample of customers and ranked by them on a scale of 1–10.

The data points are then run as a regression, with the first option of each of the variables above given the value of 1, and the second option of the variables given the value of 0. A regression is then run, with the dependent variable being "utility to the reader" and the explanatory variables being content, size, and picture portion. This is done by the conjoint analysis statistical software package. We get the following result:

$$\text{Utility} = 4.5 + 2.375 \times (300\ \text{pages}) + 2.67 \times (20\%\ \text{pictures}) + 1.375 \times (\text{size } 8" \times 11")$$

There is a very high R^2.value of .98, which indicates a strongly explanatory regression equation and statistically significant *t*-values for the variables. The best of the eight options is that of 300 pages, 8 by 11 format, and 20% pictures, which from the regression equation gives a utility = 4.5 + 2.375 × (1) + 2.67 × (1) + 1.375 × (1) = 10.92.

How important are the various factors in consumer preferences? One can calculate the relative contribution to utility from the share of the utility generated by the attribute relative to total variable utility.

Utility range/utility range total:

- pages = 2.375/6.42 = 37%;
- picture percentage = 2.67/6.42 = 41.6%;
- page format = 1.375/6.42 = 21.4%;

This means that potential subscribers base 37% of their decision on the number of pages (short vs. long magazine), 41.6% on the visual richness, and 21.4% on the page format.

Given these results, what are the implications for Condé Nast's design of the magazine?

10.4 Product Positioning

The positioning of a product in the market is an essential factor for demand. Positioning is the way in which a company wants customers to think about its brand versus that of the competition. To position a product, it must understand both market and customers. The methods for accomplishing this goal are many and varied: test marketing, retailer surveys, historical analogy, surveys/sampling, focus groups, psycho-physiological tests, automated sample metering, recording of sales, lab experiments, econometric data analysis, conjoint estimations, and others. They are discussed in ▶ Chap. 9, Demand and Market Research for Media and Information Products.

The most effective approach varies by industry. In film, for example, one can learn a great deal about the makeup of the audience by conducting exit polls of people leaving the movie theater, and accounting for the socio-demographics of the audience. From this data marketing departments can determine the effectiveness of advertising campaigns. If the people who show up at the theater demographically match the group the studio targeted in its advertising campaign, the film has high "marketability" and the advertising has been effective in activating a particular audience. If a film continues to generate large audiences after the early advertising ends it has high "playability," meaning that moviegoers are recommending it to other moviegoers. On the other hand, when a film has large opening audiences which decline rapidly, it has a high marketability but low playability. This actually shows the effectiveness of the marketing—good marketing with a bad movie.[27]

27 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood*. New York: Random House, 2005.

10.4.1 Case Discussion

Estimating the Potential Market for *Fly & Sky* Magazine

The Market and Its Size

- Pilot population: globally about 3 million.
- People strongly interested in aviation adventure: estimated 5 million worldwide.
- Service and product providers, insurance, fuel, maintenance, resorts: estimated 400,000.
- Total: 8.4 million.
- Of these, one-quarter in USA = 2.1 million, about two-thirds of 1% of US population. This is the potential market.
- Market size indicators:
- Airshows are second largest non-sports outdoor events, by audience.
- Week-long airshow in Oshkosh, Wisconsin, draws 800,000, of whom 80% are non-pilots.

In order to position one's product, one must understand the appeal and identity of one's competitors. Competitor analysis is being discussed in more detail in ▶ Chap. 14, Strategy Planning in Media and Information Firms. Positioning is becoming increasingly important as mass-production for mass-markets is partly replaced by specialized products for niche markets. "The future of entertainment is in the millions of niche markets at the shallow end of the bitstream," wrote *Wired* editor Chris Anderson about the content side of media. Similar observations can also be made about media technology. Marketers recommend that firms concentrate on one or two very specific niche markets where it can dominate rapidly.[28]

Positioning can be "hard" (based on concrete technological features) or "soft" (based on image) or a combination of the two. Technology industries tend to favor hard positioning. Content industries favor the soft approach. For example, in response to listener perception that radio stations are corporate-owned are stodgy, some radio stations promote themselves with an anti-corporate feel even when they are owned by a big media firm.

Positioning may require pricing user types. Different consumer types respond differently to innovations. There are innovative adopters who acquire advanced technology and content either because they are self-confident or like to stand out or are not locked into a previous model. There are also "pragmatists" or "early majority" – the large group of adopters following behind the early visionaries. They are nervous about making a false choice and prefer to join the crowd. Such users avoid, postpone, and eventually follow the safe choice, the market leader, or dominant standard. There are also "conservatives" or "late adopters" join reluctantly when they have no choice. Each of these user types requires a different approach by marketers.

The challenge to marketers is to establish the positioning identity through early adopters who will then put the followers at ease. An example is how the Japanese video game console maker positioned Nintendo's Wii video game consoles. Nintendo's strategic goal for Japan was to position the Wii as a game platform for the living room instead of the teenager's bedroom. The key to do this was to reach women. The company then recruited so-called "alpha moms" who were invited to play together with their friends. They were not video game players but could be influential within their communities. The alpha moms' comfort level with the Wii, coupled with their credibility as non-professionals, quickly generated a viral takeoff of the device.

In positioning a media product, it is often important to concentrate on a particular niche market and to target the company's resources accordingly. Radio stations might do so by identifying a single listener type that its employees should always keep in mind when working on programming or promotion. For example, the programming and promotion staff of the station would describe their target audience as "Tiffany," a hypothetical 22-year-old recent college graduate, who works in the PR department of a major company. "Tiffany" is single but would like to have a family in the future, lives in an apartment with a roommate, enjoys music and the outdoors, is comfortable in casual clothing, and is a member in a health club. For the radio station, "What would Tiffany think?" is a key question in any discussion.

This approach is a shorthand for a company to identify its "unique selling point" (USP) for positioning. In what ways is its product essential, different, and believable?

To be differentiated from rivals' offers is usually important in order to avoid being in a commodity market. There are several tools to identify uniqueness and its extent, and we will show two approaches.

The Radar Chart The radar chart consists of a series of equiangular spokes, called radii, with each spoke representing one of the variables of a product. This allows a representation of several attributes of a firm's product and their intensity, and a comparison with the profiles of rival offers.[29] ◘ Figure 10.2[30] illustrates several aviation magazines, using six major attributes—price, currency of information, entertainment value, engagement in shared experience, respected columnists, and skills advancement.

What we can see is that Magazine A is strong in its currency of information while Magazine B dominates in entertainment value.

Hotelling Charts Customers are distributed along their preferences for certain products and attributes. Let us look at TV programs. For a TV channel, maximizing revenues means, for simplicity, maximizing audiences, which in turn depends on the channel's positioning in the market. In ◘ Fig. 10.3, TV programs are depicted ordered according to intellectual "quality," with

28 Easingwood, Chris, and Anthony Koustelos. "Marketing High Technology: Preparation, Targeting, Positioning, Execution." *Business Horizons* 43, no. 3 (October 2004): 27–34.

29 Few, Stephen. "Keep Radar Graphs Below the Radar - Far Below." *International Management Magazine*. May 1, 2005. Last accessed July 5, 2017. ▶ http://www.information-management.com/issues/20050501/1026069-1.html.

30 Adapted from Wikimedia Commons. "Spider Chart.svg." Last updated February 15, 2013. ▶ https://commons.wikimedia.org/wiki/File:Spider_Chart.svg.

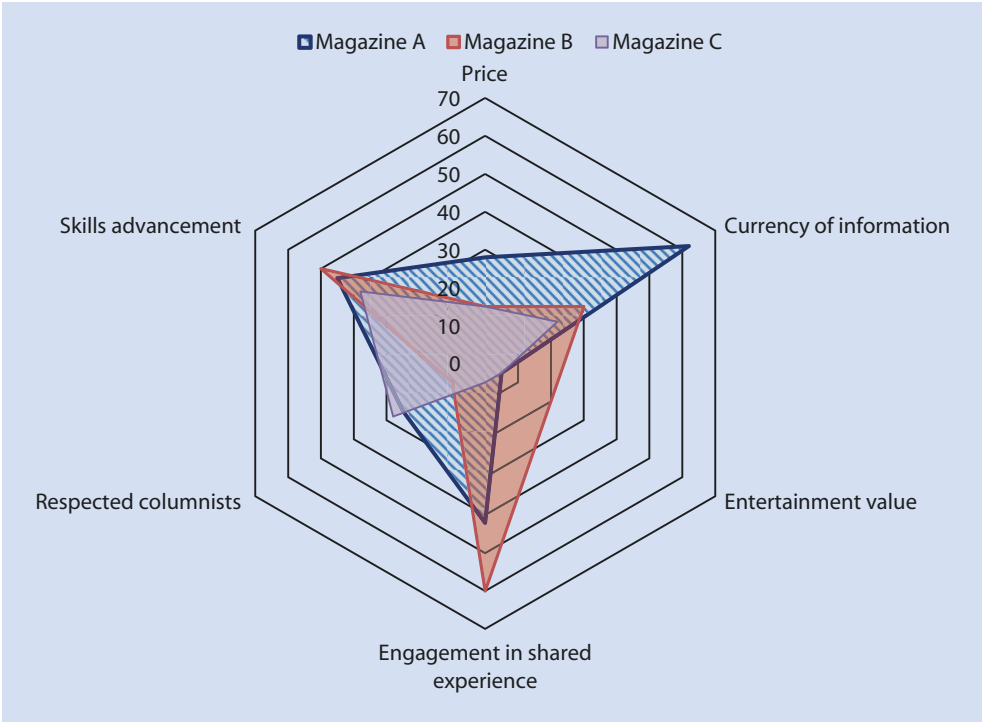


Fig. 10.2 Radar chart for competitor analysis

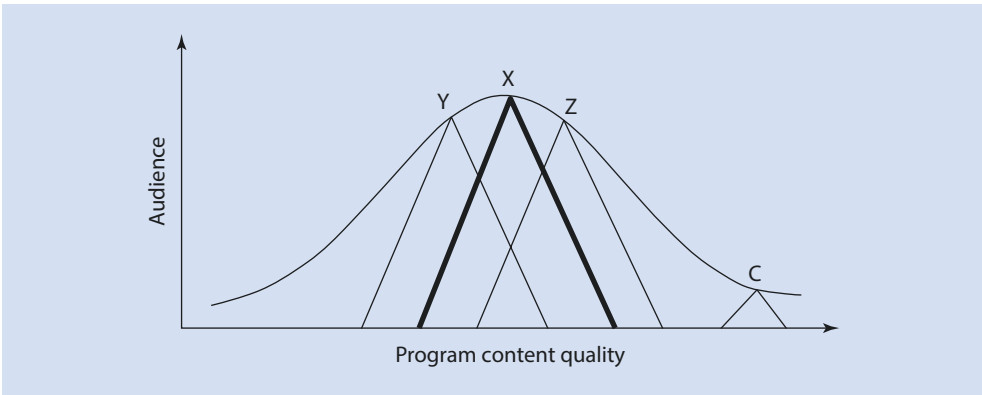


Fig. 10.3 The distribution of audiences and the positioning of TV channels

undemanding programs on the right and high-brow programs on the left (other classification criteria for ordering are also possible, as are multiple criteria). The audience interest is depicted on the vertical axis. It rises at first as one moves to the right, higher up the quality scale. But beyond a certain point, audience interest is waning as one moves further toward programs of high quality. Total audience is the triangle under each position such as X. Thus, the first channel to enter the market will position itself at the peak of the curve of audience preference.

A second and third provider, Y and Z, will position themselves relative to X so as to also maximize their audiences (sales). Further entrants will find niches both in the direction of higher and lower quality, as well as in between existing branding choices. Quality choice C will be picked based on either a government mandate, such as in the case of a public service TV broadcaster, or because the audience for C is willing to pay a high price for being able to access the content.

10.4.1.1 Case Discussion

Positioning *Fly & Sky*

Condé Nast must shape an image or an identity for the magazine, the process known as product positioning. Who are the rivals? Where are under-served niches?

There are at least 28 competing aviation magazines on the subject of amateur flying, just in the USA. On top of that, there are about 40 aviation magazines for commercial and military pilots, airline and airport managers, and aircraft designers and manufacturers. In addition, aviation magazines from other English-speaking countries are aimed at an international readership.

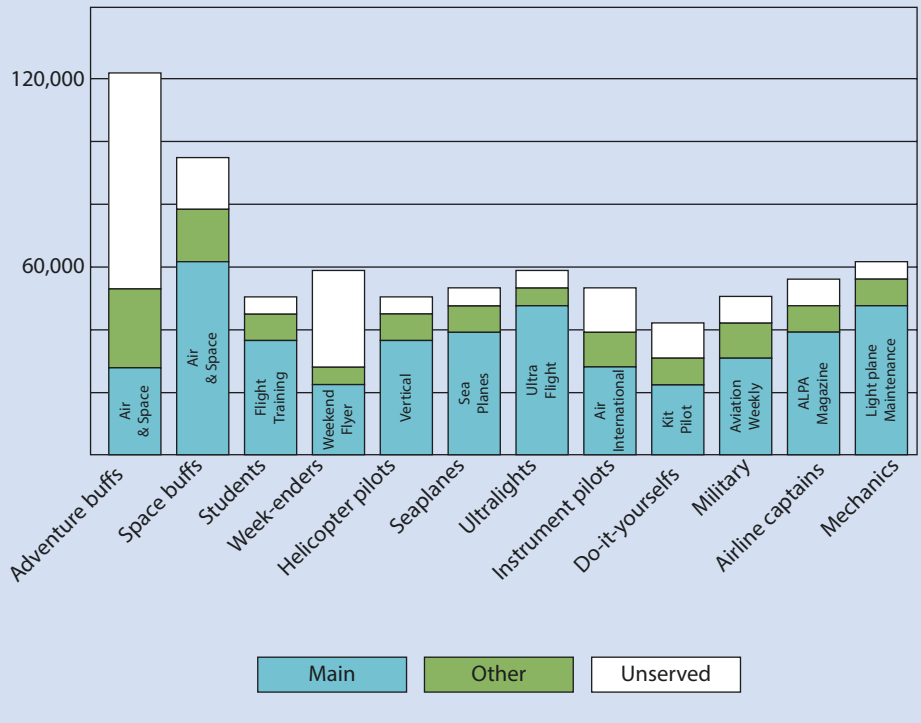
What Condé Nast needs to do is to decompose the market for aviation magazines and its components (Fig. 10.4, hypothetical) and look at how well served by other magazines these segments are. The bars represent different user types, such as student pilots and helicopter pilots. For each category, the bars show its size as well as how it is served by existing magazines and the market share of the leading magazine.

Looking at this figure, the market for serious pilots (military, airline captains, professional service pros, etc.) seems saturated. But the market for non-flying "adventure buffs" is underserved, as is the market for pilots who fly for fun at weekends. The market thus leaves room for those serving aviation enthusiasts who are looking for adventure fantasies or who fly only occasionally for recreation. These are overlapping customer groups that Condé Nast can consider attracting.

In designing such a new media product, Condé Nast may visualize the target *Fly & Sky* reader as a hypothetical "Larry" and position itself to serve him:

- Larry is 43 years old. He owns a computer store in Denver.
- He loves biking, scuba, and snowmobiling.
- He would like to get a pilot's license and take his family backwoods camping, but is too busy.
- Right now, therefore, he's dreaming.

Fig. 10.4 Coverage of reader segments by major magazines (schematic)



10.4.2 Market Penetration

The Bass Diffusion Model (described also in ▶ Chap. 9 Demand and Market Research for Media and Information Products) is a way in which to predict the gradual penetration of a product. The model was introduced by Frank M. Bass in 1969 and has been widely used in marketing forecasts, especially for new product and technology.[31] It postulates that the penetration of a product over time depends on two major factors and their interaction: external influences such as advertising and internal influences such as word of mouth. The basic premise of the Bass Model is that adopters can be classified as innovators or as imitators, and the speed and timing of adoption depends on their magnitude, identified as parameters p and q.

The model specifies the number of users according to an equation, which in simplified form is

$$N(t) = \left[p + \frac{q}{m} N(t-1) \right] \left[m - N(t-1) \right]$$

- $N(t)$: the number of present time buyers;
- $N(t-1)$: the number of previous time buyers;
- m: the estimated market size.

The two key variables of the Bass Diffusion Model are:

- p: the coefficient of innovation (accounting for external influences such as marketing/advertising);
- q: the coefficient of "imitation" (internal influences within the group, for example WOM effects).

31 The model makes several simplifying assumptions: the market potential remains stable over time; and the model is binary. That is, it assumes that a customer either adopts or does not adopt an innovation; market and product characteristics have no influence on product diffusion.

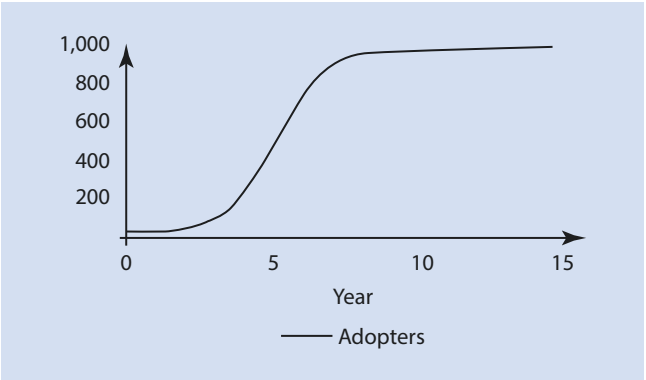


Fig. 10.5 The Bass Model: diffusion of adoption

The average value of p is 0.03 and often less than 0.01. The average value of q is between 0.3 and 0.5.[32]

The model identifies T^* as the maximum rate of adoption.

$$T^* = \frac{1}{(p+q)} \times \ln\left(\frac{p}{q}\right)$$

For example, using the values for $p = 0.03$, $q = 0.38$, the maximum rate of adoption (T^*) would be about 1 million and is reached in six or seven years. (See Fig. 10.5).

10.4.3 Case Discussion

Fly & Sky: The Bass Diffusion Model

According to the US Census Bureau, the population of age 25–55 American males is about 74 million. Assume that 2% of this demographic group is interested in aviation. Thus, the potential market for the magazine is

$$m = 2\% \times 74\,\text{mil} = 1.48\,\text{mil}$$

We assume for the parameters of innovation and imitation the average values found for other products, $p = 0.015$, $q = 0.20$. Suppose that in a year 1, the number of subscribers $N_1 = 0.8$ million. Accordingly, the remaining market potential is $m - N_1 = 1.48$ million – 0.8 million = 0.68 million.
The estimated new subscriptions of *Fly & Sky* in the next period ($t = 2$) are then

$$N(t) = \left[p + \frac{q}{m}N(t-1)\right]\left[m - N(t-1)\right]$$
$$= \left[0.015 + \frac{0.20}{1.48}(0.8)\right](0.68) = 83,710,$$

an increase of about 10%. Earlier, when subscriptions were at the level of 200,000, the model predicted an annual rise of about 54,000, a growth of 27%, i.e., it was accelerating at a faster rate.

32 Sultan, Fareena, John Farley and Donald Lehmann. "A Meta-Analysis of Applications of Diffusion Models." *Journal of Marketing Research* 27, no. 1 (1990): 70–77.

10.4.4 Branding

Positioning is done through the product's design, its pricing, and also its branding. The brand of a product is its positioning identity to consumers.

Effective branding has several advantages for the producer. It

- creates differentiation instead of commodification;
- permits pricing at a premium;
- simplifies consumer choice, projects credibility, creates consumer loyalty;
- communicates quickly;
- provides a weapon to counter retailer power.

In earlier times, stores and tradesmen were identifiable by storefront signs that represented and differentiated them.[33] Today, symbols and logos are just as important. Take consumer electronics. These markets are crowded with similar products and are often near commodity.[34] Consumer electronics therefore place an emphasis on advertising the corporate brand rather than the specific products, of which there are a large number that are constantly changing.[35] Sharp, for example, repositioned itself from a budget product brand to a premium electronics brand at the high end, while Philips shifted its brand image, when it stopped being technology leader, to one of user-friendliness, of "sense and simplicity."

Brands are especially important for media products where users do not have much information and search costs are high. Here, branding applies to a set of technology products, a bundle of content, a bouquet of publications, or an entire medium. Newspapers brand themselves as the news source with credibility,[36] and research has shown that trust raises circulation.

Branding usually involves a name, a logo, a distinctive look. Logos are often joined with taglines, such as that of pay-TV provider HBO: "It's not TV, it's HBO." In Brazil, the major TV network is Rede Globo, which has a distinctive logo showing the world's globe, and every Globo-affiliated TV station, as well as many of its newspapers and magazines, uses it. Globo's slogans "For over 45 years, we've met each other here" and "we're ready for you," are aimed at positioning the company network as a trustworthy and reliable long-time partner.[37] Setting a network's image are the "anchor" programs. For a time, the brand image of the A&E's channel centered around the show *Biography*. Comedy Central's brandmakers used to be the shows *South Park*, *The Daily Show with Jon Stewart*, and *The Colbert Report*.

Marketers will often extend an established brand's reputation to a new product. Such "brand extensions" can be accom-

33 Langley, Stephen. *Theatre Management and Production in America: Commercial, Stock, Resident, College, Community, and Presenting Organizations*. New York: Drama Book Publishers, 1990.

34 Parry, Caroline. "Analysis: Sharp Aims for High-End Electronics Market." *Marketing Week* 29 (2006): 11.

35 P-O-P Times. "Who Needs Friends? Study finds P-O-P stronger influence than word-of-mouth." December 2005, 78.

36 Meyer, Philip and Yuan Zhang. "Anatomy of a death spiral: Newspapers and their credibility." *Association for Education in Journalism and Mass Communication.* August 10, 2002. Last accessed July 12, 2017. ► http://www.unc.edu/~pmeyer/Quality_Project/anatomy_of_death_spiral.pdf.

37 Wikipedia. "Rede Globo." Last accessed July 7, 2017. ► http://en.wikipedia.org/wiki/Rede_Globo.

plished through licensing the brand to others. An example is the children's video channel Nickelodeon, which licenses toys and theme parks.[38] The sports channel ESPN expanded into *ESPN* magazine, the ESPN sports zone web site, ESPN merchandise, and ESPN restaurant franchises.[39] In radio broadcasting, a station will regularly remind listeners of its brand identity. It uses short-spot "sweepers" that include the station identifier, the radio frequency (to facilitate return visits), and a slogan that aims to summarize the station's style.

Companies often seek to benefit from a celebrity's personal brand through an endorsement.[40] The image of the personality must fit the desired product brand image. At onetime, the cellular company Voicestream used the film star Jamie Lee Curtis as its spokesperson, using her sassy and down-to-earth image that appealed to working class women. A few years later, Deutsche Telecom bought the company and renamed it T-Mobile, its global brand name. In its marketing it sought young "yuppie" women and tried to appeal to them with a trendy celebrity. Catherine Zeta-Jones—then a young film star with a significant tabloid trail—became the new spokesperson for $5 million per year. By 2014, T-Mobile aimed at niche markets as the "uncarrier" and aired the Colombian pop music star Shakira. In the USA, regulations on testimonials and endorsements require that ads must disclose connections between advertisers and endorsers.[41] This was to reduce the practice of such persons giving consumers a false impression of objectivity.

A managerial question is whether celebrity endorsers add value to the company once one subtracts their often high compensation. One study analyzed the impact of celebrity endorsement contracts, and found that the impact of announcements of such deals on stock prices was positive, suggesting that celebrity endorsement contracts are viewed, at least by the investor community, as a worthwhile investment.

Another managerial question is how consistent the brand image should be across a sprawling enterprise. There are two views. The "centralized brand" view argues that firms must project a consistent image across product lines, divisions, and countries. This leads to a push for brand consistency (color, logo size, price policy.) To maintain and enforce such consistency, an internal "brand auditing" then emerges, in which the corporate center of a company seeks to make sure that uniformity is maintained. This suggests that one function of brands is not aimed at consumers externally but rather internally, to help central management establish control norms over a heterogeneous organization and to send signals to every division and employee. The brand image is the flag to follow.[42]

In the other perspective, large companies accept differentiated branding across its different parts. For example, the media companies Viacom and Bertelsmann have weak overall brands but strong sub-brands that can go their own way. Nobody in America really knows the parent company Bertelsmann, but most regular book readers have heard of Random House. Similarly, Viacom's sub-brands in the present and past, such as MTV, Nickelodeon, Paramount Pictures, Blockbuster Video, and CBS are highly recognizable and quite different from each other, whereas Viacom itself is not well known by the broader public. In contrast, the Walt Disney Company has a strong overall brand but often weak sub-brands, such as Buena Vista.

The French media firm Vivendi stresses its field, not itself, trying to create an identification with serving a basic human need rather than of offering fleeting attractions. Its theme has been "Entertainment. It's vital."[43] Vivendi's ads highlight the significance of entertainment in daily living, equating the need for entertainment with the need for food and water. It aims to create a non-technological, non-frivolous image. This effort is a sophisticated example of companies trying to generate a brand identity by "corporate image" advertising, in which they project themselves rather than promote a specific product. The goal is to create a positive image for the firm, to communicate the organization's view on social, business, and environmental issues, to boost employee morale, and to help diversified companies establish an identity for the firm as a whole rather than relying solely on brand names. Consumers tend to be only mildly interested in this form of advertising; it is often seen as a costly self-indulgence. Even worse, it is often perceived that the firm must be in PR trouble (an example being oil companies, with their ads full of seagulls, bald eagles, and other "green" icons).

Brands can be so important that some companies are transformed into "virtual firms" whose main asset is their brand identity. They may not design or produce the product, but their image extends to the products they pick or market.

Given the importance of branding, how has the internet affected it? The perception of what the internet does to brands has gone through several stages.

- Stage 1: The internet destroys brands. The internet was assumed to be a level playing field that lowered barriers to entry. Brands were associated with established firms and viewed as Industrial Age legacies. In contrast, the internet would lead to price and feature comparison shopping that would overwhelm brand image in favor of "objective" decisions. This perspective was a classic manifestation of the view that brands are artifices of traditional marketing. But then, the pendulum swung in the other direction.
- Stage 2: Brands are essential on the internet. Online businesses soon found out that brands were important. There are hundreds of millions of websites worldwide.

38 Blumenthal, Howard J., and Oliver R. Goodenough. *This Business of Television.* (New York: Billboard Books, 1998), 401.

39 McDowell, Walter S. "Issues in Marketing and Branding," In *Handbook of Media Management and Economics.* Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. (Lawrence Erlbaum Associates, 2006), 229–250.

40 Ouwersloot, Hans. "Brand Personality Creation through Advertising." *Maxx Working Paper Series.* February 3, 2001. Last accessed July 13, 2012. ► http://arno.unimaas.nl/show.cgi?fid=478.

41 Agrawal, Jagdish and A .Wagner Kamakura. "The Economic Worth of Celebrity Endorsers: An Event Study Analysis." *Journal of Marketing* 59, no. 3 (July 1999): 56–62.

42 McDowell, Walter S. "Issues in Marketing and Branding." In *Handbook of Media Management and Economics.* Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted and Michael O. Wirth. (Mahwah, NJ: Lawrence Erlbaum Associates, 2006), 229–250.

43 The Hollywood Reporter. "Money Digest." November 28, 2006. Last accessed July 13, 2012. ► http://www.hollywoodreporter.com/news/money-digest-144406.

How then can one be noticed? As a result, online companies spent as much as 90% of their resources on advertising and marketing their brand, seeking a large market share that would generate the economics of scale that would create competition and advantage. But this too, was not the end of the evolution.

- Stage 3: The internet enables brand customization. It is the move from mass-brands (meta-brands) to customized sub-brands. A single product marketing approach to a heterogeneous population is often less effective than differentiated approaches. New technology and data analysis enable customization. This starts with differentiated pricing offers, then progresses into differentiated marketing pitches, and inevitably leads to differentiated branding. One category of potential customers receives, say, a brand projection of solidity and quality, while other customers might experience a branding image that projects fun and adventure.

10.5 Pricing

The third element of marketing's classic Four Ps is pricing. Pricing is the setting of prices by seller and is an expression of a business's strategy and its marketing plan. Pricing issues are discussed in ▶ Chap. 11, Pricing of Media and Information. Only a few points follow here.

Firms normally set prices following several broad strategic options:

1. *Market pricing* (matching competitors' prices).
2. Cost-based pricing (cost-plus).
3. *Value-based pricing.* This usually means price discrimination among customers, because each values the product differently. Price differentiation is prevalent in media. Books are sold as expensive hardcover volumes first, then they become cheap paperbacks. The price difference is much larger than the cost difference. In consumer electronics, small variation in a production may be accompanied by a large price difference. Films have a price sequence, from relatively expensive theater tickets down the ladder to video-on-demand, pay cable, and eventually to free, advertising supported broadcast TV.
4. *Strategic pricing.* This aims to achieve strategic goals such as gaining market share or establishing a brand identity. To gain market share, a firm would price low ("penetration pricing") and marketing would stress the low price and high value.[44] Conversely, a firm might use "premium pricing," setting a high price as part of creating a superior image of quality.[45]

44 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.

45 Lamb, Charles W., Joseph F. Hair, and Carl D. McDaniel. *Marketing*. Cincinnati, Ohio: South-Western College Publishing, 1996.

10.6 Promotion

10.6.1 Promotion—General

For marketers, the main obstacle is grabbing people's attention so they will consider a product's value. To do so involves advertising, generating word of mouth (WOM), PR, publicity, and so on. This is true for all products, but for many information products the special economic characteristics create major problems, as discussed earlier. As one film studio executive observed, "movie marketing campaigns are like election campaigns."[46] A film's marketing effort starts when a project is green-lighted for production. Long before the film is completed, the marketing department creates a task force in order to develop a marketing plan to create an audience. The release date is hyped, previews are shown on TV, and publicity campaigns with celebrities are used. Loyal customers are targeted. Launching major computer games requires a similar effort.

There are several goals for promotion, depending on the targeted customers and the product itself.[47] When focusing on users, several strategies are possible:

1. The acquisition of new users. This calls for a creation of a new relationship, including an introduction of product, applications, company, and brand. There is an emphasis on promotions on other media, as well as targeted marketing and WOM marketing.
2. Increasing usage by existing customers. Marketing efforts will use reminder ads and special promotions. The creation of user communities will generate incentives and new applications.
3. Recycling and upselling existing users. This can rely on addressing a relatively known base and can use a medium to promote itself.[48] To maintain users, a "lock-in", should keep them tied to the particular product or service. This raises customer retention and lowers "churn." It is therefore a goal of marketing to make it difficult to exit. Strategies include:
   - loyalty programs, with discounts and rewards;
   - brand-specific user training;
   - long-term contractual commitments in return for upfront benefits;
   - get the customers to invest in the supplier's technology by participating in customization—so customers thereby raise their own switching costs;
   - creation of community and network effects. Leaving a product therefore means losing network externalities to the user but also to other members of the community who would therefore try to persuade the wavering user to stay.

46 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood*. New York: Random House, 2005.

47 Newton, Gregory, D. "Marketing Radio." In *Media Promotion and Marketing For Broadcast Cable and the Internet,* 5th ed. Eds. Susan Eastman, Douglas Ferguson, and Robert Klein. (New York: Focal Press, 2006), 38.

48 Newton, Gregory, D. *Media Promotion and Marketing for Broadcasting, Cable and the Internet*. (Boston: Focal Press, 2006), 38.

Promotion strategies also differ according to the nature of the product. For media products, there are several categories:[49]

1. True talent products are based on artists with unique appeal or products with special features that cannot be easily duplicated, such as Elvis Presley or Bruce Springsteen, or the original Apple iPhone. True talent products call for strong early promotion and subsequent maintenance of word of mouth.
2. Marketing-driven products are typically short-term products with bestseller potential. They include "commodity" stars such as Britney Spears or light entertainment TV formats such as *Who wants to be a Millionaire*, supermarket magazine titles such as *Us*, a typical video game, or a flash drive. These projects call for sustained promotional efforts. But once the product appeal and value drops, the promotion is dropped too.
3. Tried and true products are important even though they have a low profile. They can achieve considerable aggregate volume. Examples are a cookbook series or a subscription to a local paper or its online version. They receive a modest but sustained marketing effort.
4. Niche products appeal to a specialized audience. A highly fragmented "long tail" of offerings has increasing importance. Marketing here calls for sustained low-intensity, high-targeted promotion. A high-intensity campaign is likely to be unaffordable. Such specialty products may require extensive search by customers' own initiative, and they are reluctant to accept substitutes. Specialty products are fairly price insensitive, customers are more loyal, and markets are more defensible.
5. Convenience products. These are inexpensive and their selection and acquisition requires little effort. An example is radio station listening. Promotion might be heavy, but is constrained by the low margins in such products.
6. Unsought products. The product is unknown and is not actively searched for by the consumer. An example would be a new software application or a new consumer electronics device such as TiVo or Sling. The selection of such a product is considered risky by a customer. The marketing strategy for unsought products must include teaching customers why they need it and how to use it.[50] It must include generous provisions for return. WOM promotion is important, together with the inclusion in networks of users to generate positive externalities and community reinforcement and support. Altogether, the promotional efforts by the seller may be substantial, while the consumer will require a lot of time to make a decision.

10.6.2 Timing

Timing is essential for a profitable product release. Movie audiences peak in the USA around Christmas time, as well as Thanksgiving and summer. In contrast, French movie theaters are slower in the summer but very busy in October.[51] New generations of video game players are released to coincide with the Christmas gift-giving season, as are certain books and consumer electronics. A spring release anticipates the strong selling window of light summer reading, where books are usually self-bought. A fall release of books anticipates Christmas sales and is heavier in non-fiction and specialty books, bought as gifts for others.

A second dimension for timing is the sequencing of "release windows" to different sub-markets or distribution platforms—whether geographic, willingness-to pay, or technology-based. The basic principle for release sequence strategy is: first distribute the product to the market that generates the highest incremental profit per unit of time; then "cascade" through other platforms in the order of their incremental profit contribution.[52] Before the 1970s, Hollywood movies were first released in select high-volume theaters, and if they did well more secondary theaters were added. Network TV followed at some distance. Deciding to forgo the traditional mold, in 1975 Universal Studios released the bestseller shark novel *Jaws* as a movie on more than 400 screens nationwide, accompanied by a major nationwide advertising campaign.[53] This strategy caught on. Films are now released simultaneously on more than 2000 screens in the USA alone, with a big TV and online media blitz to build momentum. Home videos and video games follow a similar technique. Mass-retail chains such as Wal-Mart and Target advertise a new product heavily for a short period. They often offer it for a low price during the first few days, to drive traffic to the store. Frequently, over half of the total sales take place during the first week.

Home video campaigns usually piggyback on the residual awareness of the prior expensive theatrical marketing campaigns, which creates incentives to release the film sooner for home viewing, whether on DVD or online.[54] In some cases, the home video marketing can be very expensive. The *Spiderman* campaign cost $100 million in 2002 ($40 million for TV, radio, print ads, and billboard and mall advertising).[55] Details on these issues are provided in ► Chap. 12 Distribution of Media and Information.

49 The first four categories are identified by Aris, Annet. *Value-Creating Management of Media*. Hoboken, NJ: John Wiley & Sons, 2005.

50 Grayson, Kent A, Philip Kotler, and Jonathan D. Hibbard. "Marketing in Different Sectors." *Encyclopedia Britannica*. Last accessed May 17, 2017. ► https://www.britannica.com/topic/marketing/Market-research-firms#toc27279.

51 Martine, Danan. "Marketing the Hollywood Blockbuster in France." *Adweek Magazines' Technology Marketing* 23, no. 3 (Fall 1995): 131.

52 Lieberman, Al and Patricia Esgate. *The Entertainment Marketing Revolution*. Upper Saddle River: FT Press, 2002.

53 Surowiecki, James. "Open Wide." *The New Yorker.* August 4, 2003. Last accessed July 13, 2012. ► http://www.newyorker.com/archive/2003/08/04/030804ta_talk_surowiecki.

54 Eller, Claudia. "Wait Time on DVD Releases Shrinks." *Los Angeles Times.* March 12, 2007. Last accessed July 6, 2017. ► http://articles.latimes.com/2007/mar/12/business/fi-dvd12.

55 Desjardins, Doug. "Mega Marketing Campaigns Up the Ante in Home DVD Segment." *DSN Retailing Today* 41, no. 16 (August 26, 2002): 21.

10.6.3 Word of Mouth, Buzz, and Viral Marketing

Viral marketing is a type of promotion that activates the users themselves to speedily distribute positive information to many other individuals. Positive information that is passed on by many people word-of-mouth (WOM), is often called "buzz." It is not easy to initiate but when it takes off it can be very effective.[56] The advantages of WOM are its credibility and its low cost. Start-ups and independent product markers therefore benefit most.[57] Generating buzz is often carefully planned and constructed. For example, a local radio station might do something so bizarre that people will talk about it with friends and work colleagues. A radio station might offer the listener with the ugliest car a free paint job, new tires, and so on. All of the items are traded with local retailers in exchange for free publicity through over-the-air mentions. One radio station gave away, on April Fool's day, free tickets for a ride on the rollercoaster at an amusement park which had burned to the ground years before. This kind of prank gets listeners' attention and free press coverage, and provides an image of a fun, casual, media operation.

An example of the different marketing approaches—classic advertising versus WOM—is the contest for internet-based telephone service. One company, Vonage, had $269.2 million in sales in 2005 and a market share of 21.7% in the USA. It spent $243.4 million on advertisements that year, which means that almost all of its revenues went into marketing campaigns. In the next year, Vonage spent even more on marketing, $360 to $380 million, an increase of 50%.[58] These are huge numbers relative to its revenues. In contrast, Vonage competitor Skype did not have a high marketing budget. Instead, it used WOM marketing and offered free VoIP service to encourage users to invite their friends. Skype marketed its services using blogs and forums which targeted lead users instead of the mass-market.[59] Its strategy proved much superior to Vonage's. By 2010, Vonage had 2.4 million subscribers, almost all of them in the USA, while Skype, with its minimal marketing budget, had 660 million users worldwide. Microsoft acquired Skype in 2011 for $8.5 billion, while Vonage was barely hanging on.

Examples for creating buzz are the releases of a new book in the *Harry Potter* series, of a new Apple iPhone model, or of a video game console. In each case, consumers have been primed for weeks for the "big event," making it prestigious to become part of it. They must wait in an intentionally long line to buy the product, and in the process they generate a media frenzy and free publicity. For its PlayStation 4, Sony organized large, media-intensive launch events in major cities around the world and streamed them live online.[60] It generated more than 1 million preorders three months before the release. Consumers lined up by the thousands in front of stores, some waiting for more than 18 hours.[61] For the sixth installment of the *Harry Potter* books, its author J.K. Rowling released the names of three of the chapters, which set off widely reported speculation about the new plot. For Harper Lee's newly found novel *Go Set a Watchman*, bits and pieces were prereleased to keep attention bubbling.

Elements of WOM marketing are:

- Create media events.
- Recruit individuals who are trendsetters, in particular celebrities. The aim is to encourage press coverage and increase the WOM effect. One method is to send teams to "in" clubs where they distribute the product or discount cards to particularly trendy people.[62]
- Distribute a sample. A movie trailer is an example. The trailer for *Lord of the Rings* was downloaded 1.7 million times on the first day it went live.[63] Fox posted the first four minutes of *Borat* on YouTube and received a million views within two weeks, which helped that low-budget and quirky movie to earn $26 million at the box office in its opening weekend alone.
- Release a film's music.
- Investigate social media reporting, what the target audience likes and is interested in, what is trending, and how quickly it trends.
- Create sharable content.
- Create a hashtag to help viral attention.
- "Trendjacking": piggyback on things that are already going viral.
- Humanize the campaign.[64]
- Create "cool." Google was able to generate buzz for its new Gmail when it offered membership to only a select number of people, which generated a massive WOM marketing.

Buzz, however, works both ways and can be negative. Kryptonite bicycle locks had an image of ultimate security, but then sales nosedived after a blogger posted a video clip of how to pick the expensive lock with a Bic ballpoint pen in ten seconds.[65] A company normally wants to avoid unfavorable

56 Adams, William J., and Charles A. Lubbers, "Promotion of Theatrical Movies." In *Research in Media Promotion*. Ed. Susan Tyler Eastman. New York: Routledge, 2000.

57 Joachimsthaler, Erich and David Aaker. "Building Brands without Mass Media." *Harvard Business Review*. January-February 1997. Last accessed July 12, 2017. ► https://hbr.org/1997/01/building-brands-without-mass-media.

58 Kharif, Olga. "Verizon's VOIP Offensive." *Bloomberg Businessweek*. May 5 2006. Last accessed June 2, 2011. ► http://www.businessweek.com/technology/content/may2006/tc20060504_327191.htm.

59 Hughes, Arthur Middleton. "A Tale of Two Marketers." *CRMToday*. 2006. Last accessed June 2, 2011. ► http://www.crm2day.com/editorial/50282.php.

60 Grubb, Jeff. "Watch the PlayStation 4's New York City launch party live on Twitch." *VentureBeat*. November 14, 2013. Last accessed July 6, 2017. ► http://venturebeat.com/2013/11/14/ps4-launch-broadcasting-on-twitch-tonight-as-the-site-takes-over-as-webs-top-games-related-video-site/; GamesIndustry.biz. "Xbox One launch live from London and New York." Last accessed July 6, 2017. ► http://www.gamesindustry.biz/articles/2013-11-21-xbox-one-launch-live-from-london-and-new-york.

61 Frum, Larry. "Gamers line up by the thousands for PlayStation 4 launch - CNN.com." *CNN*. November 15, 2013. Last accessed July 6, 2017. ► http://edition.cnn.com/2013/11/15/tech/gaming-gadgets/playstation-4-launch/.

62 Van Camp, Scott. "Motorola Looks for More Buzz Per Buck." *Adweek*. July 2004. Last accessed July 12, 2017. ► http://connection.ebscohost.com/c/articles/16609907/motorola-looks-more-buzz-per-buck.

63 Finn, Adam et al. "Marketing Movies on the Internet: How Does Canada Compare to the U.S.?" *Canadian Journal of Communication* 25, no. 3 (2000).

64 York, Alex. "What Is Viral Marketing & Does It Actually Work?" Sprout Social. May 17, 2016. Last accessed July 6, 2017. ► http://sproutsocial.com/insights/viral-marketing/.

65 Hill, Jeffrey. "The Voice of the Blog: The Attitudes and Experiences of Small Business Bloggers Using Blogs As A Marketing and Communications Tool." Dissertation, University of Liverpool, 2005.

information taking on a life of its own; but some marketing people believe that going viral, for whatever reason, is a good thing because it creates publicity, visibility, and name recognition. The public might remember the brand name Kryptonite even when they have forgotten how they heard about it.

WOM marketing has an image of authenticity, transparency, honesty, and openness. This encourages exploitation. Sony Ericsson paid 60 actors to pretend to be tourists on Times Square, to ask people to take photos of them using their new Sony Ericsson camera phones, and then demonstrating and praising the features. These kind of campaigns led the US government to require that all viral marketing representatives must disclose their identities when operating.[66]

10.6.4 Using Star Power for Promotion

A major way to promote a product is to use star power, in particular if the star is directly associated with the product. Film studios place stars on TV talk shows. Publishers promote top books by placing authors on national TV shows. Music artists appear on TV shows. Directors give radio interviews. Authors sign their book in stores and do readings ("in-stores"), which may create local press coverage.

The online promotional campaign for the film *The Blair Witch Project* in 1999 was a milestone in internet marketing. Segments of the scripted mock documentary about the mysterious disappearance of documentary makers were released online. This created a significant buzz which was a factor in the film earning $140.5 million in North America alone.[67] However, few other films achieved the same success. The idea is to create a peer-to-peer (P2P) snowball effect in which viewers pass on recommendations to others. In the case of the small independent *The Blair Witch Project* this worked well because it seemed real rather than manipulated. Once the novelty wore off, this didn't work for other films, even for the sequel.[68] Almost immediately, the approach was appropriated by the Hollywood studios. During the Fox Searchlight promotional campaign for *28 Days Later*, moviegoers were encouraged to wear red to the sneak previews via email messages, and those who complied were rewarded with merchandise related to the film.

10.6.5 Publicity and Public Relations

Public relations are communication techniques to help an organization create a good reputation for itself, its goals, and its projects.[69] Publicity, a sub-set of PR, is the generation of positive news stories about a person, product, or service.[70] The target audiences of a publicity campaign are, in particular, the media, potential customers, employees and investors, educators, and government officials.

Publicity is particularly important for films because of their short shelf life, which requires the creation of awareness even before release and advertising. Studios therefore try to generate free publicity for films. This is related to but different from the attempt to influence film critics, who judge a film's merits. Publicity tries to generate media coverage for the film as an event itself. In the "Golden Age" of film, the studios' publicity departments used three major tools: their own newsreels, the fan magazines they controlled, and their symbiotic relationships with the leading gossip columnists.[71] These techniques are still in use. Celebrity stories are placed in magazines, cable channels, and entertainment shows owned by the same media companies that own the film studio. In particular, studio publicists collaborate with journalists and magazines, giving selective access to advance film screening. There are "press junkets," with studios paying for the expenses of traveling journalists, though today most serious media outlets limit acceptance. Press junkets are an efficient way to bring together the talent and the journalists, enabling group interviews.

It is easier to generate publicity about stars than about a film. Magazines also need cover photographs of stars to boost their circulation. When reporters and their publications seek to get access to a film celebrity they often have to go through the studio and agree to make references to the film. To control the information during a film's production, the crew and cast must sign non-disclosure agreements that limit their talking to journalists. More ingeniously, studios might generate "back stories" that claim to be news, in order to get coverage. For example, for the film *Mission Impossible*, the Paramount studio generated a back story through a short "documentary" entitled *Mission Incredible* about the physical danger for the star Tom Cruise, who was doing his own highly dangerous stunts, or so it was claimed.[72] This was entirely fictitious: there were actually six stunt doubles for Cruise. But the story about whether Cruise might die the next day was too good to be passed up by the press and by TV entertainment channels.

Celebrity appearances on TV are an effective way of promotion, and they are free publicity; but they need to be carefully orchestrated and booked months in advance.[73] Competing TV shows on rival networks will avoid booking the same guest, so choices must be made. For certain books, too, the publicity of authors on TV morning shows and in the press has a major

66 Shinn, Annys. "FTC Moves to Unmask Word-of-Mouth Marketing; Endorser Must Disclose Link to Seller." *The Washington Post*. December 12, 2006. Last accessed July 6, 2017. ► http://www.highbeam.com/doc/1P2-2793118.html?refid=easy_hf.

67 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies and Tactics,* 2nd ed. Carbondale: Southern Illinois University Press, 2009.

68 *Book of Shadows: Blair Witch 2*. See Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies and Tactics.* 2nd ed. Carbondale: Southern Illinois University Press, 2009.

69 Henry, Kenneth. "Perspective on Public Relations." *Harvard Business Review* (July-August 1967): 30.

70 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

71 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: Random House, 2005.

72 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood.* New York: Random House, 2005.

73 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies and Tactics.* 2nd ed. Carbondale: Southern Illinois University Press, 2009.

impact. As a result, TV affects the composition of book sales and their publishing through their favoring attractive authors, provocative subjects, and simple conclusions/advice. There is a symbiotic relationship between the broadcasters' need for material and the authors' need for exposure.[74]

Publicity efforts are at work for major awards since they affect the success of a film. The Oscars night is watched by hundreds of millions of viewers worldwide and generates exposure for a film and its stars. In 2007, for example, five of the films nominated for an Oscar as Best Picture had increases in ticket sales right after nominations. Distribution for the film *The Departed* rose from 127 to 1453 theaters. A Best Picture win beyond the nomination adds between $15 million and $40 million to the box office alone.[75] The salary of Oscar winners sometimes doubles or more for their next film. To be nominated or to win therefore has a major economic impact, and the studios and producers organize Oscar campaigns to win awards. They target industry professional rather than the general public, and use advertising in trade newspapers, events with film-makers, private screenings for academy members, direct emails, and so on.[76] There are publicity consultants to run these campaigns, which can cost millions.

When it comes to technology products, preproduct information is often covered in the press or in trade magazines.[77] Companies create such stories with great care, to generate attention without disclosing too much information to competitors in advance. More details on managing the PR function are found in ► Chap. 8, Managing Law and Regulation.

10.6.6 Influencing the Influencers: Promotion to Opinion Leaders and Critics

Reviewers are considered very important. Getting a positive review in the *New York Times* or the *New York Review of Books* enhances a book's chance of selling well. The process becomes self-sustaining: reviews create buzz, which generates further attention. Newspaper critics have a significant impact on the success of musicals and plays. Influencing critics therefore becomes part of the marketing campaign. But the question is how much impact do critics have? As discussed in ► Chap. 9, "Demand and Market Research for Media and Information Products," critics may be opinion leaders who influence audience demand (the "powerful critic") or they may just be predictors of their respective audiences (the critic as a "spokesperson"). This makes a big difference for marketers. If the "powerful critic" theory is true, then the marketing efforts of film studios should indeed target critics. They should wine and dine them, get them to meet and interview stars, and put critics' names in film advertisements. They should also avoid the prescreening of bad films to critics, and try to counter expected negative reviews by a massive advertising campaign and a wide and quick release in order to gain audiences before the negative becomes widely known. However, research studies show that critics appear to act more as leading indicators than as opinion leaders. But if critics are mostly early predictors rather than influencers, efforts of counting them seem to be a waste of money.

10.6.7 Product Placement

Placing a company's product or brand within other media content is a way in which companies can promote their product. Computer companies give computers to film producers to have them featured in the movie. Apple products appeared in more than a third of all number one US movies from 2001 to 2010.[78] Sony Films often feature Sony consumer electronics products throughout a movie.[79] For the film *The Devil Wears Prada*, starring Meryl Streep, Prada paid for the title and supplied many of the bags and shoes featured. Other fashion industry companies also placed products. In Dream Works' romantic comedy *The Terminal*, starring Tom Hanks, there were product placements for 40 retailers, such as Burger King, Starbucks, Borders, Verizon, Swatch, Godiva, and several airlines.

Product placement is nothing new. *National Geographic* magazine used product placement in the movie *It's a Wonderful Life* (1947) extensively and did very well. The candy maker Hershey paid $1 million for placement of its fairly new product Reese's Pieces in the film *E.T.* (1982), and reported a 65% jump in profits two weeks after the movie's premiere. Ray-Ban used product placement, by Tom Cruise in *Risky Business* (1982), *Top Gun* (1986), and *Rain Man* (1988), and its annual sales for that style zoomed up.

Product placement can be an effective way to advertise without being "in your face" and without it getting lost in the clutter of other ads. It is a major way to overcome the trend of consumers skipping advertising commercials on online TV. The viewer is rarely informed about a product that is being featured as a paid promotion, except fleetingly in the final credits. The audience ideally should not notice the placement at the time, yet should remember it in an almost subliminal way. People recall 25% of products that are seen in the

74 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

75 Enright, Patrick. "How studios manipulate the 'Oscar bump'." NBCNews.com. February 22, 2007. Last accessed July 6, 2017. ► http://www.msnbc.msn.com/id/17228744/ns/business-us_business/t/how-studios-manipulate-oscar-bump.

76 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies and Tactics*. 2nd ed. Carbondale: Southern Illinois University Press, 2009.

77 Easingwood, Chris, and Anthony Koustelos. "Marketing High Technology: Preparation, Targeting, Positioning, Execution." *Business Horizons* 43, no. 3 (October 2004): 27–34.

78 Stampler, Laura. "12 Excellent Examples of How Apple Product Placements Rule Hollywood." *Business Insider*. August 7, 2012. Last accessed July 6, 2017. ► http://www.businessinsider.com/apple-product-placements-in-tv-and-movies-2012-8

79 Ashcraft, Brian. "Resident Evil: Retribution Trailer? No, You Mean Blatant Sony Ad." *Kotaku*. January 19, 2012. Last accessed July 6, 2017. ► http://kotaku.com/5877453/resident-evil-retribution-trailer-no-you-mean-blatant-sony-ad.

background, which is high. Most effective is for the product to feature directly in the story or its dialogue. However, having too many product placements has a negative effect on the credibility of a program, and distracts from it. There is also the possibility that a product will be associated with a negative character. A managerial disadvantage is that a film's audience ought to match the target consumers sought by the product's marketer, which is not always the case as the film evolves. There is also a timing issue. Both a film and the product take a lot of time to develop and they are not necessarily in sync. Product release is difficult to co-ordinate with the film release timing, especially across the globe. For example, Ericsson used product placement for a new cellphone, but the product was not ready when the film was released. In other cases, the film lags behind the product's release by months or years.

Another managerial issue is how to price a product placement and to measure its marketing value. It can cost $1 million to feature in a Hollywood film. The Ford auto company paid $14 million for three minutes in a James Bond movie *Die Another Day*. In *Jurassic Park*, a Ford Explorer SUV is chased by dinosaurs, costing Ford $500,000. Mercedes Benz paid ten times as much to feature its own new SUV in the sequel, *The Lost World: Jurassic Park 2*.[80] The cost of product placement depends on the amount of time on screen, the popularity of the movie, the fit with the product and the marketing strategy. One company, Kantar Media, tracks the time devoted to in-show branded content (product placement) on primetime broadcast television. Nielsen, similarly, tracks the number of product appearances and brand mentions in broadcast and cable TV shows, linked to the show's viewership ratings.

The number of brand placements in the top ten shows of TV networks was 30,000 in 2008. The number of different brands embedded in shows on broadcast TV was 745 and on cable channels 839. It had increased 11% and 46% respectively in that year. Teen dramas are magnets for product placement. One such show, *One Tree Hill*, had 2575 product placements in 2008—nearly 50 per week on average.[81]

Newscasts have generally avoided product placement, but in 2008 two cups of McDonalds iced coffee were placed on the Fox 5 news desk in New York during its morning show. Network executives claimed that in the case of a news story about McDonalds, the coffee cups would be removed.[82] In the UK, there was a ban on product placement, but it was lifted in 2011. In the USA, the Federal Communications Commission (FCC) has product placement regulation on broadcasters, and aimed to expand this to cable television—that is, to require cable networks and producers to disclose when they accept payment for embedded advertising. After the agency launched an investigation into rule-making procedures for TV product placement in 2008, Nielsen changed the way it counts embedded ads, and it withholds all product placement figures from its quarterly news releases.

Product placement has moved from film and TV to video games, as a new way to reach young males, a target demographic that has increasingly moved away from television and therefore TV commercials.[83] In-game displays integrate the ad and the brand into the visual in front of the player. Online games may communicate with the advertiser's server and identify users. To make these approaches most effective, advertisers collaborate with the game designers in the development stage.

10.7 Advertising

10.7.1 Advertising—General

Advertising is a crucial element in the media industry. It is the vehicle through which consumers are informed and persuaded about a product. Its role for media is twofold:

- Advertising is the economic foundation of many types of media.
- Media products are being promoted through advertising.

Advertising goes back to antiquity. Promotional posters, signs, and spoken announcements already existed thousands of years ago. As previously mentioned, by the 1600s advertisements were regularly printed in European newspapers.[84] In Japan, the first news media advertisements appeared in around 1615. The Industrial Revolution accelerated advertising by creating mass-products and national brands. Advertisements in the 19th century typically were simply written descriptions of the products. Later, into the 1920s, advertising was product-oriented, in other words informational about the product's features. It then became increasingly customer oriented, projecting the consumer's happiness and benefit from the product. The radio and the television were the main vehicle for such "lifestyle advertising."

Despite all the money spent on it, it is surprisingly unclear how advertising works best. John Wanamaker, owner of the department store chain, memorably said, "half the money I spend on advertising is wasted; the trouble is I don't know which half." There is a plethora of explanations of how advertising works, from postmodern theory (advertising resonates with cultural "stories") to semiotic theory (ads have symbolic

80 Marich, Robert. *Marketing to Moviegoers: A Handbook of Strategies and Tactics.* 2nd ed. Carbondale: Southern Illinois University Press, 2009.

81 FIT Media. "UPDATE on TV Product Placement and Product Integration." Last accessed July 13 2012. ► http://www.fitmedia.org/images/FITMedia_Research_-_Product_Placement_Embedded_Ads_9-23-09.pdf.

82 Clifford, Stephanie. "ADVERTISING; A Product's Place Is on the Set." *The New York Times*. July 22, 2008. Last accessed July 6, 2017. ► http://www.nytimes.com/2008/07/22/business/media/22adco.html?adxnnl=1.

83 Richtel, Matt. "A New Reality in Video Games: Advertisements." April 11, 2005. *The New York Times*. Last accessed July 6, 2017. ► http://www.nytimes.com/2005/04/11/technology/11game.html.

84 Eyre, Rachel, and Michael Walrave. *The Media Communications Book*. London: Arnold, 2002.

meanings to consumers),[85] and much in between. One psychology-based explanation on how ads work is through social identity. In celebrity endorsements, viewers identify with the pitchman and what he stands for. Their personal identity gets wrapped up in the ad.[86]

Who are the largest advertisers in the USA? Collectively, the top 200 spent over $150 billion on advertising in 2017. The top ten advertisers[87] were:

1. Procter & Gamble $2.4 billion;
2. Berkshire Hathaway $1.9 billion;
3. General Motors $1.9 billion;
4. Comcast $1.8 billion;
5. Pfizer $1.7 billion;
6. AT&T $1.6 billion;
7. Verizon $1.3 billion;
8. Ford $1.3 billion;
9. L'Oréal $1.2 billion;
10. Toyota $1.2 billion.

This is quite substantial spending. However, the heaviest advertisers are not consumer products or telecom companies, but rather TV networks and station groups advertising their own media products. The value of such advertising was estimated as 10.8% of all TV advertising value.[88] This would mean about $3–4 billion of such "in-house" advertising spent by each of the four-major networks and their affiliated stations. On top of that, they also spend real money in ads in other media, including on other TV networks.[89] Furthermore, media companies often trade advertising time (or space) with each other. This is done by radio stations, local newspapers, magazines, cable systems, and television stations. Co-owned media cross-promote each other. Alternatively, within one TV or radio channel one program promotes the next, or another. In such a barter system, money does not change hands or only in a minor way, but the two parties agree on an in-kind exchange.

Aside from TV networks, the top advertisers in many countries are another category of communications companies, mobile phone operators. For example, in Tanzania, the cellphone operators were the number one, two, four, and eight advertisers. In Tunisia, the cellphone companies were the number one and two advertisers. In Pakistan, they were numbers two, three, five, six, and eight. In Portugal, they were numbers one, three, nine, and ten.

10.7.2 Advertising Agencies

Standing between the media company and a company's marketers is typically the advertising agency. A few companies do not use outside advertising agencies and have in-house ad departments, for example Calvin Klein, and Benetton. But the use of agencies is more common. Advertising agencies also provide services such as market research, design of a media plan, and its execution.[90] There are almost 15,000 ad agencies in America alone, but it requires scale to provide clients with integrated advertising and marketing communications services worldwide and across media. Thus, there has been a consolidation of agencies into very large companies. To preserve the creative advantages of smaller size and specialization, these "superagencies" own many smaller agencies. For example, with the boom of the internet, interactive ad agencies emerged, specializing in online marketing services, such as web design or internet advertising, and reaching internet users. Specialized agencies deal with online strategies, for example implementing search engine marketing to attract customers for its clients.[91] Agencies create ads for their client and choose keywords related to the company, and use various techniques to optimize the hit rates and links with other websites, so that their client's website rises to the top of a search result.

Worldwide agencies have advantages, such as the ability to exploit good ideas on a global basis, maintain a consistent international brand and/or company image, and offer simplification of co-ordination and control. Most firms prefer the full-service agency; approximately 75% of all companies employ this type. But there are also drawbacks. For example, marketing a standardized media product the exact same way all over the world can be ineffective. Effectiveness in advertising is difficult in a cross-cultural context. Language is the most obvious limitation. For example, the Swedish maker of the vacuum cleaner Electrolux at some point came up with the slogan "Nothing sucks like an Electrolux," clearly missing the US English's jargon.

The world's largest advertising agency groups are listed in Table 10.1.

Advertising agencies used to receive much of their income as a percentage of advertisement billing—usually 15%.[92] If Omnicom billed at 15% of advertising volume and its advertising-based revenues are $4.6 billion, this means that it placed advertising of about $30 billion in various media. However, negotiated commissions can set a different rate, 10%, for example, or at a cost-plus basis, a set fee, or a

85 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

86 Klemm, William R. "How Advertisers Get You To Remember Ads" *Psychology Today*. February 21, 2014. Last accessed July 6, 2017. ► https://www.psychologytoday.com/blog/memory-medic/201402/how-advertisers-get-you-remember-ads.

87 GroupM. "Top 20 US Advertisers, Ranked by Total Media Ad Spending, 2016." *eMarketer.com*. September 8, 2017. Last Accessed June 26, 2018. ► http://totalaccess.emarketer.com/chart.aspx?r=211847&ipauth=y.

88 TNS Media Intelligence. "The Industry Forecast." *AdWatch*. 2005.

89 Initially, broadcast networks were reluctant to run ads for shows featuring programming from rival networks, or to pay rivals for advertising time, but they do so increasingly. However, promotions that provide specific time and date of rival programs are typically still rejected by rival networks.

90 Belch, George E. and Michael A. Belch. *Advertising and Promotion*. New York: McGraw-Hill Irwin, 2001.

91 Moran, Mike and Bill Hunt. *Search Engine Marketing, Inc.: Driving Search Traffic to Your Company's Web Site*. Indianapolis: Prentice Hall Technical Reference, 2005.

92 Langley, Stephen. *Theatre Management and Production in America: Commercial, Stock, Resident, College, Community, and Presenting Organizations*. New York: Drama Book Publishers, 1990.

Table 10.1 World's largest advertising agencies by revenue (2017)

	Agency group	Revenue in $ billion
1	WPP (UK)	19.7
2	Omnicom (USA)	15.3
3	Publicis (France)	11.4
4	Dentsu (Japan)	8.4
5	Interpublic (USA)	7.9
6	Havas (France)	2.5
7	Hakuhodo DY (Japan)	2.2

Source: Agency web pages

performance-based compensation. In the 1990s, fee-based models replaced commissions as the main compensation, accounting to 75% in 2010. Performance-based compensation, on the other hand, accounted for less than 1% of compensation agreements.

When it comes to retaining an advertising agency, a company usually invites several agencies to pitch a proposal. They are chosen based on their plan, its cost, their past record, and their fit. The advertiser gives its agency basic requirements and budget for an ad campaign. The agency then creates a strategy, produces the advertisements, buys time or space, and creates activities such as search engine optimization (SEO) and sponsored links.

10.7.3 How Much to Spend on Advertising?

One of the most important decisions a firm has to make is how large its advertising budget should be. This question is related to but different from the one on how to use that budget most effectively. A company must avoid overspending, which hurt profits, or underspending, which potentially weakens the product.[93]

There are several approaches:[94]

- resources available;
- percentage of sales;
- competitive parity;
- objectives/tasks;
- marginal analysis;
- return on investment;
- value of customer.

10.7.3.1 Resources Available

The advertising budget is whatever the firm can afford in a given year. However, this means that in a good year money would be wasted through overgenerous advertising spending, while in a bad year the low advertising budget would exacerbate problems.

10.7.3.2 Percentage of Sales

This approach may provide a simple rule of thumb, but letting the level of sales determine advertising dollars reverses the cause-and-effect relationship between advertising and sales. Advertising is an investment to grow sales, not the other way around.[95] The approach is also inflexible: often, the percentage should be raised when sales are dipping. Many general and trade publishers rely on a rule-of-thumb formula of allocating 5% of a published book's retail price to its marketing and promotion. Specific promotional budgets are often based on a book's anticipated revenue. This formula means a marketing budget of about 10% of a publisher's revenues. For smaller educational or academic publishers, the marketing budget is lower and between 6% and 10%.[96] For theater, one analysis found that for commercial Broadway shows, advertising accounts for 23.5% of a production's budget costs or $469,000; for commercial off-Broadway theater, 27.6% or $165,000; and for non-profit off-Broadway 26.1% or $57,300.[97]

10.7.3.3 Competitive Parity

Firms match one another's advertising budgets. Companies therefore often subscribe to services such as competitive media reporting, which estimates the top 1000 companies' advertising in ten media and in total. Market intelligence firms record firms' advertising presence in various media and extrapolate their spending from such data. While this has some usefulness, companies' marketing situations and strategies are rarely similarly situated. For example, Charter Cable and the satellite broadcaster Dish Network are direct rivals for multichannel TV subscribers. In 2017, Dish had 13.5 million subscribers,[98] and Charter, after a merger with Time Warner, had 17.1 million.[99] But should they spend roughly the same on advertising? Charter/Time Warner Cable is an established cable firm and its reputation is established with customers. All it had to do was to keep its customers from defecting. In contrast, Dish's reputation was still developing, and most new customers had to be persuaded to switch away

93 Martin, Reed. *The Reel Truth: Everything You Didn't Know You Need to Know About Making an Independent Film*. New York: Faber and Faber, Inc., 2009.

94 Cravens, David W., Gerald E Hills, and Robert B. Woodruff. *Marketing Management*. (Scarborough, ON: Irwin, 1987), 514–520.

95 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

96 Zell, Hans M. *Book Marketing and Promotion: A Handbook of Good Practice*. Oxford: INASP, 2001.

97 Brown, Tony. "Wonderful Town: The Future of Theater in New York." *National Arts Journalism Program*, Columbia University, 2002.

98 Tartaglione, Nancy. "Dish Network Q1 Earnings Fall 6% on 143K Pay-TV Subscriber Attrition." *Deadline Hollywood*. May 1, 2017. Last accessed July 6, 2017. ► http://deadline.com/2017/05/dish-network-earnings-first-quarter-2017-subscriber-loss-1202080168/.

99 Huddleston, Jr., Tom. "Netflix Has More U.S. Subscribers Than Cable TV." *Fortune*. June 15, 2017. Last accessed July 12, 2017. ► http://fortune.com/2017/06/15/netflix-more-subscribers-than-cable/

from cable. On the other hand, in rural areas unserved by cable, Dish has a much easier time to persuade people to subscribe. Moreover, Charter operated only in certain franchise regions whereas Dish was active nationwide. Charter's advertising must therefore be much more targeted geographically. Considering all of these factors, one can see that the parity approach is inconclusive.

10.7.3.4 Meeting Objectives

The fourth approach is to consider a firm's communications objectives and then identify the budget required to attain these goals. These objectives define communications tasks. These tasks should be measurable, with a target audience, the degree of change sought, and the time period for the objectives. For example, the objectives might be defined as creating among the target audience, over a time period of six months:

- awareness among 90%;
- interest in the brand among 70%;
- positive feelings about the brand among 40%;
- a preference among 25%.[100]

A hypothetical illustration of the objectives approach is the promotion of a new film on national TV channels. The analysis proceeds in steps:

1. Define the desired target market:
   - Identify a potential target market for the film (e.g. 50 million people, or ~17% of the U.S. population);
   - Set a goal such as persuading 8% of the target market = 4 million people.
2. Estimate the number of advertising impressions needed to persuade each 1% of target population:
   - For example, assume that each single exposure to a TV advertising will persuade 2% of the target audience (two advertising exposures to get 4%, etc.);
   - This means, for an 8% audience, to generate four exposures of the target population of 50 million. The cost of reaching 1000 viewers (cost-per-mille, CPM), for the target audience, the CPM on TV is about $50. To buy four ads that reach 50 million people costs hence four exposures × 50 million audience × $ 50/1000 = $10 million.

Thus the required budget to reach the objective is $10 million. This assumes a clean fit of the programs chosen with the target audience—a highly optimistic assumption. If we assume that the TV ads also reach 25% of viewers who are of no real interest to the advertiser, the required budget would be $12.5 million. Would that expenditure be worth its business impact? The distributor's objective is a 4 million audience × $5.00 distributor share per ticket sold at box office. The expected revenues are hence $20 million. This is more than the advertising cost of the campaign, which is $12.5 million. But there are also other marketing and distribution costs. (There are, of course, also substantial production costs, but most of these are already "sunk" and hence not part of the decision process on a marketing budget.)[101] Therefore, the revenues from aftermarkets would have to be substantial to make the film truly profitable.

10.7.3.5 Marginal Analysis Approach

One would model the optimal advertising budget to find the point where marginal expenditure equals marginal revenue. This model depends on the marginal productivity of advertising. This approach is the more sophisticated version of the objective and task approach.[102] Firms formulate quantitative models to estimate consumer behavior. The models use statistical techniques such as multiple regression analysis to estimate the relative contribution of the advertising budget to sales performance.[103] They add behavioral and economic parameters and may make various assumptions.[104] These models, are, however, difficult to apply in real world situations owing to data scarcity.

A simple model might look like this:

$$S = \alpha A^{\beta} X^{\gamma}$$

- S: sales;
- A: advertising expenses;
- X: other factors, such as the state of the economy, the price of the product, etc.;
- α, β, γ are parameters.

If the exponent is small, for example, a factor of $\beta = ½$, the extra impact of advertising is declining; it is more powerful at the beginning, but has diminishing returns as it grows. The model can be more complex, with additional control variable, lagged timing, and so on, but the basic concept remains: the relationship of advertising and sales.

The problem with this approach is that it is difficult to isolate other influences on sales and identify exactly how much the advertising efforts have contributed to the marginal revenue value used in the analysis. However, if one has developed and estimated equations such as the one above and determined its coefficients one can take the first derivative with respect to A (advertising). It will be equal to 1 at the point where further advertising will cost more than it gains.

100 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

101 The exceptions are variable costs such as profit participation.

102 Cravens, David W., Gerald E Hills, and Robert B. Woodruff. *Marketing Management*. (Scarborough, ON: Irwin, 1987), 514–520.

103 Belch, George E., and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

104 For example, they assume that a company's advertising attracts customers probabilistically, that consumers choose only one of the companies based on the ads viewed, and only at the advertised price.

Table 10.2 Impact of advertising budget (schematic)

Advertising expenditure ($)	Marginal costs ($)	Net sales revenue ($)	Marginal revenue ($)	Total profit ($)	Marginal profit ($)
450,000	50,000	400,000	+100,000	−50,000	+50,000
500,000	50,000	550,000	+150,000	+50,000	+100,000
550,000	50,000	770,000	+220,000	+220,000	+170,000
600,000	50,000	880,000	+110,000	+280,000	+60,000
650,000	50,000	950,000	+70,000	+300,000	+2000
700,000	50,000	980,000	+30,000	+280,000	−2000

Usually there are not enough data points for an estimation of this type and must resort to some numbers based on experience and past history.[105]

A numeric example follows.

In Table 10.2, optimal advertising expenditure is calculated by comparing the marginal revenue (fourth column) with marginal cost (second column). Doing so results in the observation that additional advertising adds to profit until a budget level of $650,000 is reached.

10.7.3.6 The Return On Investment (ROI) Approach

This approach involves expanding the impact of advertising into financial valuation. Advertising can be considered an investment, like plants and equipment. A dollar invested today in advertising has a long-term impact, which can be valued by the net present value method and the related ROI. In practice, however, it is difficult to calculate the returns on advertising in the short term, let alone the future impact.[106] A different approach evaluates the profitability of many companies in an industry and relates it to their advertising spend. This enables an estimation of the advertising ROI for an industry, or product category, or market type. The estimation would adjust for a variety of factors, such as the nature of competition in that market.

Such an approach is part of marketing engineering (ME) and marketing management support systems (MMSS).[107] ME is used, in particular, to design online marketing systems where the volume is substantial and much is done automatically by computers. It factors into analytical models variables such as the capacity parameters of the information technology (IT) infrastructure, the market structure for the product, and the company's business model.

10.7.4 Valuing Customers

One tool companies use to evaluate the profitability of investments in marketing is to establish a customer's "lifetime value" (CLV). In 1999, AT&T paid almost $4200 per subscriber to buy the cable companies TCI and MediaOne. Deutsche Telekom spent $6000 per customer to buy Britain's One2One mobile wireless company. Gaining or losing a customer hence makes a big financial difference. The CLV is the present value of all future profits that a company can potentially generate from a customer. It is similar to a discounted cash flow of the revenues coming in from the customer, though it also accounts for customer retention or loyalty. The formula for the CLV is each year's profit from that customer (which may include the multiplier effect from that customer's WOM promotion, plus the value of that customer to advertisers), discounted for the value of money in the future and adjusted for the probability of losing that customer (churn). From that, one must subtract the cost of gaining the customer in the first place. If one assumes for simplicity that the profit margin is the same each year, and continues for a long time, then the CLV can be approximated by the formula

$$\mathrm{CLV} = M\frac{R}{1+I-R} - \mathrm{AC}$$

- CLV: customer lifetime value;
- M = margin (profit) per sale;
- I = discount rate;
- R = retention rate;
- AC = acquisition cost.

The firm would invest in customer acquisition up to the value of the lifetime value of the acquired customer. This maximum investment in customer acquisition is:

105 Cravens, David W., Gerald E. Hills, and Robert B. Woodruff. *Marketing Management*. (Scarborough, ON: Irwin, 1987), 514–552.

106 Belch, George E., and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

107 Lilien, L. Gary and Arvind Rangaswamy. "Marketing Decision Support Models. The Marketing Engineering approach." *The Handbook of Marketing Research: Uses, Misuses, and Future*. 2004. Last accessed July 6, 2017. ► http://books.google.com/books?id=RymGgxN3zD4C&printsec=frontcover&sig=QSYKx2Lul8qx203m3MgI85UJ4Q0#PPA233,M1.

- higher with higher retention rate R;
- higher with higher margin M;
- higher with a lower discount rate (e.g. with lower risk).[108]

Marketers sometimes spend all of their budget on winning the customer, and view follow-on promotions as secondary. Yet customer churn is a main cost element and source of revenue loss. For example, for mobile telecom companies the greatest cost in new customer acquisition is an upfront hardware subsidy. It might well be cheaper to raise retention R (lower churn rate of existing customers) through loyalty programs than to acquire new customers (AC).

The firm needs to determine the revenue value of a new subscriber. If that number is limited to the direct profit generated from a subscription it is likely to be an understatement. It would exclude the network effects that are generated through WOM.[109] A new customer generates still more customers. This factor could be readily incorporated into a model, based on certain assumptions about the multiplier effect.

We have now discussed several ways in which to analyze the overall size of an advertising and marketing budget. It should be noted that the optimal budget is not a static number. For example, it depends on the effectiveness of advertising which may change over time. The rule of thumb in the magazine industry that it takes a minimum of five pages of advertising in a given magazine in a given year to have an impact on a reader.[110] That number has been creeping up because of an "advertising spiral." Consumers ignore advertising because there is more and more of it, and therefore advertisers must expose them to still more ads to generate an impression. The greater supply of media—channels, webpages, apps, and devices—raise the supply advertising inventory and lower its price, increasing it still further and creating clutter.[111] This means that their quantity and intensity must rise for a campaign to be successful, and it then creates an arms race of aggressive advertising that alienates consumers.[112]

Thus advertisements on the internet have decreased continuously in effectiveness in terms of a "conversion rate" because of the growing quantity and loss of novelty. There has been a falling per-user value, per-user revenue, and click-through rates (CTRs). New approaches, especially individualization, better targeting, and virtual reality experiences might improve this, but they are not cheap to implement.

10

10.7.5 Case Discussion

Condé Nast *Fly & Sky*—How Much Should Condé Nast Spend on a Marketing Effort to Gain a Subscriber?

Customer Lifetime Value (CLV) = CLV $= M \times R / (1 + I - R)$ minus acquisition cost

- Margin (M): annual profit per customer (profit = revenue – cost);
- retention rate (R): percentage of customers estimated to renew subscription with *Fly & Sky*;
- discount rate (I): a percentage to account for time value of money of future revenue.
- Acquisition cost (AC) to gain customers.

The calculation of the profit margin

- subscription revenue per year per subscriber = $20;
- estimated annual revenue of advertising per subscriber = $10.80;
- estimated annual cost per subscriber (print and mailing, excluding marketing costs): $8.80;
- margin = 20 + 10.80 − 8.80 = 22;

The number of subscribers who renew is 90%, which means that the average subscriber is expected to stay on for about 10 years.

Consumer's lifetime value can be calculated, using the discount rate $I = 12\%$.

$$\begin{aligned} \text{CLV} &= M \times 1/(1 + I - R) - \text{AC} \\ &= 22 \times 1/(1 + .12 - .90) - \text{AC} \\ &= \$100 - \text{AC} \end{aligned}$$

Thus Condé Nast should not spend more than $90 to acquire a new subscriber, and possibly less if the marginal effect of spending is low. If retention rate, however, was 55%, then CLV would drop to about $38.60 and with it the spending to gain such a customer.

10.7.6 The Media Marketing Mix

The preceding section dealt with how to set an advertising budget. The next question is how to allocate that budget; firms must decide how to divide their funds among different media (TV, online, print, etc.), and then within each medium (which radio station, television station, etc.).

Different media types vary in effectiveness and price. Each platform has its own advantage and drawbacks. Each medium has its particular features, along dimensions of

108 Best, Roger. *Market-Based Management*. Hoboken: Prentice Hall, 2012.
109 Villanueva, Julian, Shijin Yoo, and Dominique M. Hanssense. "The Impact of Marketing-Induced Versus Word-of-Mouth Customer Acquisition on Customer Equity Growth." *Journal of Marketing Research* 45, no. 1 (February 2008): 48–59.
110 Worthington, Shari. "Advertising Reach vs Frequency vs Cost Per Impression, or Should You Just Send in the Salesperson?" *Nelson Publishing*. Last accessed December 15, 2012. ► www.nelsonpub.com/marketing/CN/Advertising-Reach-vs-Fequency.pdf.
111 Stokes, Rob. "EMarketing: The Essential Guide to Online Marketing, v. 1.0." *Flat World Knowledge*. July 11, 2013. Last accessed July 12, 2017. ► http://catalog.flatworldknowledge.com/bookhub/reader/19?e=fwk-105454-ch03_s08.
112 Brookins, Miranda. "Disadvantages of Online Advertising Options." *Small Business*. Last accessed July 7, 2017. ► http://smallbusiness.chron.com/disadvantages-online-advertising-options-10212.html.

- sensory involvement and intensity;
- interactivity and ease of response;
- targetability;
- cost.

Magazine advertising is a good information vehicle that is creative and can target specific groups effectively. But there is a time lag, with ads often requiring months of lead time.

Newspaper advertising is useful for geographic targeting, but while it reaches a broad local audience it tends to be costly. At the *New York Times*, a black-and-white full-page ad costs $204,251 on Sunday. The high price was based on market power for local ads. Over 90% of daily US papers are the only daily papers published in their markets. The use of local newspapers for national advertising declined from 25% of newspaper ad revenues in 1980 to under 5% in 2012.[113] Classified ads make up a major share of advertising for newspapers. But websites such as Craigslist, as well as free-distribution newspapers, have made significant inroads into the newspaper local ad revenues. Local business ads have been the major economic base of newspapers but these, too, have been eroding with the growth of national retail chains such as Walmart or Home Depot, which have "permanent sales" or use national TV and cable TV to advertise nationally rather than through local papers in the way that the mom and pop stores do.

Even so, it has been argued that newspaper ads generate a lot of bang for the buck. Whereas consumers try to avoid advertising in TV, radio, and online, and are often willing to pay extra to avoid ads, newspaper readers actually welcome ads.[114] Moreover, the older demographics of newspapers have some advantages, too, since they tend to have more money than young cohorts. Thus, the film studio Miramax, whose movies target an older, more affluent, and better educated audience, uses newspapers more than other studios. In contrast, Sony, with a lot of action films, allocated only a small share (11.5%) of its marketing budget to newspapers.[115]

Display Advertising Outdoor/indoor displays such as billboards are good for reinforcing an image but they can only fit limited information owing to a small space and attention time. Three to five words are the most effective, and eight words is the maximum. Outdoor advertising is expensive on a pay-per-viewer basis.[116] Outside of providing local information, billboards are not sufficient to generate sales but are used to reinforce an image.

Table 10.3 CPM per 30-second spot of top TV shows

Program	CPM per 30 second spot
Big Bang Theory (CBS)	$14.74
Two and a Half Men (CBS)	$16.17
The Good Wife (CBS)	$7.63
Survivor first season finale (CBS)	$19.34
Seinfeld finale (NBC)	$26.32

Radio has the benefit of a relatively wide audience and geographic selectivity and can generate a sense of localism. Its special selling point is mobility and the ability to reach people on the move. Radio spots are much cheaper than those on TV and can be highly targeted. The drawbacks, however, are that the radio medium often only gets divided attention, and that its younger audience cohorts are shrinking.

Television advertising has both a national and local reach and is effective in persuasion, but, like newspapers, it is expensive, especially for national networks with a countrywide reach. Advertising on national television has advantages by giving a product or service credibility and prominence. But this comes at a cost. On the production end, national TV network audiences have come to expect quality commercials.[117] The production costs of an average 30-second TV commercial are well over $300,000.[118] Second, the cost of distributing the ad itself is high. An ad on primetime on *American Idol* costs up to $700,000 for a 30 second ad.[119] *Super Bowl* ads cost between $4 and $8 million per 30 second spot.[120] More typical prices were, for 2014, *Big Bang Theory* (CBS) $344,827, *Two and a Half Men* (CBS) $147,140, *New Girl* (Fox) $187,050, and *The Good Wife* (CBS) $87,210. National TV spots on the final episode of *"Survivor"* sold for $1 million and on the final episode of *Seinfeld* sold for $2 million. But, of course, the size of the audiences reached varied. It is therefore most useful to compare the cost for reaching 1000 people, the CPM (Table 10.3). These ranged from $7.63 for *The Good Wife* to $26.32 for the *Seinfeld* series finale.

Online Media Advertising on the internet will be discussed further below.

113 Olmstead, Kenneth. "Newspapers: By the Numbers." *State of the Media*. March 17, 2013. Last accessed July 6, 2017. ► http://www.stateofthemedia.org/2013/newspapers-stabilizing-but-still-threatened/newspapers-by-the-numbers/.

114 Elliot, Stuart. "Working to Sell Advertisers on Newspapers and Magazines." *New York Times*. February 15, 2006. Last accessed July 12, 2017. ► http://www.nytimes.com/2006/02/15/business/media/15adco.html?ex=1149739200&en=57b13135437d4560&ei=5070

115 Galloway, Stephen. "Movies & the media." *The Hollywood Reporter*. July 1, 2006. Last accessed July 6, 2017. ► http://www.hollywoodreporter.com/news/movies-amp-media-138395.

116 Newton, Gregory D. *Media Promotion and Marketing for Broadcasting, Cable and the Internet*. (Boston: Focal Press, 2006), 47.

117 Bruneau, Edmond A. *Advertising*. Washington DC: U.S. Small Business Administration, 1989.

118 Hewitt, Derek. "Op-Ed: What Price Online TV Commercials?" *IMedia Connection*. Last accessed July 6, 2017. ► http://www.imediaconnection.com/articles/ported-articles/red-dot-articles/2004/dec/op-ed-what-price-online-tv-commercials/.

119 Seidman, Robert. "30 Second Ad Cost for Broadcast Primetime Shows." *TV by the Numbers*. September 30, 2007. Last accessed July 6, 2017. ► http://tvbythenumbers.zap2it.com/2007/09/30/30-second-ad-cost-for-broadcast-primetime-shows/962/.

120 Forbes. "Yes, A Super Bowl Ad Really is Worth $4 Million." January 29, 2014. Last accessed July 6, 2017. ► http://www.forbes.com/sites/onmarketing/2014/01/29/yes-a-super-bowl-ad-really-is-worth-4-million/.

10.7.7 The Optimal Mix of Marketing Activities

Advertisers will usually diversify the media in which they advertise. In 2003, the Hollywood studios allocated only 1.3% of their marketing spend toward internet advertising, but 60% on TV, 25% on print, 5% on radio, and 3% on outdoor.[121] By 2016, TV still dominated the movie marketing budget, with most big budget films spending 70% or more on TV. In contrast, print radio, and outdoor dropped, and TV, while the internet gained.[122] For some films, advertising spending on the internet was as high as 50% of the marketing budget.[123] In 2013 McDonald's spent 78% of its $988 million advertising budget on television advertising ($770 million).[124] The question is what the optimal media mix is for a company, and within marketing activities. How would one approach this question?

Figure 10.6 depicts conceptually how to analyze the question for the productivity of three different advertising media in generating sales revenues. It shows the sales revenue and the cost of advertising. When there is no advertising at all, sales are at a low-level A. It is not a zero because even in the absence of advertising there will be some WOM, possible press coverage, and so on. How much ad spend should go to newspapers? One might think that B is the optimizing point for that medium, because at that point advertising spending equals the sales revenue. But that would be incorrect. At B the incremental revenue generated by an extra $1 of advertising is less than $1, as can be seen by the slope of the newspaper line.

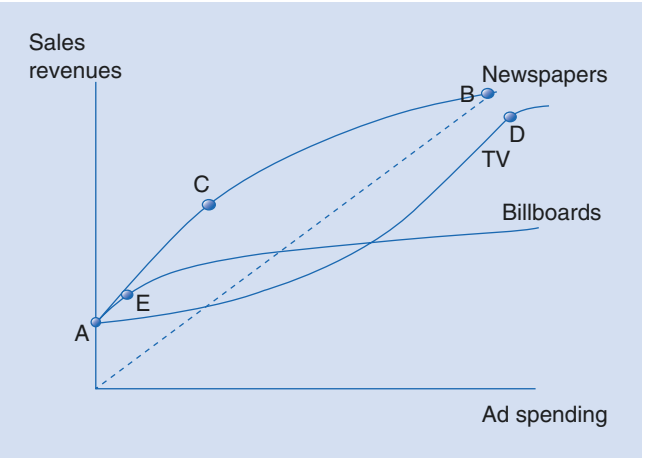


Fig. 10.6 Sales impact of ad spending in different allocation of advertising among media

The optimal point lies at C, where that slope is at a 45-degree angle, meaning that an added $1 of expense generates an added $1 in revenues. Similarly, for TV advertising, the optimizing point is D. On the other hand, for billboards the revenues generated exceed, at the margin, the cost of advertising only at a very low level (E). Thus, the optimal advertising mix for the product is to spend C on newspapers and D on TV. (We have assumed, for simplicity, that the different media do not affect each other's impact. This assumption can be relaxed, with an advertising production function calculated for a particular medium, given spending X by other media.)

10.7.8 Case Discussion

What are the Most Effective Ways to Market *Fly & Sky*?

A marketing budget buys impressions, but impressions are not created equal. The number of sales made based on a marketing impression is known as the conversion rate. If fifty people subscribe out of 1000 reached, the conversion rate is 5%.

In Table 10.4, the first column shows the cost per impression, according to the type of marketing activity. (All numbers are hypothetical.) TV, for example, costs $44, whereas radio costs $20 and direct mail $75. However, media and marketing activities differ in impact. First, the probability of the particular marketing approach to reach the target audience vary. The probabilities are listed in column 2. For example, it is 20% for TV and 50% for Condé Nast's own magazines. The better fit the medium has to the target audience, the higher the percentage. One can now calculate the CPM of reached target audience. That cost would be, for TV $220, and for billboards $75.

The second factor is the "conversion rate." How many sales does an impression generate? Column 4 provides the conversion rate, per million, of an ad impression to result in a sale. Thus, for TV impressions it is assumed to be 1; for WOM and for price promotions, it is 2, and so on. This now permits the calculation of the marketing cost, before overhead, of a sale. These figures are provided in the right-most column. The lowest cost per sale is by using Condé Nast's own magazines ($40), followed by online advertising ($ 66.6), and WOM/publicity ($83.75). Most of the other media and marketing approaches are considerably more expensive. In addition, we have earlier found that the CLV of a subscriber to *Fly & Sky* is $100 before acquisition costs. Thus, it would not make sense to invest more than that amount to gain a subscriber. If Condé Nast wants to use the most price-effective way of generating sales, it would stick to promotion in its own

121 Sweney, Mark. "Online ad spend set to double" *The Guardian*. July 12, 2007. Last accessed July 6, 2017. ► https://www.theguardian.com/media/2007/jul/12/advertising.

122 Rainey, James. "The Perils of Promotion: Pricey TV Campaigns, Fear of Change Shackles Movie Spending." *Variety*. March 8, 2016. Last accessed July 6, 2017. ► http://variety.com/2016/film/features/movie-marketing-advertising-tv-campaigns-1201724468/.

123 Kapko, Matt. "Why Facebook is Key to Sony's Movie Marketing." *CIO*. January 10, 2017. Last accessed July 6, 2017. ► http://www.cio.com/article/3155960/marketing/why-facebook-is-key-to-sonys-movie-marketing.html.

124 Rudd Center for Food Policy and Obesity. *Fast Food FACTS*. New Haven: Yale University, Rudd Center for Food Policy and Obesity, 2010.

magazines. If it wants to diversify its approach somewhat and reach beyond its core audiences, it would also include online advertising and WOM/publicity. In addition, one must consider that the productivity of additional marketing expenses declines somewhat. If one assumes that the "conversion productivity" of a marketing activity for *Fly & Sky* declines, for each additional increment of $100,000 in marketing spend, by 20%, then the cost per sale for Condé Nast in-house magazines would rise for the second increment by 20% to $48, for the third increment to $57.6, and for the third one to about $70. At that point, it would be more cost effective to add online advertising to the marketing plan, at $66.6 per sale generated. Similarly, after that online advertising is increased, its third increment would become less cost effective than WOM/publicity at $83.75. By the numbers provided, the ratio of spending for the three marketing approaches would be 5:2:1, for a total of $800,000. Beyond those budgets, the return on marketing activities would be negative.

Table 10.4 The cost-effectiveness of different marketing activities (schematic)

Marketing activity	Cost per 1000 impressions ($)	Average probability of reaching target audience of selected outlets (%)	Cost per reach of 1000 target audience ($)	Conversion rate per 1000 impression	Media cost per sale (%)
Newspapers	50	20	250	1	250
Condé Nast magazines	40	50	80	2	40
Other magazines	90	80	112.5	1	112.5
TV	44	20	220	0.5	440
Radio	20	15	133.3	0.5	266.7
Online	10	30	33.3	0.5	66.6
Product placement	1	5	200	0.2	1000
Billboards	15	20	75	0.1	750
WOM/publicity	33.5	20	167.5	2	83.75
Direct mail	75	20	375	0.1	3750
Event sponsor	71	20	355	1	355
Price promotion	74	20	370	2	185

10.7.9 Allocation Within a Media and Marketing Category

Within a medium, a company must allocate its budget to the most effective advertising platforms. Suppose, for example, that a company is trying to determine which magazine to choose for aerobic ads. It considers the following options (Table 10.5; numbers are hypothetical):

Shape, *Track and Field*, *Seventeen Magazine*, *and Rolling Stone* have the highest circulation and reach the most people. Should they be the preferred vehicles for the advertisements? For targeting the aerobics users, *Seventeen Magazine*, *Shape*, *and Rolling Stone* have the highest reach in absolute numbers.[125] *Track and Field* reaches fewer such aerobics users, and *Scientific American* has one of the highest percentage of its readers as potential aerobics uses. *Shape* does not match such a reach among the target audience. If we look at the best fit—the percentage of readers who are aerobics users—the top performers are *Vanity Fair*, *Rolling Stone*, *Scientific American*, *and Seventeen*. These magazines seem to be the most efficient advertising vehicles. But one must also considered the cost. This depends on the price of an ad per thousand (CPM) charged by the magazine's publisher. When cost is considered, the best buys are *Seventeen* ($1.06 per aerobics user reached), *Vanity Fair* ($1.36), and *Rolling Stone* ($1.99). *Shape* is not in the top three.

125 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 4th ed. New York: Irwin/McGraw-Hill, 1998.

Table 10.5 Cost-effectiveness of magazines in advertising to aerobics users (schematic)

Magazine	Total circulation 2017	Aerobics users	% Aerobics users	Cost per 1000 impressions($)	Cost per reaching aerobics user ($)
Road & Track	1,100,000	21,000	1.9	219.44	$6.27
Rolling Stone	1,450,000	117,450	8.1	160.88	$1.99
Scientific American	350,000	26,250	7.5	171.31	$2.28
Seventeen	2000,000	146,000	7.3	77.24	$1.06
Shape	2,500,000	130,000	5.2	129.20	$2.48
Sports Afield	43,000	1161	2.7	108.14	$4.01
Sports Illustrated	1,000,000	48,000	4.8	370.50	$7.72
Vanity Fair	1,175,000	173,900	14.8	200.55	$1.36

10.7.10 Case Discussion

Condé Nast *Fly & Sky*—How Should Condé Nast Allocate Spending Within Marketing Approaches?

Earlier, we identified that the three most effective marketing approaches for Condé Nast would be to advertise in its own magazines; subsequently to add online advertising; and then to add WOM/publicity. We estimated an overall budget of $800,000. Within each of these categories there are multiple options. To determine the sub-options, a similar optimization analysis would take place.

1. In-house magazines. Condé Nast is considering three of its magazines. Assume that the number of impressions required for a positive response (the conversion rate) is the same for each magazine, and its value is 2/1000 as used earlier (Table 10.6). The cost to generate a sale is lowest by using *Traveler Magazine*.
2. Online sites. Assume three possible online sites, also with an equal conversion rate, of 0.5/1000 as used earlier (Table 10.7). The webpage EAAAirVenture Airshows costs the least to reach a member of the target audience.
3. WOM/publicity. Condé Nast is considering three possible approaches. Their conversion rate is 2/1000 (Table 10.8). The most cost-effective way to generate as sale through a publicity activity is a tour by famous pilots.

In conclusion, it can be seen that the marketing mix to promote *Fly & Sky* would consist of Condé Nast's own magazine *GQ*, the EAA AirVenture webpage, and the publicity generated by famous pilots on tour.[126]

As we can see, the number of variables and options is large. To assist marketers, computer optimization models have been created as media planning tools; such models have been around since at least 1963 and took off after 2005. They incorporate information about the audiences of each advertising vehicle, such as its size, the cost of generating such exposure, and the impact. Beyond the analytics, the models help to implement their findings operationally: they select media outlets, help schedule the exposure, and guide early buys of advertising space and time slots to reduce cost.

A variety of strategic parameters must be set. For example, there is a choice between reach and frequency. Given a limited budget, advertisers must decide whether to have the message seen or heard by more people (reach) or by fewer people but more often (frequency). Such tradeoffs are part of the optimization models.[127, 128]

126 If we assume a declining conversion rate with rising budget for that particular media outlet, the calculation could be further refined.

127 Words of caution: there are several problems with quantitative modeling. First, it is based on past behavior and data. Second, it is difficult to predict people's responses to any stimulus.

128 Examples of media mix models are those of ADplus, Adware, Media Control, Media Management Plus, Mediabuy Telmar, Tvscan, and Nielsen.

Table 10.6 Cost-effectiveness of Conde Nast sister magazines as advertising platform (schematic)

Magazine	Cost per 1000 impressions ($)	Reach in target population (%)	Cost to Reach 1000 persons in target audience ($)	Marketing cost of sale ($)
GQ	60	60	100	50
Golf Digest	30	50	60	30
Traveler	20	40	50	25

Table 10.7 Cost-effectiveness of online platforms (schematic)

Online Site	Cost per 1000 Impressions ($)	Reach of target population (%)	Cost to reach 1000 persons in target audience ($)	Cost of sale ($)
NASA webpages	15	25	60	120
EAA AirVenture airshow web page	10	45	22	44
Airliners.net forum	25	20	125	250

Table 10.8 Cost-effectiveness of publicity activities (schematic)

Method	Cost per impression ($)	Reach of target population (%)	Cost to reach 1000 persons in target audience ($)	Cost of sale ($)
Famous pilot road tour	70	50	140	70
Press release	30	15	195	97.7
YouTube video	75	35	214	107

10.8 Promotion to Advertisers, Retailers, and Distributors

Media companies must usually market to various intermediaries. Book publishers deal with wholesalers, book clubs, and retail chains. Film studios deal with theater circuits, TV networks, and cable channels. Music labels deal with retail chains, department stores, and online music download sites. Television networks sells ad space to advertisers. Syndicators allocate much of their promotion budget toward selling their programs to stations rather than promoting their programs to the public.[129] In promoting their products to such intermediaries, media companies engage in what has come to be more generally known as business-to-business (B2B) marketing.

B2B marketing strategies are different from business-to-consumer (B2C) strategies in a number of ways. For example, B2B marketing often uses personal relationships and

129 Ferguson, Douglas and William Adams. "Local Television Promotion: News, Syndication, and Sales." In *Media Promotion and Marketing for Broadcasting, Cable and the Internet.* Eds. Susan Tyler Eastman, Douglas Ferguson, and Robert Klein. (Boston: Focal Press, 2006), 88.

connections as a selling tool.[130] Developing these relationships is a long-term investment. Even relatively simple transactions such as the sale of an advertisement may take a year: establishing a relationship, making the pitch, negotiating a deal, and implementing it. The internet has accelerated this considerably (see the discussion below), but the human element had not vanished. Such personal relationship building is not common in B2C because the marketing executives do not have a personal relationship with the large consumer base, nor could they realistically sustain it. B2B is a repeat business with frequent transactions, which tends to keep both sides seeking co-operation and trust. And while this is often also the case for consumer transactions, both sides have less stake in the relationship and act accordingly. B2B marketing also tends to focus on more complex products and systems, whereas B2C strategies are relatively simple for the general public to understand.

10.8.1 Promotion to Advertisers

Media based on advertisements must "sell" themselves to advertisers such as local retailers, national brands, and advertising agencies. To do this, media companies must create an internal organization or hire outside contractors. The head of promotion to the advertisers has a title such as director or VP for advertising sales, or media director. The person with the task to persuade specific prospects to buy advertising space or spots is called an account executive. She deals with the "buy side" of advertising agency managers who hold titles such as media director, media buyer, or media co-ordinator. Account executive salaries are usually paid a flat rate ("draw") plus a commission on their ad sales—for radio and cable about 15%, for TV where prices are much higher, 7–15%.[131]

The advertising sales director's responsibilities include developing a short-term sales strategy for the firm, managing the sales operation (including hiring, firing, training, compensation, relationships with clients and agencies, relations with independent sales representatives). They also include the creation of sales tools such as major presentations for salespeople, promotion material, special event planning, and recommendations for marketing research projects.[132]

The advertising sales directors, along with the publisher and the CMO, is responsible for developing the promotion campaigns for the media company. They must make an accurate estimate of the expected advertising revenue. The level of spending in all of the company's departments and its profit or loss is dependent on this revenue estimate, which is thus highly important. They also have to develop a budget for her tasks.

A media company will promote itself as an advertising platform in a wholesale fashion through marketing as a product itself to create awareness. For example, cable channels put ads in trade magazines such as *Advertising Age* to reach advertisers and media planners. Even more important, however, is the personal sales pitch to potential advertisers.[133] Companies hire independent sales representatives for markets where their sales or potential do not justify a full-time sales employee. These independent reps receive a commission of about 10–20%,[134] and typically must pay their own expenses. They tend to be experienced and come with substantial contacts in the particular market. They may work for several media companies, at times even competitors. There are also advertising brokers who buy large numbers of spots at discounted prices from stations and resell them.[135]

Classically, for a media company to develop its advertising sales involves several basic steps (we will later discuss the impact of the internet on this process):

- finding a prospective buyer;
- learning about what the prospective buyer, its business, its customers, competitors, strategy, performance, and needs;
- establishing a relationship;
- providing the prospect with a proposal, featuring benefits and costs;
- engaging in negotiations, close the deal;
- delivering, evaluating, and following up.

In other cases, the initiative comes from the buyer, that is, the advertiser. An advertising agency might solicit a request for proposals for a package of magazines or shows for a client. The media company then responds with a proposal that details the number of slots, the programs and why they would work for the client, the air dates, and the price for the package. The network and the advertiser then negotiate on the CPM (households or viewers), the package price, and on the list of shows and dates.[136] In the past, the time needed to sell an ad to a new advertiser and then see it through might have been a year or even longer.[137] With the internet and ad-services (such as Google), this process can be depersonalized, automated, and can take place almost instantly. The internet also makes direct auctions possible. To link advertising sellers and buyers, the auction site eBay created a platform that allows cable networks to confidentially bid on the advertising needs of agencies through a system of reverse auction.

130 Brennan, Ross, Louise Canning, and Raymond McDowell. *Business to Business Marketing*, California: SAGE Publications Inc., 2007.
131 Smith, F. Leslie, John W. Wright II, David H. Ostroff. *Perspectives on Radio and Television*, 4th ed. New York: Taylor & Francis, 1998.
132 Daly, Charles P., Patrick Henry, and Ellen Ryder. *The Magazine Publishing Industry*. Needham Heights, MA: Allyn & Bacon, 1997.
133 Ferguson, Douglas A. and Robert A. Klein, "Media Promotion and Marketing." In *Media Promotion and Marketing for Broadcasting Cable and the Internet*. Eds. Susan Tyler Eastman, Douglas Ferguson, and Robert Klein. (Boston: Focal Press, 2006), 214.
134 Daly, Charles P., Patrick Henry, and Ellen Ryder. *The Magazine Publishing Industry*. Needham Heights, MA: Allyn & Bacon, 1997.
135 Smith, F. Leslie, John W. Wright II, David H. Ostroff. *Perspectives on Radio and Television*, 4th ed. New York: Taylor & Francis, 1998.
136 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television*, 4th ed. (New York: Billboard Books, 2006), 421.
137 Woodard, Cheryl. "Advertising Sales Process for Magazine Publishers…in a Nutshell." *MagazineLaunch.com*. February 14, 2005. Last accessed July 16, 2012. ▶ http://www.magazinelaunch.com/article/articles/49/1/The-Advertising-Sales-Process-for-Magazine-Publishers...in-a-Nutshell.

Normally, the media company will list its prices on a rate card. It may also detail deadlines, policies, additional fees, and artwork requirements.[138] For the *New York Times*, a black-and-white full-page ad costs, in 2016, $178,633 (or $204,251 as part of the Sunday edition).[139] That year, the daily print circulation was 590,000 and the Sunday circulation was 1.1 million.[140]

Against this rate card, discounts are offered in return for an advertising commitment to a certain number of ads within a specified time period, which is called a bulk space contract.[141] Prices tend to be negotiable. The network and advertiser negotiate on the CPM (for households or viewers) and the list of shows, dates, and expected rates. The larger the advertisers' commitment, the better the terms of the deal.

Some cable channels, such as The Cartoon Network, create complete marketing packages that they sell to advertisers that go beyond regular TV advertising; these include events, promotions, and online activity, for example.[142] They may also offer package deals. For example, ESPN presents a bundle of spots across its multiple networks, its websites, and magazine. Companies can also form partnerships with other media such as cable, newspapers, or radio to offer multimedia bundles.[143]

Selling media space is not the end of the effort. The media company needs to demonstrate to the advertiser that its advertising spend has been effective.[144] To do so the media company measures the audiences reached and the impact produced.[145]

10.8.2 Types of Ads Available

The product sold by media companies—advertising time or space—comes in many varieties. For newspapers, ad space has different sizes, placement location, and color arrangements. Ads are sold by column-inch, with quantity discounts. Other newspaper offerings to advertisers are preprinted sections inserted into the paper that can be microzoned locally. Some online papers sell upfront blocks of their advertisements, as TV networks do. Film distributors, for example, can purchase big blocks of online advertisements well in advance. For example, Fox Searchlight has a long-term contract with the online edition of the *New York Times* in which they keep the same space but rotate ads. For television, many different types of advertising services are offered, such as sponsorship of an entire program, local ads, national ads, advance buying ("upfronts"), last minute ("spots"), exclusivity by category, and much more. The big networks and channels will typically try to do upfront deals with large advertisers. Smaller channels try to sell their ad space to anyone, any time.[146] National TV networks seek national advertising clients for national exposure. This is attractive to a mass-marketer who wants to reach a large part of the country simultaneously. An "avail" is an available space for a TV commercial. The "inventory" is the sum of avails. The "sell-out rate" is the point at which the inventory is depleted, around 85%.[147] A 30-second avail is standard, a 60-second costs about double the price, but a 10-second ad is about 50% of the price. Rates float according to supply and demand.

On top of the cost of the air time, there are production costs for TV advertising. In the USA, as mentioned, the average 30-second TV network spot costs about $300,000 to produce. Expensive ads can cost $3–5 million to produce. That production cost, extrapolated to the length of a regular feature film, would be (without distribution and promotion) about $1 billion, hugely higher than even the average Hollywood film with its $70 million production cost.

In the 1950s, TV advertising initially consisted of sponsorships of entire programs ("the GE Hour"). Soon, however, this proved not to be cost effective. Advertising kept getting shorter in the 1960s, with 60-second spots predominating. In the 1980s, they became 30-second spots, and by the 1990s, even five-second spots emerged.

But there is also the opposite trend. Infomercials (unlimited length ads), which emerged after 1992, were made possible by the end of regulatory and self-regulatory restrictions on advertising time and by the proliferation of channels that led to shopping channels and to much lower ad prices.

TV network inventory can be sold in several principal ways.[148]

Upfronts: to get the best spots, agencies buy specific ads at specific program times and events. In return for the advance commitment and payment, there might be a discount of about 15% over subsequent prices, but it is all a matter of supply and demand. Moreover, exclusivity within product categories is important to advertisers. Ford does not want to see a Honda commercial on the same program, and vice versa, since they might cancel each other out yet cost a lot. National TV networks sell approximately 65–80% of prime-time avails upfront, and cable networks about 50%. These numbers have been dropping.

138 Waters, Shari. "Understanding Advertising Rate Cards." *About.com*. Last accessed July 16, 2012. ► http://retail.about.com/od/marketingsalespromotion/ss/ad_rate_card.htm.
139 New York Times. "2016 Advertising Rates." Last accessed July 12, 2017. ► http://nytmediakit.com/uploads/rates/Current-Rates/CRS-9040_2016_Rate_Cards_Business_SSf_copy.pdf.
140 Ember, Sydney. "New York Times Co. Reports Loss as Digital Subscriptions Grow." *New York Times*. May 3, 2016. Accessed July 7, 2017. ► https://www.nytimes.com/2016/05/04/business/media/new-york-times-co-q1-earnings.html.
141 Waters, Shari. "Understanding Advertising Rate Cards." *The Balance*. Last updated March 9, 2017. ► https://www.thebalance.com/understanding-advertising-rate-cards-2890304.
142 Swinburn, Amanda. "Advertisers toon into kids TV." *B&T*. September 7, 2005. July 16, 2012. ► http://www.bandt.com.au/news/archive/advertisers-toon-into-kids-tv.
143 Ferguson, Douglas A. and Robert A. Klein. *Media Promotion and Marketing for Broadcasting Cable and the Internet*. (Boston: Focal Press, 2006), 214.
144 Lacy, Stephen et al. *Media Management : A Casebook Approach*. Mahwah: Lawrence Erlbaum Associates, Publishers, 1993.
145 Daly, Charles P., Patrick Henry, and Ellen Ryder. *The Magazine Publishing Industry*. Needham Heights, MA: Allyn & Bacon, 1997.
146 Romano, Allison. "Cable Clicks in Upfront." *Broadcasting & Cable*. June 13, 2004. Last accessed July 17, 2011. ► http://www.broadcastingcable.com/article/92173-Cable_Clicks_in_Upfront.php.
147 Smith, F. Leslie, John W. Wright II, David H. Ostroff. *Perspectives on Radio and Television*, 4th ed. New York: Taylor & Francis, 1998.
148 Smith, F. Leslie, John W. Wright II, David H. Ostroff. *Perspectives on Radio and Television*, 4th ed. New York: Taylor & Francis, 1998.

Scatter: agencies buy the remains on a needs basis. They often get reduced prices but have less control and ability to plan.

Another method is for TV networks to sell packages of commercial time that guarantee advertisers they will reach a certain number and kind of viewers. The network then schedules the commercials in order to deliver on its guarantee. Where there are shortfalls in the viewership guaranteed by the network, additional ("Make Good") commercials are provided.[149]

Many sports programs are sold on a series basis. For example, an advertiser may become a "strip sponsor" with a spot in some or all of the football games in a season.

Local TV Spots: Local television stations sell several minutes of advertising time during the network-provided primetime programming, and they control all advertising time during non-network programs in non-primetime hours.

Who advertises on local TV stations? In some cases, are national advertisers seek targeted geographic markets, such as rural markets. In other cases, local ads make sense for as local merchants, politicians running for office, or companies running a test marketing of a new product.

Some advertisements are placed by the providers of syndicated programming. The TV stations do not pay for the program but let the syndicator insert a number of ads which it then sells. This is known as barter syndication.

For hundreds of TV stations to deal with thousands of advertisers is too unwieldy. In consequence, many stations contract with advertising representatives. These are independent firms, with branches in major regions and advertising centers, and they receive a commission of about 7–15%. In other cases, brokers buy a large number of spots at discounted prices from stations and resell them.[150]

Local stations (and national networks) may fill unsold slots with ads from their large customers, free of charge, for goodwill. They also fill this time with promotions for their own programs and with public service announcements.

In a few cases, broadcasters are compensated by advertisers not based on the advertising time they sell, but as a percentage of the sales gained or store traffic generated. In still another type of compensation scheme, the German media company ProSiebenSat.1 offers media-for-equity deals.

10.9 The Sales Function

The sales function is the process of closing a sale.[151] The sales department works with, or is part of, the marketing department. Its function is more tactical and interfacing with buyers, while the marketing function is broader, and includes strategic and long-term plans of creating a market for the firm.

10.9.1 Sales Channels

Sales channels are the ways in which companies reach customers' products.[152]

The main types of sales channels are:

1. Field sales force: face-to-face sales people. For example, book publishers' sales reps visit book stores, libraries, and school districts.
2. Inside sales force: telephone-based salespersons who call their contacts over the telephone. Examples are account executives in media companies being in touch with advertising agencies.
3. Telemarketing groups: outbound telesales conducts high-volume calls. An example is the signing up of subscribers for satellite TV service.
4. Inbound call centers: staffed by service representatives who sell, upsell, or cross-sell customers who call in on a free dial-in (800") service responding to a TV ad.
5. E-commerce sales groups: systems that allow customers to make online purchases, such as subscriptions and downloads on Netflix.
6. Third-party sales force: distributors, resellers, retailers, and agents to reach end customers.[153] An example would be magazines using companies such as Publishers' Clearance House to sell subscriptions.

10.9.2 Direct Mail and Telemarketing

Direct mail marketing has been around for a long time. While email has made large inroads, direct mail is still big. As recently as 2015, in the USA direct mail accounted for 57% of all mail—about 4 pounds of paper per consumer per year. Because of the cost of paper, handling, and postage, use of direct mail as a marketing tool is not cheap, with a typical CPM of approximately $500. The average household receives 19.1 direct mail pieces per week, with 21% being discarded without being read.[154]

List brokers rent out mailing lists that they compile from many sources. The best lists are of those people who have bought similar products before; for example, people who have already subscribed to similar magazines.[155]

149 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television.* (New York: Billboard Books, 1998), 421.

150 Smith, F. Leslie, John W. Wright II, David H. Ostroff. *Perspectives on Radio and Television*, 4th ed. New York: Taylor & Francis, 1998.

151 Lake, Laura. "Marketing vs. Sales: What is the Difference?" *About.com.* Last accessed July 7, 2017. ► http://marketing.about.com/cs/advertising/a/mrktingvssales.htm.

152 Marone, Mark and Seleste Lunsford. *Strategies That Win Sales : Best Practices of the World's Leading Organizations.* (Chicago: Dearborn Trade, 2005), 18.

153 Marone, Mark and Seleste Lunsford. *Strategies That Win Sales : Best Practices of the World's Leading Organizations.* (Chicago: Dearborn Trade, 2005), 18.

154 Gustafson, Jennifer. "Direct Mail Stats." *United Printing + Mailing.* January 29, 2016. Last accessed July 17, 2017. ► https://blog.mailing.com/direct-mail-stats/.

155 Kobak, James. *How to Start a Magazine.* New York: M. Evans and Company, Inc., 2002.

The effectiveness of direct mail varies. Take books, for example. For general audience books ("trade books"), target readers cannot be easily identified, making direct mail a costly and inefficient approach. On the other hand, readers of scholarly and professional books can be identified fairly readily and therefore reached via specialized mailing lists.[156] For magazines, direct mail can be used for a "dry" test, when subscriptions are solicited in advance of the magazine being actually published.[157]

In the marketing effort for a magazine, a good performance is when 2% of direct mailings result in subscriptions. A mailing to 100,000 potential subscribers that costs about $50,000 and results in 2000 subscribers would be considered highly successful. The costs are then $25 per subscriber gained. Renewals will typically cost less than $1.

Telemarketing—the use of phone calls to reach potential buyers—is a form of direct marketing, though a labor-intensive and hence costly one. Telemarketing is used to promote such media products and services as broadband internet, cable and satellite TV, magazines, and newspapers. Telemarketing is rarely used for films or TV series, one-shot books, music, or consumer electronics.

Telemarketing is most cost effective when approaching current clients about service changes or upgrades, or when almost every consumer is a prospect. Companies often hand over their telemarketing campaigns to contracted telemarketing firms. This allows for short-term bursts of activity by expert operations. The drawbacks are that companies have less control over the message and its delivery. Most consumers regard telemarketers as invaders of their privacy and resent pointless solicitation. This affects the reputation of the advertiser. For example, telemarketing agents who received sign-up bonuses for every new customer they could list blithely signed up telecom service to consumers and canceled previous service, based on the vague expression of interest by a prospect. Such "slamming" led to bitter consumer complaints and investigations, and in the end hurt the clients' reputations.

A single telemarketer can reach 30–50 prospects per hour and hold conversation with maybe a dozen. A fairly low success rate is acceptable because a 3–8% rate is generally profitable. Success rates increase with quality of leads. Job turnover is high for telemarketers. Quality management is essential, both by telemarketing company and by its clients. Regulation of telemarketing has been increasing, particularly in the form of "do not call" lists, which prevent many types of calls.

There are 5000 telemarketing bureaus in the USA alone, employing over 340,000 workers, plus additional ad-hoc efforts.[158] The city of Omaha, Nebraska, is the center for US telemarketing owing to its low telecom and labor costs, English spoken with a neutral accent, and location in a central time zone that enables wide sweeps across the country following the sun. With the drop in international phone call prices, the use of offshore telemarketing operations from India, China, the Philippines, Mexico, and the Caribbean has been growing rapidly. Companies usually pay in the range of $25 to $60 per hour for telemarketing services, and (depending on extent of commissions) $10 per hour for offshore companies. Commissions range from 1% to 10% of revenues generated. One Colorado-based telemarketing company, Teletech, has over 42,000 employees distributed across 69 call centers in over 16 countries. Its sales in 2009 were $1.2 billion. TeleTech handles approximately 3.5 million customer interactions per day, in 80 countries, in 49 languages.[159]

Despite the internet, telemarketing has not disappeared, because many people prefer dealing with people when conducting business.[160]

Telemarketing is most useful when

- additional specific data from customers is necessary for a sale;
- a list of target customers is available;
- approaching current clients about service changes or upgrades.

The downsides of telemarketing are[161]:

- inaccurate and incomplete lists;
- cost;
- legal restrictions.

10.10 The Impact of the Internet on Marketing

The internet is an inexpensive yet powerful tool that reaches a lot of people. Its marketing features include:

- customization, targeting, and individualization;
- interactivity, relationship building, and feedback;
- new types of reach (mobile, for example);
- new ways of making a marketing impression;
- location-based marketing;
- tracking customers;
- tracking products;
- dynamic pricing;
- auctions;
- social network marketing;
- payments and micropayments;
- data mining and online market research.

We will now discuss these elements.

156 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce.* Cambridge: Harvard University Press, 2000.

157 Kobak, James. *How to Start a Magazine.* New York: M. Evans and Company, Inc., 2002.

158 U.S. Bureau of Labor Statistics. "Telemarketing: Five Industry Centres." December 2006. Last accessed July 12, 2017. ► https://www.bls.gov/opub/btn/archive/telemarketing-five-industry-centers.pdf.

159 TeleTech. "When everything is connected, how you connect is everything." 2016. Last accessed July 12, 2017. ► http://www.teletech.com/sites/default/files/teletech-brochure.pdf.

160 McLuhan, Robert. "Contact Centres: Marketing Contact Centres Manual - The Power of the Phone." *Campaign*. September 13, 2006. Last accessed July 12, 2017. ► http://www.campaignlive.co.uk/article/contact-centres-marketing-contact-centres-manual-power-phone/592408.

161 Sissors, Jack et al. *Advertising Media Planning.* (New York: McGraw Hill, 2002), 245.

10.10.1 Customization, Targeting, and Individualization

Information Technology gives companies the ability to transform classic mass-marketing into a much more microtargeted approach. This is known under various names such as mass-customization, 1:1 marketing, individualization, niche marketing, or long tail marketing. The basic idea is to form a more direct relationship with a customer or customer group to customize marketing efforts.

The problem with traditional marketing is inefficiency due to difficulties in accounting for impact. In contrast, customized advertising such as interactive TV ads can link ad expenditures directly to results. Marketers can know whether an individual received a communication and how she responded. Marketers can therefore identify the most effective marketing strategies and analyze specific customers' preferences. Companies then engage in product differentiation in their advertising by highlighting the unique characteristics of their product that are consistent with the target's preferences. Differentiation in marketing also encourages a shift in production strategy, from generic mass-products to tailored products for particular customers. Such product customization strategy may also be a price differentiation strategy.

In television-based advertising, targeted advertising means the uncoupling of the TV ads from the surrounding TV program. Early efforts for television were to create smaller zones for ads, so that an advertiser could target a smaller geographic zone than an entire metropolitan area. A car dealer or a political candidate, for example, need not reach (and pay for) hundreds of square miles when all they need to do is reach a particular small town. On cable television this is not difficult to do. But a geographic separation is a fairly crude audience segmentation. Similarly, broadcast TV has been using "dynamic advertising" for sporting events. Different television audiences are exposed to different banners and billboards, depending on where the event is shown and who the sponsors are. An international soccer match will show one billboard for Swedish viewers and another for Italians.[162] The advertised products might be different, or the language of the message might vary. Product placement in a film or video program could be differentiated too. The Swedish household would see a Volvo in the driveway, while the Italian sees an Alfa Romeo. This could be varied depending on the timing of an advertising campaign.

The internet accelerates individualization. Online media can differentiate much better. First, the variety of ads provided to the user can be infinite. Second, the differentiations of audiences can be infinite. Third, there is vastly more known about the viewer. Fourth, the effectiveness of the ad can be observed. The selection of advertisement is supported by algorithms that consider the viewer's demonstrated interests and needs, demographics, and personal tastes exhibited in previous program choices.

Behavioral targeting uses prior behavior and reactions by the viewer to determine the ad with the greatest receptivity.[163] It picks out advertisements based on past specific behaviors such as surfing the web in a particular way, searching for certain terms, making a purchase, and watching a video program.[164] Example for behavioral targeting are Google AdWords and AdSense which brought customized advertising into the online mainstream. Google uses automated technology to analyze the meaning of the content of a web page and serve relevant ads based on the meaning of such content. For example, a web page on an aviation blog that contains an entry about vintage planes might display ads for air shows featuring World War II "warbird" planes.[165] Similarly, a search request for a tourist destination leads to the serving of ads that are relevant. Google can aggregate user behavior and interests over time.

Once user characteristics are identified, the marketing responses can go beyond the choice of products and advertising clips that are pitched. They can vary itself in terms of price, or they can fine-tune product placement.

These opportunities change marketing considerably. The traditional model was one of mass-consumer products advertised on mass-media to mass-audiences by mass-advertisements with a mass-offer, in a one-way fashion. But now, each of these elements could be differentiated, though not all of them need to change simultaneously. Different combinations of individualization levels become possible. Customers can be identified, targeted in a differentiated way, the product and the offer can be customized, and a follow-up conducted. These elements add to the marketing effectiveness, and they also engender customer loyalty.

But they are also expensive to operate. After all, one reason for the decline of door-to-door salesmen—who were masters at one-on-one marketing—was their cost. The shift to massive TV advertisements had its economic logic. Individualization is much more demanding in creation, strategy, implementation, and operation. Thus, the question for the IT-based next generation of individualization is not whether or not it will work, but rather how cost effective it is.

For mass-products, the end of mass-advertising is not near, even as automatized approaches of individualization will create new ways to reach niches of potential customers.

162 Palmer, Shelly. *Television Disrupted: The Transition from Network to Networked TV*, 2nd ed. New York: York House Press, 2006.

163 Wikipedia. "Ad Serving." Last accessed July 7, 2017. ► http://en.wikipedia.org/wiki/Ad_serving#Ad_targeting_and_optimization.

164 Palmer, Shelly. *Television Disrupted: The Transition from Network to Networked TV*, 2nd ed. New York: York House Press, 2006.

165 Securities and Exchange Commission. "Form 10-K Google Inc." 2011. Last accessed July 12, 2017. ► https://www.sec.gov/Archives/edgar/data/1288776/000119312511032930/d10k.htm.

10.10.2 New Tools for Creating Marketing Impressions

Consumers react to well-delivered marketing pitches, but that reaction declines over time as they are inundated by similar messages. To remain effective it is therefore necessary to raise the sensory intensity of such pitches. Online media create the tools for doing so. For example they can create an immersive experience through "Virtual Reality" in which the user experiences new worlds, new activities, and new products. In VR the intensity of the marketing experience can be enormous. Similarly, users can be familiarized with the product in a convenient way. They can "test drive" a car online, try on an overcoat, explore travel routes, or furnish a home.

Another way for a company to raise its profile is to participate in new and "cool" online activities. Some companies use virtual worlds such as Second Life as a marketing tool, creating a presence there. The actual resultant sales might not be high but it helps a company to generate an image of innovation and youth orientation.

10.10.3 New Types of Reach (Mobile, etc.)

Email e-marketing, mobile m-marketing, or social media are potentially powerful tools, and they are inexpensive. However, their effectiveness is undermined by at least two factors: because everybody uses them for the same reasons there is an overload, which cuts into the attention they receive. And because there are so many such messages—"spam"—they may actually generate negative backlash rather than positive promotion.

10.10.4 Tracking Customers

Online marketing gives companies the ability to track and measure what types of consumer are being reached and how they respond. Cookies and other software help online advertisers track user activity, including viewing, viewing time, pages visited, and return visits. Ad serving companies use cookies to keep track of ads which the browsers have been exposed to. Advertisers can then deliver ads tailored to their browsing habits and track the effectiveness of campaigns.[166] The main metric for determining the success of online advertising has been the CTR or how often the advertisement is clicked on. As the internet evolves, it is becoming increasingly difficult to entice viewers to click on an ad. A typical CTR has dropped from 0.5% in the 1990s to as low as 0.2% by 2017.

10.10.5 Tracking Products

Radio Frequency Identification (RFID), an automated identification technology based on product-embedded microchips that require no battery power, allows companies to track products and humans in real time. It is most often used in the supply chain to track goods, and can also be used for targeted and customized marketing. The ability to track goods allows companies to launch personalized marketing campaigns by mapping consumer behavior.[167] RFID can also provide consumers with the entire history of the products that they purchase. There can be more information attached to the product, and more authentication to prevent the buying of counterfeit products that are ineffective or dangerous.

10.10.6 Location-Based Marketing

More generally, mobile communications create new opportunities to link up with consumers. Such ads can be text messages, location-based messages, app based ads, and regular internet, using smartphones and tablets as terminal devices. However, consumer resistance is high for audio ads on mobile devices, especially if they are an intrusive "push" ads. Smaller screens and data caps on wireless service contracts also make mobile advertising more difficult.

10.10.7 Dynamic Pricing and Auctions

Prices can be varied in real time, based on supply and demand conditions and on the characteristics of the potential buyer. It is also convenient and easy to set up auction arrangements for the sale of products. This means that one can leave the pricing of a product—one of the important aspects of marketing—to an automatic market clearing mechanism. This is discussed in ► Chap. 10 Pricing of Media and Information.

10.10.8 Social Marketing

Social media has created new marketing tools. It helps engage consumers with each other and with the brand.[168] Social media is used to:

- Strengthen brand image and brand awareness.
- Allow marketers to gain a better understanding of consumer needs and how they feel about a product or rival products.

166 Berke, Adam. "How Do Cookies Work?" *AdRoll Blog*. May 4, 2010. Last accessed July 12, 2017. ► https://blog.adroll.com/product/how-do-advertising-cookies-work.

167 Roberti, Mark. "Two Visions of an RFID-Enabled Future." *RFID Journal*. February 11, 2008. Last accessed July 12, 2017. ► http://www.rfidjournal.com/articles/view?3899.

168 Bradshaw, Tim. "The fickle value of friendship." *The Financial Times*. March 30, 2011. Lat accessed July 7, 2017. ► http://www.ft.com/cms/s/0/240f19d4-5afc-11e0-a290-00144feab49a.html#axzz1JspQCrry.

- Allow the consumer to design their product through the use of social networking tools. Starbucks did this for the design of an ideal Christmas beverage online, and it was credited with a 15% sales increase in the UK alone.
- Exploit the reach of a social network as an audience for advertisements.
- In the case of Facebook, offer a self-service system that allows advertisers to design their own ads and tailor them to hundreds of millions of users.[169] The advertisement is then targeted to finely segmented Facebook users based on gender, age, location, and preferences such as favorite movies and activities.
- Allow the use of social ads. On Digg, users determine what ads appear on the website news streams by voting up or "burying" ads, in the same way that they can dig or bury organic news items.[170] This creates user involvement with the ads themselves. Digg rewards ads with high positive votes by charging them less and placing them in attractive locations.[171]
- Integrate ads into communication. Ads on Facebook and Digg are intended to blend seamlessly into the conversational nature of the site. These ads appear as stories posted to the site and are identified by a tag.
- Communicate the brand values through social media.
- Set up exhibits and pavilions on virtual world sites, some for sales, most for publicity and brand. Sony Music provides samples and retail service for artist's songs and videos. Users can purchase Adidas sneakers in Second Life.[172]
- Use the community to generate buzz and viral marketing. For example, Old Spice had a big viral hit with its "Smell Like a Man" series. It created several irreverent commercials which were shared over 60 million times on social media.
- Use of the community to generate advice to customers. An example is Amazon.com, which suggests books to the customer based on what other people have liked in the past who seem to share interests.

There are also drawbacks. Online social interactions are difficult to control. Negative feedback can escalate to nastiness, and buzz can become negative.[173] In some cases, this is justified, as when the pricey Kryptonite lock was shown to be vulnerable to being opened by the deft use of just a ballpoint pen, as mentioned earlier. In other cases, however, the negatives are exceptional cases blown out of proportion or outright fabrications by rivals or people with a grudge.

10.10.9 Payments and Micropayments

Internet-based transactions permit instantaneous payment, including for very small amounts and internationally. This opens up new market segments to marketers and helps in promoting and closing a deal almost immediately. It also reduces the risk element for the seller, especially once payment mechanisms have become secure from fraud.[174]

10.10.10 Data Mining and Online Market Research

The internet is also an inexpensive, fast-turnaround medium for conducting marketing research in advance and sales analysis in real time. In contrast with traditional advertising, it gives real-time results about effectiveness of attention, of reach, and of sales. Promotional offerings and ads themselves can be tested in real time as to their effectiveness, using tools such as A/B testing.

10.10.11 Relationship Building and Supplemental Information

Building and maintaining of customer relationships becomes possible online. Customer relationships can be built through blogs, social media/social networks and email newsletters, and more.[175] Strong online relationships also help with feedback and direct communication with customers. They also enable users' participation in the creation of the product through their input.[176]

Another advantage is the potential to personalize a large company by having its people engage. If done honestly this can create trust. This means that company people must identify themselves as such, be willing to

169 Arthur, Charles. "Facebook IPO: What We've Learned From its S-1 Filing." *The Guardian*. February 2, 2012. Last accessed July 7, 2017. ► http://www.guardian.co.uk/technology/2012/feb/02/facebook-ipo-facts.

170 Shanahan, James G. "Digital Advertising: Going from Broadcast to Personalized Advertising," Machine Learning in Online Advertising MLOAD Workshop, December 12, 2010.

171 Rijk, Louise. "Social Network Advertising Using Digg Ads and StumbleUpon Advertising." *Advanced Media Productions*. February 2, 2011. Last accessed July 11, 2013. ► http://www.advmediaproductions.com/blog/digg-ads-stumbleupon-advertising/.

172 Bannister, Larissa. "Adidas targets avatars with shop in Second Life." *Campaign*. September 14, 2006. Last accessed July 12, 2017. ► http://www.campaignlive.co.uk/article/adidas-targets-avatars-shop-second-life/592537.

173 Leimkuehler, Katie. "Startup Social Media: Why Relationship Marketing is Essential for Growing Your User Base." *Technori*. February 5, 2013. Last accessed July 7, 2017. ► http://technori.com/2013/02/3118-startup-social-media-why-relationship-marketing-is-essential-for-growing-your-user-base/.

174 The emerging blockchain technology of transfer of documents and payments is one way to do so, at least for larger transactions.

175 Search Engine Land. "What is SEO/Search Engine Optimization?" Last accessed July 7 2017. ► http://searchengineland.com/guide/what-is-seo.

176 Muscio, Christopher. "The 7 Benefits of Online Customer Service Communities." July 11, 2009. ► http://www.destinationcrm.com/Articles/CRM-News/Daily-News/The-7-Benefits-of-Online-Customer-Service-Communities-55084.aspx.

admit problems and faults, and not attempt to discredit critics personally.

Unlike TV, newspaper, and radio advertising, websites can be used to provide detailed information about a manufacturer's entire product line,[177] with follow-up questions possible and links to additional information sources relevant to the product.

10.10.12 Identifying Customers

Companies can create connections and increase the number of names in their prospect database, including through registrations, e-newsletters, contests, or premium content.[178] Social network media also allows the identification of high-value customers and the creation of communications with them. Such high-value customers are more likely to follow the company online.

10.10.13 Advertising Platform

As we have discussed before, the internet provides numerous opportunities for advertisers to target and serve customers more effectively, while advertising prices have dropped per impression owing to an ever-increasing supply of inventory. However, advantages for the advertising by one company tend to be advantages to all other companies, too. As a result, there is an advertising glut on the market, and lower attention paid to the ads. This "advertising fatigue" has led to a decrease of CTRs, even for targeted display ads, to less than 0.5%. Advertisers have thus begun to question the efficiency of online ads. For example, General Motors stopped Facebook advertising for a year. Display ads on the internet are usually charged by CPM (per thousand impressions). An impression is when an ad is displayed on a web page. In 1998, Yahoo was getting about $25 per CPM, but the price for an online display ad fell to $13.35 in 2009, $11.50 in 2011, $2.80 in 2015, and $2.03 in 2016.[179]

Another problem is the measurement of users. This might be surprising since it should be easy to measure clicks, but there has been considerable fraud in order to raise click rates. At first this was done through automated software (bots). When bots began being blocked, low-paid individuals in poor countries were used to click all day on links to generate higher counts.

In the past, it was difficult for small websites to attract advertisers.[180] Google changed this. Google AdSense lets websites earn advertising money by displaying ads delivered by Google, based on the website's content, geographical location, and other factors. AdSense uses pay-per-click and pay-per-impression (on one's content page) advertising. The provision of these ads to partner websites is a big business for Google and its major revenue source. Google also places ads in RSS feeds, on mobile websites, and into videos. It bought its largest competitor for ad serving, DoubleClick. Almost all of Google's revenues are advertising sales, 50% of it from such Google-delivered advertising on other companies' web sites.[181] Web sites that host the ads delivered by Google then split the ad revenue with Google. They need not deal directly with actual advertisers. Google generates information for advertisers on how often an ad was clicked on, where it was displayed, how much the customer spent,[182] and the cost of the transaction.

10.10.14 Creating a Marketplace for Online Advertising

There are four major ways in which an advertiser can buy online ad space:

1. *Websites*: ads are bought direct from a website, publisher, or portal.
2. *Ad networks*: these are "supply-side networks" intermediaries such as Google Adwords, which offer ad space by numerous publishers/websites. An ad network aggregates a publisher's inventory and then slices it up, by different characteristics such as geographic location, age of viewer, or gender and then offers it to advertisers or ad agencies. This simplifies the optimal buying of ad space by advertisers.[183] Examples, besides Google, are Yahoo Advertising Network, the Microsoft Ad Network, and advertising.com. Google claims in its Economic Impact report that advertisers average $2 in revenue for every $1 they spend on AdWords. To get a particular spot on a website, an advertiser must submit a confidential bid for the ad space, and the highest bid wins and pays per click the amount that was bid, roughly, by the second-highest bid, along the economic principles of a second-price auction (see ► Chap. 11, "Pricing of Media and Information.") Websites get 68% of that ad revenue if they are content network partners (e.g. blogs such as Gawker and Breaking Media) and 51% for search ads.[184]

177 Sissors, Jack et al. *Advertising Media Planning*. (New York: McGraw Hill, 2002), 8.
178 Egol, Matthew, Harry Hawkes, and Greg Springs. "Reinventing Print Media." *Strategy + Business*. August 27, 2009. Last accessed July 7, 2017. ► http://www.strategy-business.com/article/09308?gko=2c407.
179 CPM translated from CPI of $2.16, from Hochman, Jonathan. "The Cost of Pay-Per Click (PPC) Advertising-Trends and Analysis." *Hochman Consultants*. February 22, 2017. Last accessed July 12, 2017. ► https://www.hochmanconsultants.com/cost-of-ppc-advertising/.
180 Graham, Jefferson. "Google's AdSense a bonanza for some Web sites." *USA Today*. March 10, 2005. Last accessed July 12, 2017. ► https://usatoday30.usatoday.com/tech/news/2005-03-10-google-ads-usat_x.htm.
181 Auchard, Eric. "Google lets Web sites sign up advertisers directly." *Reuters*. November 18, 2005. Last accessed May 11, 2011. ► http://www.signonsandiego.com/news/business/20051118-1343-media-google-advertising.html.
182 Clayton, Nick. "How to turn your clicks to cash." *The Guardian*. September 29, 2006. Last accessed July 12, 2017. ► https://www.theguardian.com/technology/2006/sep/29/businesssense.businesssense.
183 Nitin Narang. "#5 Concept Series: What is the difference between Ad Exchange and Ad Network." February 12, 2014. Last accessed July 12, 2017. ► http://www.mediaentertainmentinfo.com/2014/02/5-concept-series-what-is-the-difference-between-ad-exchange-and-ad-network.html/.
184 Qwaya. "A Guide to Facebook Ads." Last accessed July 10, 2017. ► http://www.qwaya.com/facebook-ads/guide-to-facebook-ads.

3. *Demand side platforms (DSPs)*: these came into being as a counter-move to powerful supply side ad networks, such as Google's AdWords, that act as agents of the websites that seek advertisers. Supply side platforms provide advertisers access only to their own system and to their website partners. Because of Google's strong position, the advertising space it provided on websites was costlier than that offered through other ad networks. To generate more competition and price competition among ad networks, DSPs emerged. They provide advertisers access to several supply side platforms and as well as direct ad placement on some websites,[185] and the resultant competition exerted a pressure on advertising prices.[186]

   A DSP connects an advertiser to multiple ad networks and other media suppliers. It is also an analytical tool with statistical and operations models to help optimize marketing strategies. This permits an analysis of the value of ad locations, types, and frequencies. DSPs put together such information in a single "dashboard."[187] Major DSPs are AdLearn Open Platform (owned by AOL/Verizon), Turn, MediaMath, and DataYu.

   DSPs, too, function through auction mechanisms. In this case, however, it is the websites that do the bidding for the business of the advertisers. Parameters for such bidding can be set by advertisers,[188] and include:[189]
   - CPM: cost per 1000 impressions;
   - CPC: cost per click;
   - bid range: how much an advertiser is willing to pay for an ad;
   - frequency capping: limits the number of ad displays to a user to avoid overexposure;
   - target audience metrics: age, gender, and so on;
   - audience segmentation: positions ads at a different stages in a user's purchasing funnel.

4. *Ad exchanges*: these bridge the supply-side ad networks and the demand side platforms. They connect multiple online publishers, advertisers, ad networks, and third-party DSPs. These parties can buy and sell ad inventory automatically. Ad impressions are auctioned off on a global basis in real time to the highest bidder.[190]

   Examples are AdMarvel, AppNexus, Right Media by Yahoo, Open X, Double Click Ad Exchange, and AdECN (Microsoft).[191]

10.10.14.1 Case Discussion

Private Ad Exchange

Condé Nast launched a private ad exchange to place unsold inventory through its online sites to a select group of advertisers. The exchange featured real-time bidding with CPM price floors. In effect, it offered large customers advertising space at lower prices, though with a price stop to protect prices from dropping too far if the number of bids was small. There was a minimum requirement for access: the advertiser's ad spend with Condé Nast that year had to be higher than over the previous year. Five advertisers, including eBay and Macy's, had access to the exchange in its first year.

10.10.15 Search Engine Marketing

SEO is a way to attract users to a website through a variety of techniques, with the goal of generating high traffic. A major way for websites to get a high traffic volume is to end up high on the search results, because most users click on the top-most options. According to one study, 53% of clicks go to the website listed first in the search results, 15% to #2, 9% to #3, 6% to #4, and 4% to #5. The remaining websites listed for the search get 13%.[192]

Websites often resort to professional SEO in order to reverse-engineer the search algorithms and what people search for. Using their guesstimates on how search engines work, SEO programmers specifically include these tags and keywords, because they believe Google and other search engines are designed to look for them.

In the preceding pages, we have explored the numerous ways in which internet-based tools are transforming marketing operations and their economics and players. They facilitate many marketing operations. Yet one should not conclude that marketing will become easier and cheaper. Quite to the contrary. The new tools are widely available and will be adopted by many competitors in their efforts to gain attention and raise persuasion and sales. Hence, there will be a costly arms race among companies in their marketing operations. Creating information and interaction is not cheap: it requires skilled people and technology. Despite its powerful elements of automation, the internet generates more human

185 Marketing Land. "Beyond AdWords: Demand Side Platforms Explained." April 6, 2016. Last accessed July 10, 2017. ► http://marketingland.com/beyond-adwords-an-intro-to-demand-side-platforms-44139.

186 However, Google countered by acquiring the DSP Invite Media.

187 Hunter, Matt. "Demand Side Platforms: Silver Bullet or Fog of War?" *Demand Side Platforms: Silver Bullet or Fog of War?* June 27, 2012. Last accessed July 10, 2017. ► http://de.slideshare.net/MattHunter/20120628-matt-hunter-demand-side-platforms..

188 Ilana. "8 Best Practices for Running a Retargeting Campaign." *ReTargeter Blog*. July 2, 2013. Last accessed July 10, 2017. ► https://retargeter.com/blog/retargeting/8-best-practices-for-running-a-retargeting-campaign.

189 Bateman, Scott. "Online Advertising Models: CPC, CPM or CPA?" *Promise Media*. Last accessed July 10, 2017. ► http://www.promisemedia.com/online-advertising/best-revenue-deals-cpm-cpc-or-cpa.

190 WhatRunsWhere. "Media Buying 101: Ad Networks & Ad Exchange." August 2015. Last accessed June 11, 2016. ► http://blog.whatrunswhere.com/media-buying-101-ad-networks-ad-exchanges/.

191 OpenX whitepaper. "Ad Networks vs. Ad Exchanges: How They Stack Up." July 2010. Last accessed February 6, 2017. ► https://www.cs.princeton.edu/courses/archive/spring13/cos448/web/docs/adnets_vs_exchanges.pdf.

192 Miller, Miranda. "53% of Organic Search Clicks Go To First Link [Study]." *Search Engine Watch*. October 10, 2012. Last accessed July 10, 2017. ► https://searchenginewatch.com/sew/study/2215868/53-of-organic-search-clicks-go-to-first-link-study

interaction, not less. One should not expect it to cut the aggregate costs of relationship creation. On the contrary, internet-based marketing will require more people, more effort, and more creativity.

10.11 The Promotion of Media Products

10.11.1 Film

In the film business until the mid-1980s, the marketing of films used to be mostly publicity-driven and newspaper-oriented rather than based on advertising. The studios pitched stories to newspapers and magazines, which in turn lapped them up to serve their readers' interest in glamorous stars and talked-about movies. This symbiotic relationship worked well for both sides. Starting in the 1980s, film marketing shifted to television ads and then cable ads, which was much more costly.[193] In around 2000 the internet became a major platform for promotion. The shift by film distributors to the advertising model was based on the release strategy that moved from a gradual ramp-up to one of a simultaneous national opening in thousands of theaters. This required short nationwide bursts of TV advertising. The ads tended to feature appealing images from the film, and quotes from critics' favorable reviews. Such campaigns cost around $10–20 million. The rule of thumb seems to be a spend of 50% of the production costs (preproduction, filming and post-production. Thus, if a movie costs $100 million to make, it will take an additional $50 million to market.[194] That ratio is even higher for small independent firms. Opening an independent film in the USA requires a marketing budget that is rarely under $1 million. Many such films do not even cost $1 million to produce and will not earn that much at the box office.[195]

Because the largest and most committed audiences for independent films live in New York and Los Angeles, these cities are essential for any independent release. But they are also the two most expensive media markets. A five-city run (New York, Los Angeles, Boston, San Francisco, Chicago, and Dallas) for one week could cost $850,000, without TV—$500,000 in newspaper ads plus $350,000 in trailers and prints. A quarter-page ad in the *New York Times* alone costs approximately $20,000 for just one day. To save money on advertising, independent film producers focus on free publicity, including appearances on talk shows, public events, press conferences, previews, and awards to generate free media coverage and exposure. But even this has costs that add up rapidly. The cost of an independent film's poster promotion for a five-city release can cost $45,000. A publicist is another $30,000 plus extra cash in each city.[196]

There are expenses for press screenings, public appearance tours by actors, and film festival premieres. The premiere party costs around $10,000–$20,000. Hotel rooms and airfare for actors on publicity tours can reach up to $40,000. If even minor TV advertising in the five cities is added for the independent film, it will cost an extra $500,000. Another method for independent film promotion is to hold special screenings and web marketing. One film had 400 WOM screenings. The cost was only $800 per screening, but it added $320,000 to the marketing budget, plus a huge organizational effort.[197]

The major studios generally allocate to foreign marketing only a fraction of the amount they spend in the USA and Canada. For example, Disney spent $42 million on advertising and publicity for *Gone in 60 Seconds* in North America, but $25 million combined for the rest of the world.[198] Of this, over one-quarter went to Japan ($6.5 million), $3.1 million to Germany, $2.5 million to the UK, and about $1 million to five other countries. A quarter went to the rest of the world. For the Hollywood studios, the American audience becomes a kind of test market for global release. A movie's success in the USA is a selling tool elsewhere. In some cases however, US failures can be reengineered by changes to the film or its marketing. For example, Sony's film *Hero* was a huge failure in the USA. But when the movie was released in Europe six months later, the marketing presented the movie as a satire rather than a comedy and the title was changed.

Online marketing of films has grown enormously in importance. Advantages are relatively low cost for the basics, the ability to measure clicks and the viewing of trailers, the ability to observe (and generate) buzz and WOM in a viral marketing approach, and the ability to target audience segments. Studios release appealing clips on popular websites such as YouTube or Yahoo Movies. Social media sites increasingly influence moviegoers' choices. A study showed that 62% of moviegoers used the internet or mobile apps to learn about films.[199]

10.11.2 TV & Cable Channels

TV networks promote their programs and themselves in a variety of ways.

On-Channel Promotion This is self-promotion on a channel that encourage viewers to stay tuned or come back later for a particular program. On-channel promotion only effectively reaches loyal, regular viewers.

193 Epstein, Edward Jay. *The Big Picture, the New Logic of Money and Power in Hollywood*. New York: Random House, 2005.
194 HowStuffWorks."Why do movies cost so much to make?" December 09, 2009. Last accessed July 10, 2017. ► http://entertainment.howstuffworks.com/movie-cost1.htm.
195 Martin, Reed. *The Reel Truth: Everything You Didn't Know You Need to Know About Making an Independent Film*. New York: Faber and Faber, Inc., 2009.
196 Martin, Reed. *The Reel Truth: Everything You Didn't Know You Need to Know About Making an Independent Film*. New York: Faber and Faber, Inc., 2009.
197 Martin, Reed. *The Reel Truth: Everything You Didn't Know You Need to Know About Making an Independent Film*. New York: Faber and Faber, Inc., 2009.
198 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: Random House, 2005.
199 McClintock, Pamela. "$200 Million and Rising: Hollywood Struggles With Soaring Marketing Costs." *The Hollywood Reporter*. July 31, 2014. Last Accessed July 10, 2017. ► http://www.hollywoodreporter.com/news/200-million-rising-hollywood-struggles-721818.

Cross-Channel Promotion Promotions on sister channels owned by the same company, or alternatively traded with other channels. Time Warner's cable networks, for example, cross-promote their own programs. Promos for TBS, Headline News, and CNN regularly appear on TNT, and vice versa. Such promotions can be advertising spots, or they can involve the use of new shows' stars on a talk show or entertainment news program. For new shows, cross-channel promos are key because viewers to a new show that were only exposed to on-channel promotion are a minority of a program premiere's audience.[200] Promotions on opening day are critical. Typically, around one-third of the total audience of a premiere was exposed to a promo that same day.[201]

Publicity The use of other media to report on a new show and its stars as news. It is discussed elsewhere in this chapter.

10.11.3 Music

For music, print reviews and promotions have only a limited influence on sales. Airplay on radio and then on cable music channels were the key, with the internet rapidly gaining the central role. Record companies have traditionally focused on promotion to radio broadcasters. This is a major effort since there are so many radio stations (12,000 commercial radio stations in the USA alone.)[202] That number becomes more manageable as one looks at specific music genres, and within them at those stations that set the tone, as well as focusing on station groups rather than individual stations. There is a strong incentive for influential stations or their disc jockeys to sell airplay to music companies, known as "payola." Depending on one's perspective, it is a bribe paid in order to influence a gatekeeper's choice or a legitimate commercial transaction no different from a publisher paying a bookstore to place a book in the window. Even though payola is illegal in the USA, promoters have found other ways to reward disc jockeys and others who make decisions, such as hospitality and gifts.

Of great importance has been the creation of a music video of a song, coupled with hoopla about the video itself. The promoters hope that this will create buzz and drive traffic to the video. YouTube and VEVO have become important platforms and measures of audience interest. This leads to strategies of "YouTube optimization" to steer traffic to the video. The three big music groups own Vevo, along with Google and Abu Dhabi Media. Music videos on Vevo are those provided by the music groups, not by users as is the case for YouTube videos. Vevo has a channel on YouTube, and Google serves ads to Vevo. Google pays Vevo part of the ad revenue it gets from advertisers according to its normal policies of revenue sharing on YouTube and for ad serving. Vevo then pays out a percentage of that revenue to the artists. Estimates are that artists receive about $0.001 (one-10th of 1 cent) per stream.[203] A million streams would thus yield only $1000 to the artist.

There are many music video promotional companies that offer a wide range of services, from placing videos on broadcast and cable music video shows, to putting videos in retail and entertainment locations or on music websites.

The artists themselves play an increasing role in the marketing of their music. A major way to promote is music tours. Beyond the direct revenues of ticket sales, studies show a measurable sales increase of recordings where a tour has taken place.[204] The internet has also enabled self-promotion, marketing, and sales of music by the artists themselves. They can use email and social networks for marketing to their fan base, and sell via their own websites. Major stars such as Kanye West and Justin Bieber have created their own high-end merchandise, unconnected to a tour. A Justin Bieber jacket sold through Barneys for $1675. Kanye West held a pop up merchandise store in New York to promote his new album *The Life of Pablo*. The store was only open for a few days and sold over $2 million worth of merchandise. Selling merchandise not associated with a tour is beneficial for artists since they do not have to share the revenue with a concert venue, which takes 5–25% on merchandise sales.[205]

10.11.4 Books

The basic problem for the promotion of books is that there are so many of them each year relative to the number of buyers. How then to differentiate a title? The easiest segment to manage is the educational market. The K-12 (kindergarten through 12th grade) textbook market is essentially one of B2B marketing in which large purchases are being made by school districts or even states. For public primary and secondary schools, education departments typically screen textbooks and determine which will be approved for purchase and which should be replaced. Buying many books at the same time according to a schedule tends to lower the price. Books are then marketed to the decision-makers by specialized sales personnel. The books themselves require a substantial upfront investment, followed up by extensive direct sales efforts. Partly as a result, the number of competitor publishers is relatively small.

For publishers, successful college texts are the most profitable business. There is less price sensitivity (the cost of a textbook is typically small relative to tuition) and books are

200 Eastman, Susan T., Douglas A. Ferguson, and Robert A. Klein. Eds. *Media Promotion and Marketing for Broadcasting Cable and the Internet.* Boston: Focal Press 2006.
201 Eastman, Susan T., Douglas A. Ferguson, and Robert A. Klein. Eds. *Media Promotion and Marketing for Broadcasting Cable and the Internet.* Boston: Focal Press 2006.
202 Krasilovsky, William M. and Sidney Shemel. *This Business of Music* (New York: Billboard Books, 2000), 24.
203 Hassan, Charlotte. "Surprise! YouTube Slashed its Royalty Rate by 50% Last Year." *Digital Music News*. July 12, 2016. Last accessed July 10, 2017. ► http://www.digitalmusicnews.com/2016/07/12/youtube-per-stream-royalty-rate-halved/.
204 Krasilovsky, M. William, and Sidney Shemel. *This Business of Music*. (New York: Billboard Books, 2000), 26.
205 Indvik, Lauren. "Justin Bieber, Kanye, and Others are Helping Create and Sell Their Own Merch—Tour be Damned." *Billboard*. August 16, 2016. Last accessed July 10, 2017. ► http://www.billboard.com/articles/news/magazine-feature/7476035/justin-bieber-kanye-merchandise-tour.

assigned by intermediaries, namely teachers and professors, who are readily identifiable and then targeted. Competition, however, is high. In consequence, marketing costs are major expenses for the textbooks and account for 25% of publisher revenues.

Book publishers supply instructors with examination copies.[206] They will also visit professors, especially those with large introductory courses, and send out informational materials about new books and updated editions. They will exhibit their books at meetings of professional associations, where they wine and dine prospective adopters, and will place ads in academic journals. When it comes to college texts, one of the aims of publishers is to prevent the resale of a pricey book by a student who has just completed a course to another one who starts it. Counter-efforts take a variety of routes, in particular the rapid turnover of editions, typically every three years. This makes academic sense in fields where knowledge is added rapidly, such as in bio-medical studies, but less so in fields where the basics remain steady. In such fields as art history it is more likely to be motivated by marketing considerations. A new edition obsoletes the earlier edition on the resale market even if it remains a perfectly good book. Another technique is to offer the book online, as well as creating online services such as quizzes, workbooks, reviews, exercises, and supplementary materials, and then tying access to them to a purchase.

Books for the consumer market, are called trade books, and they are mostly sold by intermediary bookstores and online sites. Here, the landscape has changed rapidly:

- from independently owned stores to large national chains;
- from small stores to megastores;
- From bricks-and-mortar stores to e-commerce online bookstores;
- from physical books to e-books.

For a publisher's marketing operations, it means that the efforts move from one of relationships with thousands of small expert retailers to one that must cater to two very different constituencies: huge corporate chains and online marketers at one end—in the USA in particular Barnes & Noble and Amazon.com—and, at the other end, to millions of consumers who have lost the curating guidance of small booksellers.

To deal with retailers and bulk buyers, publishers display and present at trade shows and book fairs. Of these, the largest is the annual fair at Frankfurt, Germany. Closer to the retailers, sales reps also keep in with retail stores and chains. These reps receive training in the details of the titles they will promote.[207] To be effective they must focus on pushing only a few of the books of their publisher's list. But which? Some are obvious choices such as new books by a best-selling author or a celebrity. Books whose authors receive a high advance (upfront payment) attract more marketing push since the downside to failure is greater. Most books, however, do not fit these criteria. Therefore, it often makes sense to delay promotional efforts until information comes in about the reactions of relevant audiences, and only then to invest more heavily in promotion.[208] This approach means that publishers are often fairly passive, at least at first. They wait for the market's reaction ("throw it against the wall and see what sticks"). This disappoints authors, many of whom sincerely believe that their book would be a bestseller if only it received appropriate marketing efforts. The conclusion they should draw is that they themselves must be engaged in the marketing of their book and often execute it on their own. For example, authors may create a website for the book, and also send out information to their professional and personal circle. Authors may get enlisted in the publisher's publicity campaign. For professional books, their contracts are valuable and can get a book started. For trade books, there are book tours with signings at book stores and media interviews.

There are two major promotional seasons. The spring release of titles anticipates the summer selling window for light reading. The fall release season anticipates Christmas gifting sales and is heavier in non-fiction, coffee table display, and specialty books.[209]

Publishing houses will send out review copies and press releases to major reviewers and newspapers.[210] Prerelease, they send sales representatives to book stores or chains. In some cases, especially for professional books, they might engage in direct mailing or emailing. Even more important is to create WOM hype. Any kind of press or media appearance generates attention on the author and the book.

For publishers, one strategy in creating awareness of certain books involves book clubs. Of these, the most popular has been Oprah Winfrey's Book Club, which has reached over 2 million members nationwide.[211] It does not actually sell books directly but recommends, comments, and curates. Winfrey's "approved" books receive a sticker on the jacket to alert shoppers to the recommendation. A new version, dubbed Oprah 2.0, offered multimedia and social network interaction. Winfrey's initial 69 recommended books sold an estimated 55 million copies.[212] Publishers estimate that her endorsement adds 500,000 copies to sales.[213] Most book clubs are much more intimate affairs, taking place in a small social setting for the purpose of discussing an assigned book. Demographically,

206 Zell, Hans M. *Book Marketing and Promotion: A Handbook of Good Practice.* (Oxford: INASP, 2001), 24.

207 Greco, Albert N. "Market Practices and Procedure." In *The Book Publishing Industry.* (Viacom Publishing, 1997), 173–215.

208 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

209 Lieberman, Al. *The Entertainment marketing revolution.* Hoboken: Prentice Hall, 2002.

210 Henderson, Marilyn. "Marketing Your Novel: Building the "Buzz." *Writing-World.com.* Last accessed July 10, 2017. ► http://www.writing-world.com/promotion/buzz.shtml.

211 Bosman, Julie. "The Return of Oprah's Book Club." *New York Times.* June 1, 2012. Last accessed July 12, 2017. ► https://mediadecoder.blogs.nytimes.com/2012/06/01/the-return-of-the-oprahs-book-club; Minzesheimer, Bob. "How the 'Oprah Effect' changed publishing." *USA Today*. May 22, 2011. Last accessed July 12, 2017. ► https://usatoday30.usatoday.com/life/books/news/2011-05-22-Oprah-Winfrey-Book-Club_n.htm.

212 The Daily Beast. "Oprah's Book Club By the Numbers." June 3, 2012. Last accessed July 10, 2017. ► http://www.thedailybeast.com/oprahs-book-club-by-the-numbers.

213 Garthwaite, Craig L. "Demand Spillovers, Combative Advertising, and Celebrity Endorsements." *American Economic Journal: Applied Economics* 6, no. 2 (April 2014): 76–104. ► https://doi.org/10.1257/app.6.2.76. There is an impact on the sales of other books too. The study reports a statistically significant impact on books in the quarter following an Oprah endorsement, with other adult fiction book sales decreasing by a statistically significant 2.5%.

75–80% of book club members are women.[214] Even here, in-person meetings are often replaced or supplemented by internet services such as online forums and participation or presentations using Skype and other video connections. These are easier to schedule, can be done more frequently, and can involve more people.[215] Publishing houses have recognized book clubs as important marketing tools to promote titles, and include them in an author's book tour. Clubs also recommend authors to one another.[216] Authors may therefore send out or list information as an encouragement for invitations. In contrast, book store publicity tours with signings can be demoralizing and unproductive if attendance is poor.[217]

Such book clubs must be distinguished from another arrangement bearing the same name that are essentially book subscription services. Book-of-the-month clubs such as the Doubleday Book Club offer substantial discounts to their readers by purchasing books directly from the publisher instead of the retailer, and locking subscribers ("club members") into a choice from a short list or to receive a default choice.[218] They used to be an important way to distribute books, including a multiplier effect by creating WOM, but have generally declined.

10.11.5 Newspapers

Newspapers have been hard hit by the shift to online digital. They are being deserted both by paying readers and by advertisers. In the past, print ad space was priced at a significant premium (on a per-impression basis) over other kinds of advertising. Newspapers enjoyed market power by often being the only daily news medium in a local community that could deliver detailed local information. But online ads have cut into that market. Marketers have been more reluctant to cut broadcast and cable TV ad spending so print newspapers have taken the major hit. On top of that, newspapers also face a decline in demand for their product itself. In a survey question: "Is it important to follow the news?" of the age cohort 30 years and younger only 36% agreed, whereas 62% of the age 50+ agreed. There was also a major gender gap, especially among women 20 years or younger. The age gap always existed but was much smaller. Thus, the news audience of the future is failing to regenerate.

This is not just a matter of education or civics, but also of information overload. Herbert Simon, who received a Nobel Prize for Economics for his work on information theory, said a long time ago: "Reading daily newspapers is one of the least cost-efficient things you can do … Read the World Almanac once a year."[219]

As a result of this decline, newspaper publishers have tried to engage in new ways of marketing their product,[220] but also in changing it and creating more audience-oriented stories and styles. In other words, to help in the marketing the product itself should be modified. This has led to a pushback by some journalists who find that such an orientation is unhealthy for a newspaper's integrity. They are concerned that this shift will generate publications of low validity, originality, and authenticity. They believe that this is a short-term strategy, and that only quality will result in long term success.[221]

10.11.6 Magazines

There are thousands of magazines titles but a few account for most of the circulation and advertising. In the USA, 160 titles account for 85% of consumer magazines' total revenues. Of magazine revenues, 75% is generated by advertising, 18% by subscriptions, and 7% by news-stand sales.

Tools for marketing to consumers to solicit subscriptions include list brokers and subscription agencies (such as Publishers Clearing House). Promotion tactics for magazines include a catchy and descriptive title, a logo that is frequently displayed, and attractive covers. Even if most magazines are received by subscription, being displayed at a news-stand or drugstore generates attention.

To attract advertisers, magazines have increased their targeting through "selective binding," which permits the creation of multiple editions of a magazine issue. *Farm Journal*, a leader in this approach, had 9000 different editions in 1984, based on crop and livestock types and region.

Another trend has been to make the marketing effort more efficient by creating economies of scale and scope. This has led to the emergence of magazine groups, with a magazine company owning dozens of titles, often related to each other, especially for trade interests. Such a structure enables the common use of databases, central services, and marketing organizations. There is also more stability: as one industry struggles and its advertising lags, other industries may be doing well. A publishers' rule of thumb is that it takes about 12 magazine titles to establish such efficiencies.

10.11.7 Video Games

Video games have become a major media business, along with marketing strategies that borrow from film, publishing,

214 Masters, Tom. "Future Perfect Publishing." *Future Perfect Publishing*. Word Press, July 3, 2007. Last accessed July 10, 2017► http://futureperfectpublishing.com/2007/07/03/an-interview-with-diana-loevy-author-the-book-club-companion/.

215 Masters, Tom. "Future Perfect Publishing." *Future Perfect Publishing*. Word Press, July 3, 2007. Last accessed July 10, 2017. ► http://futureperfectpublishing.com/2007/07/03/an-interview-with-diana-loevy-author-the-book-club-companion/.

216 Otto, Audra. "Book marketing 101: Book club visits out-perform press tours" *MinnPost*. November 3, 2009. Last accessed July 7, 2017. ► https://www.minnpost.com/books/2009/11/book-marketing-101-book-club-visits-out-perform-press-tours.

217 Paik, Eugene. "Straight Off the Shelves." *The Star-Ledger*. Advance Publications, June 10, 2012. Last accessed July 7, 2017. ► http://www.nj.com/news/index.ssf/2012/06/straight_off_the_shelves_autho.html.

218 Book Club Resource. "What Is a Book Club?" June 12, 2012. Last accessed September 13, 2012. ► http://www.book-clubs-resource.com/book-club.php.

219 Bennis, Warren. *An Invented Life: Reflections on Leadership and Change.* New York: Basic Books, 1994.

220 Lloyd, John. "How to Effectively Market your Newspaper." Last accessed July 10, 2017. ► http://www.aip.org.za/wp-content/uploads/2015/07/Quick-Guide-How-to-Effectively-Market-your-Newspaper-John-Lloyd.pdf.

221 Underwood, Doug. "The Marketing and the Management Move In." *When MBAs Rule the Newsroom*. New York: Columbia University Press, 1995.

and software releases.[222] Whereas in the past games were sold by "push" to the potential user, the relationship has become much more a two-way interaction, as well as one of P2P and social media marketing through the generation of WOM.

Marketers have been pushing in particular games for females. Women make up half of the population but account for a much smaller share of gaming participants (higher numbers get periodically released by trade groups but are often self-serving). Video game companies have addressed this problem by creating games targeted at girls and women such as Buena Vista Games' *Disney Princess* (young girls) and *Desperate Housewives* (middle aged women). The family-friendly Wii console by Nintendo was a major attempt to reach the female market.[223] As mentioned earlier, Nintendo merged viral marketing strategies with Tupperware-style parties, using "alpha moms" to position the Wii as a family-bonding game for the living room instead of being relegated to the teenager's bedroom.

Live broadcasting of video games online has added buzz. Platforms such as Twitch.tv (acquired by Amazon) allow gamers to stream their gaming activities and let people follow and comment. Video game publishers advertise on these channels and sponsor competitions or players in order to raise awareness for their game titles. Popular users, such as the commentator known as PewDiePie, who has 38.8 million YouTube subscribers and 9.8 billion total views, entertain their audience by testing and recommending games. Game publishers sponsor these YouTube influencers in order to promote games and increase awareness for new releases.[224] They aim to create a buzz before a launch by sending out beta versions to selected users. Traditional marketing channels, too, are intensively used before the launch, such as display advertisements, TV (advertising and game shows), and print (advertisement and advertorials, that is, ads that appear to be objective editorial content).[225]

10.12 The Marketing of Technology Products

Marketing is often the costliest stage for high-tech products.[226] There are several dimensions to this: marketing to consumers, to retailers, to business customers, and to providers of complementary services. Consumer electronics (CE) product lines are typically quite large and fast changing. Marketing is therefore heavily dependent on the brand reputation and visibility. The emphasis is therefore often on promoting the corporate brand rather than the specific product.[227]

When it comes to consumers of tech products, different types respond differently to innovations and must be approached differently. "Innovative adopters" love to acquire advanced devices and content, and the marketing approach has to be to let them remain as "the first on their block to get XYZ." Pragmatists or the early majority are the large group that follows the early adopters. They are nervous about state of the art and like to join an industry standard.[228] Such users get confused by choice and opt for the safe choice and the market leader. These consumers (and businesses) must be approached with a reassuring approach.

Last are the conservatives or late adopters. They join reluctantly, when they have no choice. They are best dealt with by offers of easy returns, free service for a period, smooth transitions, and customer support options.

A related question is about which technology customers to target as a priority. One approach is to focus on one's own existing customers for upgrade, especially where technology is rapidly changing. The advantages are that there is already an established relationship and that consumer anxieties are lower. Another strategy is to target competitors' customers. This is helped by the fact that longer-term brand loyalty has declined and there are more "butterfly consumers."

A technology firm will try to get the person who interacts with tech buyers to be on its side. Companies therefore try to influence retail salespeople at big stores. This includes information and training so that they can knowledgably explain features to customers. It also means financial incentives such as bonuses and discounts. And it calls for the creation of positive relations by sponsoring events, gifts, and so on.

Another strategy is pricing. In the past, low prices were considered a poor approach for high-tech products because they implied that a product was either dated or of poor quality. Early adopters were also thought to be price insensitive. But low price has been increasingly used in high-tech markets to create early market penetration,[229] which also generates network effects and WOM.

Another strategy to promote electronics is product placement in films. Apple, Nokia, and others have used this strategy extensively. But, as mentioned, product release may be challenging to co-ordinate with a film's release.

Another consideration is the fit of a new product with related and complementary products. Tactical alliances are

222 Bachelor, James. "The New Rules of Video Games Marketing." *MCV UK*. Last accessed July 10, 2017. ► http://www.mcvuk.com/news/read/the-new-rules-of-games-marketing/0111541.

223 Bulik, Beth Snyder. "Video games unveil feminine side." *Advertising Age*. October 30, 2006. Last accessed July 12, 2017. ► http://adage.com/article/print-edition/video-games-unveil-feminine-side/112830/.

224 Kain, Erik. "YouTuber 'PewDiePie' Is Making $4 Million A Year." *Forbes*. June 18, 2014. Last accessed July 10, 2017. ► https://www.forbes.com/sites/erikkain/2014/06/18/youtuber-pewdiepie-is-making-4-million-a-year/#29a9dbd65b25.

225 Zackariasson, Peter and Timothy L. Wilson. "Basics In The Marketing Of Video Games – The Nature Of The Offering, Internal Marketing Of Projects, And A Product Manager's View Of The Overall Process." Paper prepared for 2009 NFF Conference, Turku, Finland. Last accessed July 12, 2017. ► https://www.academia.edu/766246/BASICS_IN_THE_MARKETING_OF_VIDEO_GAMES_THE_NATURE_OF_THE_OFFERING_INTERNAL_MARKETING_OF_PROJECTS_AND_A_PRODUCT_MANAGER_S_VIEW_OF_THE_OVERALL_PROCESS.

226 Easingwood, Chris and Anthony Koustelos. "Marketing High Technology: Preparation, Targeting, Positioning, Execution." *Business Horizons* 43, no. 3 (October 2004): 27–34.

227 P-O-P Times. "Who Needs Friends? Study finds P-O-P stronger influence than word-of-mouth." December 2005, 78.

228 Newton, Gregory, D. "Marketing Radio." In *Media Promotion and Marketing For Broadcast Cable and the Internet*, 5th ed. Eds. Susan Eastman, Douglas Ferguson, and Robert Klein. (New York: Focal Press, 2006), 35.

229 Easingwood, Chris, and Anthony Koustelos. "Marketing High Technology: Preparation, Targeting, Positioning, Execution." *Business Horizons* 43, no. 3 (October 2004): 27–34.

an important marketing tool. When done well, the firm's product might become a de-facto standard. Thus, prior to coming out with a major new product, a firm must approach major buyers, suppliers, retailers, even rivals and providers of complementary products and services, in order to introduce them to the new product and technology and to bring them into co-operative relationships.[230] An important tool for this effort is to provide prelaunch information, especially to developers of software that utilizes the device. It also generates a prerelease buzz, and informed reviews. This marketing effort includes arranging for press articles by trusted journalists about the anticipated product. It can also serve to undercut a rival's product by creating uncertainty about its competitive viability. When such anticipated products never materialize they are known as "vaporware."

Techniques for consumer electronics marketing include:

- Endorsements. Sony, for example, used golf star Michelle Wie for its Vaio.
- In-store live demonstrations. Customers first have to get to know and understand new technologies. 28% of respondents have said that seeing products in-store had most influence on their purchasing decisions, with more impact than traditional media.
- Industry-wide promotion and education.
- Building "experience centers" in big cities.
- Event marketing, for example with a consumer electronics-equipped mobile trailers that tours around the country, allowing people to experience a product.
- train retail salespeople to master and explain features to customers and recommend products, and give them special incentives through bonuses.
- Invite celebrities and trendsetters to events and get them to try new devices.
- Generate press coverage.
- Guerrilla marketing: send street teams to trendy clubs and other similar venues.
- Product placement on films and TV shows.
- Generate WOM. Consumers are reluctant to trust electronics manufacturers. They tend to turn to friends and relatives for information before making purchase decisions.
- Concentrate on developing trusted relationships with previous customers to maximize brand loyalty and referrals.

10.13 The Regulation of Marketing

10.13.1 Self-Regulation

Marketing activities try to persuade through promises of performance and satisfaction. When these promises are exaggerated, the disappointed users may seek legal redress or will badmouth the product, and the entire industry might be tarred in the process. The promoters of a product can easily overpromise. Even a conscientious marketer will face moral dilemmas about how strongly to word or depict a product in which they truly believe or on whose success their job depends.[231] To prevent the worst marketing abuses, reputable companies tend to support some type of regulatory scheme, either by the industry itself or by government. The self-regulation of marketing practices can be done by advertisers and agencies, trade associations, and by the companies themselves.[232]

Examples of industry-led self-regulation by advertising firms include:

- Advertising Self-Regulation Council (ASRC), New York;
- European Advertising Standards Alliance, an umbrella of various national bodies, Brussels;
- International Code of Advertising, International Chamber of Commerce, Paris;
- World Federation of Advertisers, Brussels.

In 1971, four industry and business associations in the USA joined forces to establish the National Advertising Review Board, which was subsequently expanded to include direct marketers and electronic retailers to become the ASRC. This is the US advertising industry's primary self-regulatory mechanism.[233] Several of the regulatory uses have been discussed more generally in ▶ Chap. 8, Entertainment Law and Media Regulation. It reviews complaints from consumers and consumer groups, local "better business bureaus," and competitors. If the ASRC (and its sub-units NAD for advertising and CARU for children) and the advertiser fail to resolve the controversy, either can appeal. If the appeals panel rules against the advertiser, the advertiser must discontinue the particular promotion. If the advertiser refuses to comply, the ASRC refers the matter to the appropriate government agency and indicates that fact in its public record. The ASRC has no power to order an advertiser to modify or stop running an ad and cannot impose any sanctions, but advertisers who participate in an investigation rarely refuse to abide by the panel's decision.

In Brazil, similarly, an advertising self-regulation code has been created and is enforced by the Brazilian Advertising Self-Regulating Council (CONAR). It has no formal enforcement powers but courts usually uphold its findings. CONAR recommends to the publication that it should suspend the publication of an advertisement; and it can make its findings public.[234]

There also exists global media self-regulation. The World Federation of advertisers, based in Brussels, Belgium,[235] is an association of major advertisers with global brands who have committed themselves to follow the Federation's marketing standards.

230 Easingwood, Chris, and Anthony Koustelos. "Marketing High Technology: Preparation, Targeting, Positioning, Execution." *Business Horizons* 43, no. 3 (October 2004): 27–34.

231 Kotler, Phillip. *Marketing Essentials*. Upper Saddle River, NJ: Prentice Hall, 1984.

232 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

233 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

234 Rocha, Valdir. "Advertising in Brazil-The Success of Self-Regulation." *Global Advertising Lawyers Alliance.* 2003. Last accessed July 7, 2017. ▶ http://www.gala-marketlaw.com/pdf/AdvertisingRegulation.pdf.

235 World Federation of Advertisers. "About Us." Last accessed July 10, 2017. 7 http://www.wfanet.org/en.

Another self-regulatory approach is that of the media itself. Many media outlets check and review advertisements before airing or publication to ensure that they are not deceptive or offensive. Some of this is based on self-protection. While media companies need not verify the claims made by advertisers, they can be held responsible if they should have known better or if they acted negligently. To avoid legal problems, media advertisers and agencies tend to check the ads for misstatements. There are also industry-wide codes of practice, such as among television broadcasters. Such industry-wide agreements reduce the ability of a large advertiser to pressure a TV outlet to accept its ads or lose them to a competitor. Such agreements are close to the line of anti-competitive practices, however, and have been disfavored by antitrust authorities.

The effectiveness of self-regulation goes only so far, because it is often hard for companies to inflict painful restrictions on themselves, or to police "free-riders" who will try to profit from other firms' self-restraint on advertising. In other cases, self-regulation often becomes a mechanism by which established firms limit outsiders. For example, the legal and medical professional associations in America prohibited through their codes of ethics all practitioners to advertise their services, until courts forced them to stop these restrictions. Lastly, self-regulation operates as a private system and hence does not have the same protections of due process that exist in a public system of regulation.

10.13.2 Government Regulation of Advertising

Consumer protection agencies exist in most countries and in lower levels of government, such as states, cities, and provinces. In the USA, on the federal level the Federal Trade Commission (FTC) is in charge of complaints of unfair competition and false advertisement.[236] In the EU, the Directorate-General for Health and Consumers focuses mainly on claims in the food and medical arena. It provides guidelines to the national regulatory bodies regarding truth of advertising.[237] The Commission enforces its decisions through the European court system and has an investigative arm of 300 local offices.[238]

The FTC may issue cease-and-desist orders on marketing practices and fine violators. It may require corrective advertising. The FTC also has jurisdiction over false advertising of foods, drugs, cosmetics, and therapeutic devices.[239] There are triple damages for false advertising. Damages also include profits from the offending ad and attorneys' fees. The FTC may require advertisers to include certain types of information in their ads so that consumers will be aware of all the performance and risks of the product or service. Fuel mileage claims in car ads are an example. Cigarette ads must contain a warning about the health risks associated with smoking. For ads using the internet, too, disclosures must be conspicuous and understandable by the intended audience.

10.13.2.1 False Advertising

Advertisers must have a reasonable basis for ad claims and possess substantiation of any claims made in the ads before dissemination. False advertising includes misrepresentation, bait and switch (advertising a product with no intention of selling, then switching to a higher priced item), and false price comparison. But "puffery" is permitted. Advertisers can make exaggerated, boasting, and subjective claims, provided that no reasonable buyer would rely on them, such as "the World's Best Hot Dog."

Companies engaged in false advertising as marketing practices can also be sued by competitors. An ad need not be literally false if it deceives. A US district court fined the Jartran company a record $20 million in punitive damages, on top of $20 million in compensatory damages, to pay to U-Haul International to make up for losses resulting from ads by Jartran comparing the companies' prices that were ruled deceptive.[240]

Other countries, similarly, have rules governing advertising. In China, laws prohibit commercial ads from displaying content that may be injurious to social stability, present a danger to individuals or property, harm public interest, jeopardize social or public order, or violate positive social conventions. Violations may result in criminal prosecution.[241]

10.13.2.2 Privacy Regulation

The growth of online media transactions and consumption poses challenges to individual privacy as more data becomes available, and as it becomes easier for marketers to collect, store, correlate, and distribute data about an individual and her transactions. With traditional broadcast TV no particular data privacy issue existed, given the medium's one-way and synchronous nature. In contrast, cable TV, which operates a return channel for "addressable" communication, is technologically quite capable of identifying and recording each subscriber's TV viewing in real time, including that of advertising messages. In the USA, the cable TV industry, to forestall government regulations as well as to give their sub-

236 Additional US regulatory agencies involved in marketing practices are the Federal Communications Commission, for the misuse of broadcasting and other licenses; the US Postal Service, for the use of the mails for fraudulent marketing; and 51 state attorney generals, and numerous state, county, and local consumer protection agencies.

237 Directorate-General for Health and Consumers (European Commission). "About Us." Last accessed May 18, 2011. ► http://ec.europa.eu/dgs/health_consumer/about_us/our_vision_en.htm.

238 Molnár, Tamas. "Law Enforcement In the E.U." Presented at *Pace University Law School ODR Conference.* Pace University Law School, White Plains, NY, March 30, 2010.

239 Belch, George E. and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

240 Belch, George E., and Michael A. Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective*, 4th ed. New York: Irwin/McGraw-Hill, 1998.

241 China Knowledge. "China Multi-faceted Stage: Rules and Regulations." Last accessed July 7, 2017. ► http://www.chinaknowledge.com/Marcom/Book-ChinaConsumer.aspx?subchap=4&content=12.

scribers a greater comfort level, agreed internally to refrain from the collection or use of such data for marketing purposes. In time, the regulatory agency FCC established rules prohibiting the collection of such data on consumers when it is in identifiable form without getting their consent first, as well as from sharing that data with third parties without consent. In Europe, cable companies collect various usage data but also must maintain privacy. With the next generation of media and digital activities—mobile communications, websites, and online video—the issue is still further magnified. Now, the service providers possess real time behavioral data, locational whereabouts, plus vastly more information about the individual user, including her non-video activities, interests, shopping, and personal profile. That information is valuable to marketers and could be sold and resold. It might also be hacked by others for the purpose of commercial gain or malicious tampering.

None of this is a new phenomenon. But the new generation of communications creates a new generation of privacy issues. The number of communications carriers, platform providers, e-commerce sites, financial intermediaries, and individual participants is huge, leading to an increasingly open communications system in which information about use and user is exchanged as part of interoperability.[242] A troublesome aspect of the problem, both for consumers and for companies, is that different jurisdictions around the world come to different regulatory treatments of data privacy, yet the data travels globally.

A ban on data collection and individualization has its cost, too. It may prevent positive aspects of customization, such as providing suggestions to viewers based on their past preferences, or those of others who viewed the same content. As has been noted, it is only a small step from providing good service to stalking. Giving users options on their willingness to have their data used encounters several issues. First, should there be an opt-in or an opt-out? In other words, is the default a user's approval of a provider's activities, or is the default non-approval? Because of consumer inertia, people tend to stick with the defaults, so this makes a big difference on the outcomes. Where companies must induce consumer approval, they will typically need to provide some reward, such as a discount or an outright payment. Thus, the default system greatly affects the costs to the provider. A second issue is whether a marketer should in fact be able to buy a consumer's "right" to privacy, or whether such privacy should be outside the market place. Even where a country has not enacted strict rules of protecting individual data privacy, marketers in their activities should keep certain principles in mind if they wish to avoid having governmental rules enacted, or where they transact business with countries that have such rules. Companies must find ways to protect their customers' privacy, or they will face a backlash.[243] People do not want to find themselves targeted by ads for liquor, nightclubs, or escort services if they are using an online dating website.

The legal and public image pressures lead forward-looking marketers toward certain data policies:

1. Transparency: users should be clearly told what their transaction data will be used for, and by whom.
2. Access: users should be able to review the data collected on them, with the option of deleting or correcting it.
3. Collection limitation: companies should only collect personal data that is needed, and any such data should be obtained by lawful and fair means with the knowledge/consent of the user.
4. User participation: users should have the right to amend or remove the info if inaccurate or incomplete.
5. Security safeguards: personal data should be protected by reasonable security safeguards from unauthorized access and use.
6. Use limitation: companies should share personal data with third parties only with consent. Personal data shall not be kept for longer than is necessary for the purpose for which it was collected.
7. Technical and organizational protections: measures should be implemented to protect the data against unauthorized use and against accidental damage.
8. Data collection must be limited to lawful and fair means of collection.

10.14 Analyzing Marketing Performance

To run an efficient marketing operation requires an effective feedback loop. There are several dimensions of performance analysis.

10.14.1 Advertising Analysis

This type of evaluation aims to observe the impact of marketing activities, in particular of advertising, on the target market's attitude toward and awareness of the product. In advance of creating a fully fledged ad, an advertising agency may organize a focus group or a theater test audience to observe participants' reactions to a cheaply produced preliminary version of an ad.[244] After the ad has been shown widely the advertiser can test its effects on

- awareness of the brand;
- awareness of the ad;
- Recall;
- willingness to purchase the product;
- purchase activity.

242 Noam, Eli. "Privacy in Telecommunications, Part I," *New Telecommunications Quarterly* 3, no. 2 (September 1995): 51–59.

243 Steinbock, Dan. *The Birth of Internet Marketing Communications.* Westport, CT: Praeger Books, 2000.

244 Poltrack, David. "Measuring Television Advertising Effectiveness." *Television Marketing.* (New York: McGraw-Hill, June 1983), 331–357.

One of the most popular and established audit tests in market research is the recall test. The Burke market survey company contacts an ad's audience a day after the test commercials are shown and collects information to configure the "Burke Score," which is based on consumers' recall of specific or general facts about the commercial that was aired.

It should be noted that there is a debate between advocates of studying pre/post-attitude and awareness, versus those who use audits and sales measurements. The former believe that the role of advertising is to communicate and persuade, while the latter believe that advertising's role is ultimately to increase sales, not attitudes. Proponents of pre/post-attitude and awareness studies argue that sales audits do not isolate the effect of advertising.

Part of advertising analysis is to identify whether the ads reach the target audience. A study by Nielsen in the UK showed that fewer than half of all ad impressions reached the advertiser's intended audience. For example, for a product aimed at young women, ads were actually being viewed mostly by older women and by men.[245] According to Nielsen, if advertisements' targeting were improved, a company could, on average, either reduce the budget by 11% or improve campaign performance by 14%.

Indicators of advertising efficiency include:

- average cost per buyers reached (by media category and media vehicle);
- number of inquiries generated by ad and the cost per inquiry.[246]

10.14.2 Sales Analysis

Sales analysis evaluates measures and evaluates actual sales in relation to sales goals. It looks at changes in sales volume and in market share.

Methods of sales analysis are:[247]

- Sales variance analysis: this identifies gaps in actual performance over forecasts, and the relative contributions of different factors to that gap, for example the product's price or the advertising budget.
- Micro-sales analysis: this looks at specific products, territories, and so on, which did not reach the expected sales targets.
- Market share analysis: this identifies the sales results of a company relative to its competitors.

10.14.3 Marketing Cost Analysis

Marketing cost analysis measures the efficiency of the firm's marketing mix. It measures advertising costs, test market expenses, and sale force expenses. Marketing expenses can be broken down by the cost of sales force, promotion, advertising, market research, sales administration, and so on. This cost can then be checked in relation to sales, in terms of various performance ratios. For example:

- sales-force cost/sales;
- advertising cost/sales;
- market research expenses/sales.

10.14.3.1 Sales-Force Efficiency

Indicators of sales-force efficiency include:

- average cost per sale (time and money);
- average revenue per call;
- number of new customers per period;
- number of lost customers per period.[248]

10.14.4 Marketing Audit Tools

We have reviewed the various metrics and analyses to evaluate marketing performance. Which works best? A marketing audit is a comprehensive review of a company's marketing activities, putting together the various types of analysis discussed and studying the performance over time. A combination of the several approaches makes most sense, combining real-world results (sales performance) with the qualitative measures of surveys of consumer attitudes.[249] It would also incorporate measures for the effectiveness of the various marketing activities such as advertising, the cost ratios of achieving the performance, and an identification of the gaps in performance. It might isolate the sales performance pre-campaign, during the campaign, and post-campaign.

A formal marketing audit will take time and might be outdated when it reaches top managers. The profusion of marketing data can also easily create information overload for managers. To alleviate this problem, marketing performance "dashboards" have been introduced that present data and metrics as graphic and useful information.[250] A gauge might show performance of actual outcomes against objectives or the performance of core marketing strategies and processes.

Figure 10.7[251, 252] depicts a marketing dashboard with needles that show where the company stands compared with a target goal (defined by round targets). The graph breaks down the different areas of marketing into business outcomes, marketing objectives, and strategy and programs.

Another dashboard segments the marketing performance by brand metrics (e.g. brand awareness), advertising metrics (e.g. advertising awareness), and purchase metrics (e.g. mar-

245 Moss Linda. "A.C. Nielsen buys AdExpress SpotCable software." *Multichannel News*. January 25, 1993. Last accessed July 7, 2017. ► http://www.highbeam.com/doc/1G1-13373859.html

246 Other measures include indicators of sales promotion effectiveness such as percentage of coupons received or the number of inquiries resulting from demonstrations. Kotler, Phillip. *Marketing Management: Analysis, Planning, and Control.* Hoboken: Prentice Hall, 2015.

247 Kotler, Phillip. *Marketing Management: Analysis, Planning, and Control.* Hoboken: Prentice Hall, 2015.

248 Kotler, Phillip. *Marketing Management: Analysis, Planning, and Control.* Hoboken: Prentice Hall, 2015.

249 Poltrack, David. *Television Marketing*. (McGraw-Hill, June 1983), 331–357.

250 Wikipedia. "Marketing Performance Measurement and Management." Last accessed July 7, 2017. ► https://en.wikipedia.org/wiki/Marketing_performance_measurement.

251 Vision Edge Marketing. "Marketing Dashboards." Last accessed July 7, 2017. ► https://visionedgemarketing.com/develop-a-marketing-dashboard/?platform=hootsuite.

252 Source copyright 1999-2017, VisionEdge Marketing, Inc. All rights reserved. Illustration of Actionable Marketing Dashboard based on Accelance® Connecting Marketing to Business Results™, patent-pending Marketing alignment and accountability methodology and application. Accelance is a registered trademark of VisionEdge Marketing, Inc.

Fig. 10.7 Marketing dashboard

ket share). A third dashboard may present the effectiveness of marketing techniques on online websites by showing visitors, cost of advertisements, and the websites that led most viewers to the target website. Still another dashboard might show the effectiveness of different marketing types (e.g. ROI on website, direct mail, and conferences. These techniques and approaches are only in their infancy.

10.15 Marketing and the Product Life Cycle

The life cycle of media and technology products moves from early introduction, to growth, to maturity, and to decline. This life cycle can be short and intense. What are the implications for marketing management? There are different marketing strategies for each phase. Earlier in this chapter, we identified the Bass Model as a tool for forecasting sales growth of an innovation. It attempts to predict how many consumers will eventually adopt the new product and when will they adopt it.

In the early stage, the product is introduced to customers who are innovators. As we discussed, innovators are fundamentally committed to new technologies or styles. They view technology as toys and style as creativity. For some of them money is not the major consideration. This means that the marketing needs to be based on quality, performance, and innovation, not on price. For the company, being able to charge a high price helps recover the upfront expenses, lends cachet to the product, and when prices come down in the next stage, give other buyers the sense that they got a good deal.

In contrast, another important group of early adopters have no money and are often young, but they have considerable influence and multiplier factor, and may add a "cool" factor. To reach them, WOM marketing is effective. To gain them, the marketer might seek ways to offer major discounts, and help organize a community. In this phase of the product, costs are high relative to sales, and the risk is considerable.

In the second stage, the growth phase, the product's sales, profits, and the number of competitors all increase. The focus shifts from early adopter demand to brand-specific and broader-gauged advertising. Distribution is key. Another consideration is the need to build market share in advance of competitors. One major strategy is to give away the product to build market share and loyalty. This foregone revenue from consumers is a marketing investment. Companies often practice this strategy toward consumers by giving away com-

puter programs so that they can sell pricey software to business firms. In a growth market, where many potential users are not quite prepared for the product, cost elements might be high: advertising expenses, consumer educational efforts, customer support, and the offering of high margins to retailers, that is, wholesale discounts, to carry the product.

The third stage, the maturity phase, is generally characterized by slow growth. This is the state where cautious customers adopt technology when it has been proven and its style has been established.[253] Profits are stable to decreasing. Consolidation among competitors is strong, and there is a stronger differentiation of market segments. Prices also stabilize, then decline. This is the longest phase of the product life cycle. It is a time for stylistic rather than functional modifications. Companies start to invest in heavy consumer promotion to maintain market share. Moreover, as dealer margins shrink companies must give promotions to dealers to retain loyalty.[254]

Marketing strategies in the maturity phase include the promotion of more frequent and different uses of product and low pricing. This is followed by consolidation and tacit cartel behavior, in which competition—and marketing—is oriented around features rather than price. Branding becomes very important. The decline phase is characterized by a long-run drop in sales and declines in profits and the non-essential market.

10.15.1 Case Discussion

Marketing Efforts Over the Life Cycle of the Magazine *Fly & Sky*

1. *Start-up phase*. *Fly & Sky* is a young and unknown brand during the start-up phase. The strategy is to introduce the *Fly & Sky* product and the brand to the public. Marketing activities during the start-up phase will focus on activities that create buzz and reach the specific target audience who will become loyal subscribers in the future.

WOM and prelaunch information should be the focus of the marketing activity. This is a cheap and effective way to create buzz in the communities of the target audience. It can be jump-started through giveaways (pens, etc.), selective offers of free copies, and so on.

- Marketing activities for the start-up phase, as discussed earlier, include the use of
- ads in related magazines (*Golf Digest*);
- promotion at air shows and similar venues;
- celebrity endorsers;
- press releases.

The company should help create a social media infrastructure that will generate an outlet for prerelease information, generate early buzz, and create a community of users.

2. *Rapid growth phase*. *Fly & Sky* marketing should target larger potential sub-markets of readers. It should put an effort into building a brand and generate a high market share that appeals to advertisers. It should encourage its online community.
3. *Plateau and stability phase*. Brand-building activities are the focus. *Fly & Sky* should be a driver for flight education, offer summer camps and fly-ins for aviation enthusiasts, employ young people interested in the industry, sponsor air shows and adventure flights, and advocate on aviation policy issues.

Marketing should try to convert occasional news-stand buyers into regular subscribers, and encourage existing subscribers to renew their subscriptions. This would be done by rewarding loyal subscribers with discounted prices on merchandise, apparel, flight electronics, and so on, and through membership events.

4. *Decline phase*. Existing infrastructure and social media should be maintained. It should continue to hold annual charity events, push existing programs, and be a presence at air shows. But new initiatives are less likely for budget reasons. As in the start-up phase, the marketing plan should use, in particular, other Condé Nast magazines.

10.16 Outlook

In this chapter, we have learned what marketing is; the Four Ps of marketing: product, pricing, placement, and promotion; community-based marketing; and online tools. We have seen how to set the advertising budget, how to allocate among media types, how to promote to advertisers, how to use the internet for marketing, and how to analyze marketing performance.

The abundance of products and services enhances a market. When food ceased to be scare, its quality, variety, and consumption increased. The same is true for media information. How should a company compete in an abundant and over-supplied market? Price competition is not a strong option, since if one company lowers its price so will the others, given the cost characteristics of information and services with their low marginal cost. Therefore, product differentiation is the prime competitive strategy. But it is expensive and difficult for a media firm to differentiate itself by consistent and long-term originality and quality. A similar approach, customization, moves products out of industrial-style mass-production and mass-media and in the direction of individualization. But this, too, is expensive and difficult. New technologies provide an edge for early adopters among marketers, but soon will be used by most competitors, too, and the advantages of innovation are often temporary.

This leaves marketing as a major competitive approach. Marketing activities will therefore be even more important, more complex, more expensive, and require more creativity

253 Moore, Geoffrey A. *Inside the Tornado*. (New York: HarperBusiness, 1995), 17.

254 Lamb, Charles W., Joseph F. Hair, and Carl D. McDaniel. *Marketing*. Cincinnati, OH: South-Western College Publishing, 1996.

than ever. Marketing efforts and the associated costs will have to greatly expand. In the information economy, marketers are even more central. The new generation of media marketers will play a major role in shaping the product, refining techniques for getting attention, analyzing data on users, customizing the offerings, and creating better links with behavioral sciences to make marketing efforts more effective. Much of the responsibility for success or failure of media products will rest on their shoulders, keyboards, and creative abilities.

10.17 Review Materials

Issues Covered

In this chapter, we have covered these issues:

- How the marketing function is organized.
- What the special aspects of media marketing are.
- How firms integrate marketing and product design.
- How firms position products.
- What the advantages of internet brands are.
- What the pricing strategies for media firms are.
- How marketers gain people's attention with WOM, buzz, and viral marketing.
- What the implications of limited attention span are.
- What the role of advertising agencies is.
- How to choose the most effective advertising platform.
- How to determine an advertising budget.
- How to allocate within a media and marketing category.
- What the pros and cons of product placement are.
- What problems in e-marketing and m-marketing are.
- What the types of online marketing approaches are.
- What demand-side and supply-side advertising platforms do.
- How media forms promote their products to advertisers.
- How influencers help with promotion.
- What the challenges in the marketing of high-tech products are.
- How marketing is regulated.
- How to manage the self-regulation of marketing.
- What the privacy issues and laws affecting marketing are.
- How to analyze marketing performance.
- How to customize through consumer-generated information.
- What the constraints on marketing through privacy protections are.
- What types of pricing approaches marketers use.

Tools Covered

We used various tools to deal with these issues, such as:

- Customer lifetime valuation.
- Conjoint analysis.
- Positioning analysis.
- Bass Model of diffusion.
- Determination of overall advertising budget.
- Optimal advertising mix.
- Allocation of advertising within a medium.
- Ratings, shares, and CPM analysis.
- Behavioral targeting.
- Sales analysis.
- Marketing Cost Analysis.
- Marketing dashboards.
- Econometric demand estimation.
- SEO.
- Brand management.

10.17.1 Questions for Discussion

1. What are the budget considerations when promoting a film in global markets?
2. What problems will a globalization of bookstore chains face?
3. How can one generate free promotion for a new novel?
4. The internet has made it possible to practice interactive one-to-one marketing. What are the challenges that face this? For which media products and services would it work best?
5. How can a consumer magazine assess the effectiveness of a campaign?
6. How does the advent of internet and interactive marketing alter the role of traditional media outlets in the marketing of media products?
7. How is marketing research implemented for magazines to increase marketing efficacy? And for blogs, in comparison?
8. In what ways, if any, does marketing of media products and services differ from marketing of other consumer goods?
9. What kinds of new internet tools do media companies have at their disposal to promote their product? What are the strengths and weaknesses of these tools over traditional methods?

10. Describe the various ways in which Google is involved in online advertising.

11. Is product placement an effective means of marketing a product? How can firms track the effectiveness of their product placement?

10.17.2 Quiz

1. At what phase of the product life cycle would you see differentiation and price stabilization?
   A. Introductory phase;
   B. Growth phase;
   C. Maturity phase;
   D. Decline phase.

2. Which groups make the bulk of purchases and adopt technology only when it is proven?
   A. Innovators;
   B. Early adopters;
   C. Early majority;
   D. Late majority.

3. What is the lifetime value of the customer?
   A. The present value of all future profits that a company can potentially generate from customer;
   B. The future value of all the profits that a company can generate from its present customer;
   C. Customer retention and loyalty is incorporated;
   D. Both A and C;
   E. Both B and C.

4. Which of the following is a fundamental challenge to media marketing?
   A. Price deflation;
   B. Slow growth and cost inflation of gaining attention;
   C. Increased creation and production;
   D. A and C;
   E. All of the above;
   F. None of the above.

5. Which of the following is a forecasting tool for customer demand?
   A. Focus groups;
   B. Test marketing;
   C. Computer models and simulation;
   D. Historical analogy;
   E. Expert survey;
   F. All of the above.

6. What percentage of magazines will survive their first four years?
   A. 85%;
   B. 60%;
   C. 50%;
   D. 20%;
   E. 10%.

7. To which stage of a product's life span do these features correspond?
   Slow growth
   Stable and slowly decreasing profits/prices
   Heavy marketing
   A. Introductory phase;
   B. Growth phase;
   C. Maturity phase;
   D. Decline phase;
   E. None of the above.

8. Price difference between hardback and paperback books is much larger than the cost difference between the two. This is an example of:
   A. Market pricing;
   B. Penetration pricing;
   C. Flat rate pricing;
   D. Value based discriminatory pricing;
   E. Cost-plus pricing;
   F. Value pricing based on customer's willingness to pay;
   G. None of the above.

9. In which advertising budgeting method does a company establish budgeting amounts by matching competitor's percentage of sales marketing expenditures?
   A. Marginal analysis approach;
   B. ROI;
   C. Competitive parity approach;
   D. Objectives approach;
   E. Quantitative model approach;
   F. None of the above.

10. Which formula approximates the life-time value of a customer?
    LV: Lifetime value.
    M = margin.
    I = discount rate.
    R = retention rate.
    AC = acquisition cost.
    g = growth rate

    A. $LV = \frac{M \cdot R}{(1+I)-R(1+g)} - AC$;

    B. $LV = \frac{M \cdot R}{(1+I)+R(1-g)} - AC$

    C. $LV = \frac{M+R}{(1-I)-R} - AC$

    D. $LV = \frac{M \cdot R}{(1+I)+R} - AC$

    E. None of the above.

11. True or false: repeating a television ad more frequently than the competition affects brand preference in a mature market.
    A. True;
    B. False.

12. A Warner Brothers movie is discussed on CNN.com. What is this an example of?
    A. Zone targeting;
    B. Media globalization;
    C. Database marketing;
    D. Cross media marketing;
    E. All of the above.

13. Which of the following can affect the effectiveness of an ad?
    A. Length and frequency of exposure;
    B. Ancillary costs of production;
    C. Customer "reach";
    D. A and C;
    E. All of the above.

14. Research shows that the percentage of positive/negative movie critic reviews is a significant indicator of which of the following?
    A. Revenues in the first one to four weeks after the movie's release;
    B. Revenues in later weeks;
    C. Overall movie revenue;
    D. A and C;
    E. B and C;
    F. All of the above.

15. An artist's album sales increase in the regions they tour after their concert.
    A. True;
    B. False.

16. What is the most influential advertising platform for theatrical musicals?
    A. Radio;
    B. Magazines;
    C. Television;
    D. Newspapers;
    E. None of the above.

17. What is the most influential advertising method for video games?
    A. Movie-like trailers;
    B. Movie websites;
    C. Both;
    D. None.

18. Which of the following is a method for marketing books?
    A. Get the title mentioned in magazines and newspapers;
    B. Book fairs;
    C. Talk shows;
    D. B and C;
    E. All of the above.

19. Approximately what percentage of the revenue is used for marketing of academic textbooks?
    A. 45%;
    B. 30%;
    C. 25%;
    D. 10%;
    E. 5%.

20. Which of the following corresponds to the biggest book sales outlet?
    A. Retail stores (bookstores, Wal-Mart, etc.);
    B. Direct sales via book clubs;
    C. Direct sales via mail or internet;
    D. None of the above.

21. Which of the following tools can be used to enhance magazine subscription sales?
    A. Rate cards;
    B. List brokers;
    C. Third party partnerships;
    D. B and C;
    E. All of the above.

22. What time of the year is considered the best for mailing material for direct mail testing of magazine subscriptions?
    A. The beginning of the summer;
    B. The end of the summer;
    C. Before Christmas;
    D. After Christmas;
    E. Any season;
    F. None of the above.

23. Future magazine pricing strategies will shift from massive advertising discounts to:
    A. Consolidating titles for advertising purposes;
    B. Offering more package deals to advertisers;
    C. Increasing circulation revenues;
    D. A and C;
    E. None of the above;
    F. All of the above.

24. Which of the following TV ad services guarantees to the advertiser a certain number of viewers and entitles the advertiser to "make goods" in case this viewership level is not reached?
    A. Sponsorship of a whole program;
    B. Partial sponsorship of a program;
    C. Upfront buying;
    D. Spot buying;
    E. None of the above.

25. Which of the following is a reason to use telemarketing?
    A. An active marketing strategy;
    B. Can reach a specific audience;
    C. Allows for customer feedback;
    D. Allow for differentiation of pitch;
    E. A and D;
    F. All of the above.

26. What is one disadvantage of contracted telemarketing?
    A. It is more costly than TV advertising;
    B. Unauthorized service transfer, slamming;
    C. Customers are not answering their phones;
    D. Contractors are outsourcing their employees;
    E. None of the above.

27. Which of the following is not an advantage of internet marketing?
    A. Powerful in collecting useful data for targeting individuals;
    B. Internet is interactive;
    C. It can reveal whether an ad is working or not;
    D. Very effective in persuading indifferent customers;
    E. Most households are not connected to the internet;
    F. D and E;
    G. C, D, and E.

28. What is one of the problems that face online bookstores (Amazon.com, etc.)?
    A. Price pressure, more price competition online;
    B. Bookstores are not able to handle the very high online demand;
    C. Globalization of these stores can pose problems, such as selling books which are unauthorized in different countries;
    D. A and C;
    E. All of the above.

29. Sequential movie distribution is based on:
    A. Releasing the movie to all markets and submarkets at once;
    B. Releasing the movie to the markets that make the most revenue per unit time first, and then cascade to the other markets by revenue/time decreasing order;
    C. Releasing the movie to American markets first and then to foreign markets;
    D. None of the above.

30. What is a disadvantage for book chains?
    A. They have an influence on publishers in choosing which books to publish;
    B. Central buying system;
    C. Poor inventory control.

31. Which of the following statements about the marketing of media products and services is incorrect?
    A. Media products have wow marginal costs and high fixed costs that provide strong economics of scale;
    B. It is difficult to exclude unauthorized consumption and compete with "free" products as a marketer;
    C. There is often a short product cycle and a short marketing window;
    D. The product must be strongly differentiated from those of rivals;
    E. There is a normal distribution of success in the media industry.

32. Which of the following statements is correct?
    A. Product placement is not an effective way to advertise without being obtrusive;
    B. Product placement is not a major way to overcome the trend of consumers skipping advertising commercials;
    C. Product placement is not a way of advertising that informs the audience in detail about a product;
    D. Product placement is not increasingly used in video games, as a new way to reach young males.

Quiz Answers

1. C
2. B
3. D
4. E
5. F
6. D
7. C
8. D
9. C
10. A
11. A
12. D
13. D
14. E
15. A
16. C
17. A
18. E
19. C
20. A
21. D
22. C
23. F
24. C
25. F
26. B
27. F
28. D
29. A
30. A
31. E
32. C

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_11

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11.1 Setting a Price

11.1.1 Introduction

When a firm plans and produces a good or service, it does so with the intention of selling it to generate a profit. But at what price? Pricing is a critical part of business strategy and marketing (and has already been discussed briefly in ▶ Chap. 10 Marketing of Media and Information). It is an important part of business strategy and marketing because it translates a product into a revenue stream. As Thomas Nagle and Reed Holden observe, pricing tries to capture the value created by the design, production, and marketing efforts of the firm.[1] The goals of a company strategy are to gain penetration, profits, and customers. Where pricing is done in an ineffective way it offsets the company's other efforts. To analyze the pricing issues in the media, communications, and information sector, this chapter will cover:

- How to set a price based on cost and profit margins.
- How to use auctions.
- How to set the price dynamically and instantly.
- How to engage in price differentiation.
- How to measure price sensitivity.
- How to charge a price above cost.
- How to set prices strategically.
- How to set intra-company prices.
- How to hedge against price risks.
- How to stay inside the law in pricing.
- How to use technology for micropricing.

Setting a price is more complex than one would think. Many factors have an impact. They include, most obviously, cost, but also strategic objectives, customer perceptions,[2] competitors, marketing positioning, general economic price trends, and expectations.

This chapter will examine how prices for information products are or should be set. Unique pricing difficulties exist within the information and media industries, and this chapter discusses them. Pricing requires good judgment and experience, but it is also an application of the analytical approaches of microeconomics and marketing. Quantitative and analytical reasoning and good judgment must be based on a solid understanding of why some pricing strategies succeed and others fail.

Historically, price setting was never just a simple economic transaction. In medieval society, merchants were, at least in theory, obliged to charge a price close to cost, and prices were often closely regulated by guilds or by law.[3] More recently, price constraints exist in many countries and for many products. Even in the USA under a Republican president, Richard Nixon, temporary price freezes were imposed by government to mitigate inflation. In the Soviet Union, charging a price higher than the official price was a criminal offense. In severe cases, such profiteering was punishable by death.

To many economists and financial practitioners, the prices of stocks that are traded in stock and commodity exchanges have achieved the status of distilled global knowledge. They believe that these prices summarize the collective wisdom about the prospects of a company, the likelihood of a poor harvest, or the expected result of an election. The Efficient Market Hypothesis (introduced by Eugene Fama, a 2013 Nobel laureate) argues that it is impossible to "beat the market" because stock market efficiency causes existing share prices to incorporate all relevant information available at the time. This process becomes ever more efficient and rapid as technology progresses and spreads information more quickly and widely.

11.1.2 Special Problems in the Pricing of Information Products

11.1.2.1 High Fixed Cost, Low Marginal Cost

As discussed repeatedly, high fixed costs and low marginal costs (MCs) prevail in most media activities. In the case of software, it may cost over $10 million to write a computer program but less than 50 cents to produce a CD-ROM and $2 to physically distribute it, and almost nothing to copy and distribute it online.

These cost characteristics mean substantial economies of scale, which creates incentives for each competitor to expand in order to obtain them. It also results in prices dropping toward the low MC, since under competitive pressures the price for their content or service is the MC, which is close to zero. Such prices will be below average cost, meaning that they will not cover the fixed cost of initial development. With newspapers, for example, retail prices barely cover the basic costs of paper and delivery (i.e. the MC) and do not pay for the substantial cost of content creation. If advertising revenues drop—as they did with the advent of online platforms for local ads—the fixed cost becomes higher than revenues, and the newspaper runs a deficit.

11.1.2.2 Network Effects

Another fundamental economic characteristic of media and information is the presence of network effects. This means that users perceive a greater value from the presence of many other users. They benefit from being able to reach others on a network or from sharing an experience. This creates, for providers, incentives to price low in order to gain market share and generate high network effects, which in turn makes their services more attractive and thus allows them subsequently to charge a higher price. This demand-side characteristic creates incentives to price below cost in order to gain market share.

1 A source that has been invaluable to this chapter and deserves much credit is the excellent book Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. Saddle River, NJ: Prentice Hall, 2002. Nagle's subsequent editions were with John E. Hogan, Joseph Zale, and Georg Müller.

2 Warner, Alan and Chris Goodwin. *Pricing for Long-Term Profitability*. London: Prentice Hall Financial Times, 2002.

3 Heilbroner, Robert. *The Making of Economic Society*. Englewood Cliffs, NJ: Prentice-Hall, 1962.

11.1.2.3 Price Deflation

Information has become cheaper for many decades, and it is becoming difficult to charge anything for it. This is demonstrated by the proliferation of free online music, publishers, and newspapers. As the Internet community pioneer Stewart Brand put it, "information wants to be free."

The implication is that the entire information sector is subject to a gigantic downward price spiral. Examples are long-distance phone calls, cellphone service, online advertising, semiconductors, and consumer electronics hardware. This downward price spiral in the information sector represents one of the fundamental economic trends of our time.

Consider the price of telephony. The price of international telephone calls has dropped dramatically. In terms of hours of work equivalents, in 1927 a three-minute call from New York to London took 200 hours of work; in 1936, 56 hours; in 1945, 20 hours; in 1970, 5 hours; in 1995, 0.2 hours.[4] By 2013, with internet telephone service, the cost was virtually zero.[5] Similarly, the average monthly price paid by users in the USA per minute for mobile service (including the various miscellaneous charges and basic subscription) dropped from an average revenue per minute of 47 cents in 1994 to 7 cents in 2004.[6] A similar price drop has characterized electronic hardware, whether laptop computers, TV sets, video players, or mobile phones. Prices on all of these devices have dropped and/or performance has been rising.

At its basic level, these price changes are due to the rise in performance per dollar known as Moore's Law, which observes a doubling of performance of semiconductor microprocessors for every two or so years; that is, an increase of about 40% compounded annually. This law can be phrased differently, in terms of price for the same performance. That price decline, with performance held constant, proceeds at a similar rate.

Thus storage, transmission bandwidth, processing power, content, and applications have been moving to a zero price. It seems that nearly anything associated with competitive online technology moves down the path to being free.[7]

Even when the price is not literally zero, as is the case for a transistor in a microprocessor, it becomes so cheap that the price is not a major factor. Furthermore, for information products price arbitrage becomes fairly easy, and it is difficult to charge some people—or local markets—a hefty price while giving it to others for nothing.

Prices may drop, but they are also volatile. As prices decline companies cannot cover costs, and entire industries go through crisis. Eventually some competitors fail and go out of business, companies consolidate, price competition moderates, and companies become profitable again. This attracts new entrants, and competition reemerges. A new cycle of investment, overproduction, competition, and price collapse appears again.

Thus, price deflation leads to cyclical volatility of prices, instability in the entire information sector, and difficulty price-setting. This economic situation is beneficial for consumers yet can be disastrous for producers and their employees.

11.1.2.4 Intangible Products and Public Goods

Intangible assets such as information, data, entertainment content, software, scripts, and technology innovations are difficult to value and price. Additionally, many of these intangible information products can be consumed by multiple people in a "non-rival" fashion. One person's consumption of the product does not diminish it for another, as would be the case with, for example, an automobile. Also, potential users are hard to exclude from consuming the product. Broadcast television is a good example. Unless one can encrypt the signals, nobody can be excluded from watching. Non-excludability and non-rival consumption are the characteristics of "public goods"—products and services outside a market or pricing system, such as national defense or the environment. The existence of public good characteristics leads to "market failure": customers have no incentive to pay the price at all, and the market will hence be unstable.[8] Market prices become extremely low, with no firm recovering its cost, or there is no equilibrium market price at all. Examples include natural resources such as fish in the ocean "over-the-air" radio/TV broadcasting, street lights, or national defense. Possible responses to market failure are:

- Governmental intervention to control resources, require broadcast licenses, operate street lights, and provide national defense.
- Co-operation of providers of this good to form a cartel and only offer it at a certain price.
- Find technical methods to make the good excludable (e.g. encrypt TV broadcast signal).
- Find ways to monetize the consumption of the good in ways other than by charging a price for it (e.g. include advertisements on over-the-air radio/TV).

11.1.2.5 Excess Supply

Another economic property of media is excess supply. Media production increases exponentially. Media consumption, however, increases linearly and slowly. This has consequences for both content style and marketing. When compared with 1998, fewer than half as many new products make it to the bestsellers lists, reach the top of audience rankings, or win a platinum disc.[9] Content is becoming more specialized to fill narrow niches. Marketing efforts must rise. Costs per use rise. At the same time, rising competition of content products puts a downward pressure on prices.

4 Odlyzko, Andrew. "Internet pricing and the history of communications." *AT&T Labs – Research*. February 8, 2001. Last accessed August 2, 2011. ► http://www.dtc.umn.edu/~odlyzko/doc/history.communications1b.pdf.

5 Prices fell, in particular, after competition was introduced in the 1980s. Before that, international calls were run co-operatively by an international cartel of national monopolies, which kept prices at a fairly high level. Once competition was introduced, prices dropped dramatically.

6 Calculated using Average Local Monthly Bill and Average Minutes of User per Subscriber per Month from Cellular Telecommunications & Internet Association, October 2004.

7 Anderson, Chris. "Why $0.00 is the Future of Business." *Wired*. February 25, 2008. Last accessed June 17, 2017. ► http://www.wired.com/techbiz/it/magazine/16-03/ff_free.

8 Groves, Theodore and John Ledyard. "Optimal allocation of public goods: A solution to the 'free rider' problem." *Econometrica* 45, no. 4 (May 1977): 783-809; Bergstrom, Theodore, Lawrence Blume, and Hal Varian. "On the private provision of public goods." *Journal of Public Economics* 29, no. 1 (1986): 25-49.

9 Aris, Annet and Jacques Bughin. *Managing Media Companies: Harnessing Creative Value*. 2nd ed. West Sussex: Wiley, 2009.

11.1.2.6 Presence of Non-Maximizers of Profit

Normally, economic analysis assumes the presence of rational actors who maximize profits. But in the media industry this is frequently not the case. Many creators of media content do not seek to maximize profit. They seek status and influence, or simply enjoy the creative process. For these producers of content, the setting of optimal prices to compensate them for their efforts is secondary. As an example, many performers provide free music as a means of self-marketing and of gaining the attention of record labels.

11.1.2.7 Role of Government

Another factor that poses a special problem for the pricing of information products is the typically active role of government in the information sector. Protection of access to information and networks leads to frequent government controls over retail and wholesale prices in some information sector markets. There exists a special sensitivity for monopolistic pricing within the media and information industries, and strong policies to make access to information and media services affordable to all. That is why throughout the world there exist free public libraries, subsidized phone or internet services, and "free TV" in even remote corners of a country, as well as uniform pricing across cable TV users, regulated interconnection prices for networks, and non-discriminatory prices for content providers over internet service providers (ISPs).

11.1.2.8 Convergence of Production

Lastly, the convergence of digital media makes the information pricing process especially challenging. The various sub-sectors of media and digital products are increasingly overlapping and hence more competitive. Price discrimination is also becoming more difficult owing to the greater ease of arbitrage on electronic networks.

Prices in the entire information sector are particularly interdependent. In the dot-com bust of the early 2000s, the overexpansion in the supply of ad space on websites led to a drop in ad prices, and hence the collapse of the business model of many websites, and of the websites themselves. This in turn led to a decline in demand for traffic on telecom networks where the dot-coms conducted their businesses. Consequently, investment in backbone infrastructure was negatively affected, which led to a major drop in the prices for telecom equipment.[10] Websites also radically reduced their own advertising efforts in print magazines, leading to a decline of that sector's revenues.

To conclude, the pricing of information products is subject to long-term pressures and short-term shocks. As societies become information economies, they also become more volatile economies. An information economy is a boom and bust economy, with unstable prices, and a general downward price trend. Pricing strategies in the media and information sector are both difficult and critical.

The problems of pricing of media and information product can be seen in the following case: the rise and fall of *Encyclopaedia Britannica*.

11.1.3 Case Discussion

Overview

Encyclopaedia Britannica (*EB*)[11] was first published in Scotland in 1768, but it has been American-owned since 1901. By 1929, *EB* was mainly operating from the USA, with a permanent editorial team located in Chicago. Under the leadership of William Benton (founder of a major advertising agency and a U.S. Senator). EB bought other publishers such as Compton's Encyclopedia and the dictionary publisher G & C Merriam.[12] In 2009, a poll in the UK named *EB* as one of Britain's top consumer brands (tenth place) in terms of reputation and reliability.

EB used to be one of the world's largest publishing firms. It featured highly respected contributors, such as Sigmund Freud, Albert Einstein, Henry Ford, W.E.B. Du Bois, Leon Trotsky, Marie Curie, Milton Friedman, Carl Sagan, and many others. Its team consisted of 4500 contributors worldwide, including academics and experts from many various fields, plus a team of 100 full-time editors who needed to approve every article. *EB* was a profitable market leader. In 1988, the encyclopedia was priced at $1200, a leather-bound embodiment of humanity's accumulated knowledge. Libraries around the world were renewing their subscriptions at a rate of 98%. Doting parents and grandparents treated children with the gift of a brand-new set for a birthday or other important occasions. In 1990, *EB* sold 120,000 sets of encyclopedias in the USA alone.

But then the electronic onslaught began. In 1989, *Compton's Encyclopedia* was the first to issue a CD-ROM version. Another encyclopedia, Funk & Wagnall, soon acquired by Microsoft, sold its product as *Encarta* for $49.95 on a CD-ROM. In response, EB tried a number of pricing strategies. In 1993, it offered online access to libraries for $2000 per year and to consumers a CD at $1,200. In 1994, it offered consumers an online subscription for $120 per year, and in 1995, a CD version for $800. It then rapidly dropped the CD price to $200. Consumers stopped buying the costly leather-bound print version, revenues plummeted, and by 1996 *EB* was near bankruptcy.

The company was then bought by financier Jacob Safra, a Geneva-based banker and encyclopedia fan. *EB*'s renowned sales force was closed down, and the price of the CD was cut to $90. In 1999, *EB* put basic content on a website, accessible for nothing, with revenue expected to come through e-commerce transactions. The number of users increased, but advertising and transaction revenues were tiny.[13]

10 Noam, Eli M. "Fundamental Instability: Why Telecom Is Becoming a Cyclical and Oligopolistic Industry." *Information Economics and Policy* 18, no. 3 (2008): 272-84.

11 A note on spelling: in American usage, the books are known as an "encyclopedia." The British usage is "encyclopaedia" or "encyclopoedia." EB seems to be using all three spellings.

12 Enoch, Nick. "Your Tome is up … Encyclopedia Britannica Ends its Print Edition after 244 Years as it Fully Embraces Digital Age." *Mail Online News*. March 13, 2012. *The Daily Mail*. Last accessed July 6, 2012. ► http://www.dailymail.co.uk/news/article-2114646/Encyclopedia-Britannica-cut-print-edition--244-YEARS.html.

13 Boudreau, John W., Benjamin Dunford, and Peter M. Ramstad. "The Human Capital Impact on E-Business: The Case of Encyclopedia Britannica." In *Pushing the digital frontier*. Eds. Nirmal Pal and Judith M. Ray. New York: Amacom, 2001.

In 2002, *EB* raised online subscription prices to $65, with many discount plans. The 32-volume print edition still cost $1200, including major updates, newer articles, and free web browsing. In 2005, the price of the print version was raised to $1500. The CD-ROM price was lowered to $35 and content shortened. The online version still cost $65 per year, and was updated every two weeks. For schools, group subscriptions were offered. A student-version of the encyclopedia, released in 16 volumes, cost $400–450 in 2007.[14]

But this was just the beginning of the crisis. *EB* was still the premium product; the problem was how to monetize it. However, a challenge soon emerged for the content itself. After 2005, the free website Wikipedia emerged as a serious threat. Launched in the USA in 2001 by Jimmy Wales and Larry Sanger, Wikipedia presented a free online encyclopedia written by volunteers. It is owned by the non-profit Wikimedia Foundation, which pays all costs (which are claimed to be only several thousand dollars annually). There are no advertising or subscription revenues but the Foundation solicits donations. Wikipedia operates with an open community model. Access is free and anyone can make edits to an article. There is no formal editing process, at least in theory, and the hope is that a large community of volunteer editors will quickly detect and correct any mistakes. In contrast, *EB* had 4500 expert contributors worldwide, many of whom received honoraria for their articles, and contributions went through a team of 100 paid editors before approval. In 2015, there were almost 5 million articles in the English language version of Wikipedia while *EB* had "only" 120,000. There are numerous other language editions of Wikipedia, and translation programs make them partly available in English too.

Was there a quality differential, given that Wikipedia is edited by volunteers? In 2006, the science journal *Nature* compared scientific entries and found that *EB* was only 30% more accurate than Wikipedia.[15] Thus, without much more credibility, yet with a much smaller number of entries and a much higher price, *EB*'s business kept dropping, from $586 million in 1992 to $50 million in 2008. In 2009, 60% of its revenues came from online operations. Its print sales were primarily to libraries, where subscription renewal rates were still about 98%.[16]

In 2009, rival Microsoft threw in the towel and ended the sale and production of Encarta encyclopedia and Encarta Online. At that time, Wikipedia had 97% of US web users of encyclopedia information while Encarta had only 1.27%.

So the question is, what should *EB*'s pricing strategy have been in such an environment? A price of zero to match Wikipedia's? Stay at $1,200? In between, and if so where? Or a higher price than $1200, to focus on libraries and the prestige market, and give up on the consumer market? Different prices for different customers? Pay per use? Freemium? Basic subscription fee plus usage-based fees? Individualized price or single price with lots of discount categories? These are some of the options we will explore in this chapter.

11

11.2 Pricing Strategies

Firms normally have several basic options for setting prices. They can be:

- based on the cost of production;
- determined by the market;
- based on the value of the product to the customer;
- reflecting a firm's market power;
- pursuing a company's strategic objectives;
- regulated by government.

We will analyze these options and how they relate to media and communication.

11.2.1 Pricing by Cost

11.2.1.1 Cost-Plus

Companies often set prices by calculating the cost of producing the good or service and adding a percentage of profit on top of it. This is known as "cost-plus" pricing or as "mark-up" pricing. This is a straightforward and widely used process.

It is often thought that one advantage of cost-plus pricing is its simplicity. Actually, however, cost is difficult to determine.[17] The first problem is to determine which type of cost should be used. It could be either incremental cost (MC) or average cost. Typically, what is meant by "cost-plus" is average cost. The difference in pricing between the two types of costs is often significant and will be explored later in this chapter. Average cost could be much higher than incremental cost, especially where fixed (upfront) costs are high and incremental costs are low.

Another problem is that what gets included in the term "costs" can be subjective and strategic. Cost definition can vary greatly, depending on the business purpose. Firms have incentives to show high costs for a number of reasons, such as to lower income tax, to reduce the sharing of profits with investors or licensors, or to show low profits to regulators. Conversely, firms have incentives to show lower costs (and thus higher profits) if they aim to impress investors or gain bonuses for managers. There are many ways to structure and allocate costs, as cost figures can be affected by factors such as the expensing versus capitalization of investments, the depreciation rates chosen, or the timing of the cost. They can also be affected by the allocation of overhead and other expenses, the reserves for potential risk, the valuation of inventory, and the allocation of costs among different projects. This is discussed in ► Chap. 13 Accounting in Media and Information Firms.

14 Marchand, Philip. "Browsing the new Britannica offline; Internet be damned." *The Toronto Star*. February 4, 2007. Last accessed July 6, 2012. ► http://www.thestar.com/news/insight/article/178025--browsing-the-new-britannica-offline.

15 The Economist. "Encyclopedias: Battle of Britannica." March 30, 2006. Last accessed July 28, 2011. ► http://www.economist.com/node/6739977.

16 Charlton, Graham. "Q&A: Ian Grant of Encyclopaedia Britannica UK." February 10, 2009. *Econsultancy Digital Marketers United*. Last accessed August 2, 2011. ► http://econsultancy.com/blog/3268-q-a-ian-grant-of-encyclopaedia-britannica-uk.

17 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

The third problem regarding cost-plus pricing is that cost actually depends on scale of production, but that also, vice versa, production volume depends on price. Cost depends on price, just as price depends on cost. Unit costs (both average and marginal) change with volume.[18] For example, consider the computer manufacturer Wang Laboratory, which priced its machines based on average costs. When Wang lost volume it raised its prices to cover the rising average costs, but the price increase reduced sales even further, which caused the unit cost to rise still more. This created a deadly spiral for Wang Laboratory, which eventually went bankrupt.

But perhaps the main problem with cost-plus pricing is that it is not based on market conditions. Whether demand is high or low, cost-driven pricing leads to the same price, thus being too high in weak markets and too low in strong ones.

Despite these challenges, cost-plus pricing is used, for example, in certain procurement contracts with governments. It is also used in price regulation, for example of telecom prices or of compulsory licenses for music. When it comes to telecom pricing of interconnection or of network elements, regulators differentiate between past ("historical") cost and hypothetical "best practice" cost ("forward-looking cost"), which takes into account the greater performance and lower cost of newer technology. To measure and track actual cost, the US government established an Automatic Reporting Management Information System (ARMIS), and the figures calculated by this were the basis for the regulated prices that the network companies could charge each other for carrying traffic.[19]

Other circumstances favoring cost-plus pricing are the introduction of a new product to the market, when consumer demand for a good is quite uncertain,[20] and where there is thus no reference point for an assessment of a market price.

Case Discussion

Cost-Plus Pricing

Should EB Price Its Product Using a Cost-plus Approach? What Kind of Costs Would it Have to Consider?

The actual *EB* prices were as follows:

- online: $65;
- print: $1200.

What do these prices suggest about the use of cost-plus pricing by *EB*? For the online version, cost-plus is remarkably close to actuality (Table 11.1). But for the print version, cost-plus is about 50% lower than actuality. In the online case, competition must have brought down prices to a level of slim profits ($10 per unit, about 18%). For the print version, profits were $500 per unit, or 71.4%. Such a high level is possible only where there is market power or significant product differentiation.

Why would EB take such different pricing approaches to the print and the CD-ROM version? We will discuss this in other segments of the case.

Table 11.1 Cost characteristics of *Encyclopaedia Britannica*

	Online version	Print version
Marginal costs	$5	$500
Fixed costs allocated (per unit):	$50	$200
Average total cost	$55	$700
Cost-plus price (adding a 15% profit margin)	$63.25	$805

11.2.1.2 Marginal Cost Pricing

Economists favor MC pricing since they consider it to be efficient in sending correct signals to market participants. They argue that a fixed cost is typically "sunk" and therefore no longer relevant to a firm's pricing decision, at least not in the short run. If the price is set at a level below MC the firm will spend more on producing the extra unit than it will gain by selling it. Ideally it would set a price above MC so that it would profit from the sale. However, where markets are competitive, the presence of a profit that is "above normal" would attract similarly situated competitors to underprice the firm, and thus drive prices down to MC, which would be the floor. Thus, setting the price equal to MC is not the price point a firm would choose voluntarily; rather, it is the level the firm would be forced to set if subject to competitive pressures.

A related terminology is to speak of "avoidable" (i.e. incremental) costs and "sunk" (i.e. fixed) costs. Only the former are relevant to short-term pricing decisions, because they are affected by current managerial decisions, whereas sunk costs are set and cannot be reversed. Yet many managers believe that they must somehow recover them. This may mean throwing good money after bad.

There are major practical problems with MC pricing. First, it is even more difficult to measure incremental costs than average costs. Second, MCs, too, vary with the scale of production. And costs may not be fixed in the long run but only the short run, or fixed over a certain production range, thus being "semi-fixed."

18 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

19 Noam, Eli M. *Interconnecting the Network of Networks*. (Cambridge: Massachusetts Institute of Technology Press, 2001), 69-117.

20 Warner, Alan and Chris Goodwin. *Pricing for Long-Term Profitability*. London: Prentice Hall Financial Times, 2002.

But more of a problem than these conceptual and measurement problems is the economic issue that marginal pricing may lead to prices at a level too low to cover the fixed costs. At that level the firm will lose money.[21] But raising the price above short-run MC is difficult in competition because it will lose sales to competitors.

11.2.1.3 Contribution Margin Analysis

Marginal cost when subtracted from marginal revenue (MR), leads to marginal net profit, the positive (or negative) profit on an additional unit produced and sold. This is also known as the contribution margin (CM). For example, if a firm sells widgets for $10, and the variable cost for each is $6, then the CM is $4, or 40%. A CM must be distinguished from a profit margin, which is sales price minus average cost.[22]

Suppose two companies, A and B, produce and sell a product, each with the same cost and with the same net profit on sales, but with substantially different production technology and hence different CMs. Company A has relatively low fixed costs in terms of equipment and machinery, but a high variable labor cost. A's variable costs equal to 80% of its sales price, and its CM is therefore 20%. Conversely, Company B is highly automated and its cost structure is the opposite, with high fixed costs and low variable costs. With variable costs of 20% of the sales price, its CM is 80%. Overall unit cost and profit at the moment are identical, and the firms might therefore set their price at the same level. But further analysis would come to a different conclusion, owing to their different cost structures.

The effects of a change in sales volume are very different. For Company A, given its high variable costs, the increase in profit relative to sales—the CM—is only $0.20 for every additional dollar of sales. But for Company B with its low variable costs it is $0.80. In consequence, the two companies are affected differently by changes in price. The question to consider is, if prices change, how many additional sales it would take for a firm to remain at the same revenue level.

One can calculate how many added sales are needed to keep overall net profits at the same level when prices change (Table 11.2).[23] Applied to a company, this would result in calculating the increase in sales volume that is necessary to make up for a price reduction, or calculating how much sales could drop following a price increase without an impact on profits.

Table 11.2 The effect of contribution margin on breakeven sales changes

	Company A	Company B
Break-even sales change (%) for a:		
5% price reduction	+33.3	+6.7
10% price reduction	+100.0	+14.3
20% price reduction	Infinity	+33.3
5% price increase	−20.0	−5.9
10% price increase	−33.3	−11.1
20% price increase	−50.0	−20.0

$$\frac{\Delta P}{P} = \%\,\text{change in price}$$

Company A's product has a relatively small percentage CM to profit. Therefore, to compensate for a 5% price cut, its sales must increase by a substantial 33.3%. For Company B, however, with its much larger percentage CM, its sales increase needs to be only 6.7%. Therefore, Company A cannot easily pick a strategy of lowering the price of A in order to build volume for the product, whereas it is easier to do so for Company B.

However, the opposite is true, symmetrically, for price increases. For a price that is 5% higher, Company A can afford to lose many more sales (up to 20%) than Company B (only up to 5.9%) and still benefit from the higher price. It is therefore much easier to justify a premium price strategy for Company A than for Company B.[24]

How does this relate, in particular, to media and digital firms? Such firms are typically "Product B"-type companies, as they have high fixed costs and low MCs. This means that to raise profits, price reductions tend to work better than price increases. This is a contributing factor to the price deflation in media products that we have described before.

In practical terms, how does one determine a breakeven sales curve? This is not something one can look up. It requires educated estimates based on experience. Few managers actually know the demand curve for their products, but many can roughly estimate the impact of a 10% (or 20%, or 30%) price change on their sales volume. One must start with a baseline point, possibly today's status quo. Then the firm's sales and marketing managers should estimate the impact on sales unit volume of lowering the price by a given percentage of 5%, calculate the resulting sales revenues and profit, and then calculate how many extra sales are needed to make up for the lower price and remain on the same profit level.

21 To deal with that problem, economists tend to postulate that prices will come down only to long-run marginal costs, which include the elements of fixed costs that are variable in the long run.

22 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

23 Nagle and Holden define a "Breakeven sales change (S_B)" which uses a product's contribution margin and marginal cost to show the percentage change in sales required to keep sales at a breakeven level, given a price change. This value is expressed by percent changes in price, and is given by the formula:

$$S_B = \left[\text{CM} / \left(P \times \left(1 + \frac{\Delta P}{P}\right) - \text{MC}\right)\right] - 1$$

Or using absolute changes:

$$S_B = -\Delta P / (\text{CM} + \Delta P)$$

Where:
CM= Contribution Margin before change
P= price
MC= marginal cost
Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

24 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

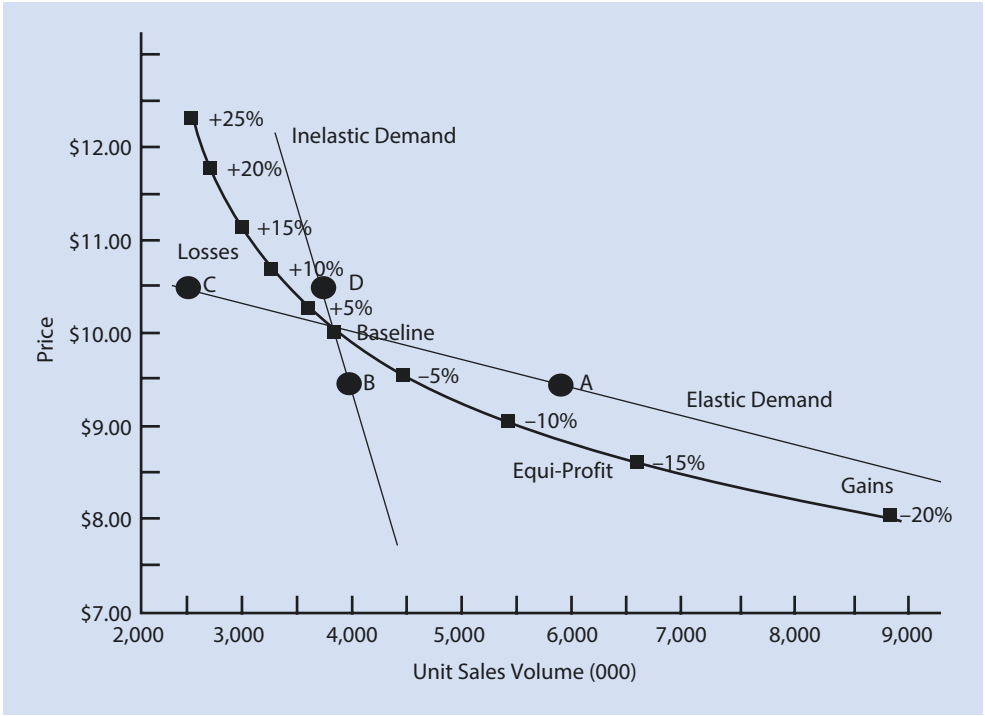

Fig. 11.1 Sales volume required to maintain equal profitability

Doing the same process for price changes of –10%, +5%, +10%, and so on creates a breakeven sales curve.

In Fig. 11.1,[25] the curved line shows constant profitability ("equi-profit") and its slopes are the tradeoffs between price and sales volume required to remain at that same profitability level.[26] The baseline scenario in that illustration is a price of $10.00 and a sales volume of 4000. If the price were raised to $11.00, the graph indicates that sales volume could decline by 15%, (incorporating also cost savings of lower production level) to remain at the same level of profit. If sales drop more than that (points to the left of the curve) profits would decline. If volume dropped less (points to the right of the curve) then profits would rise.

The graph also shows relationship between demand and profitability. We draw two demand curves that show the quantity demanded for each level of price. These are the straight lines through the baseline scenario. One of these demand curves is elastic, in other words sensitive to price. It is the line that is fairly horizontal. The other demand curve, more steeply angled, is inelastic in its price sensitivity. The two types of demand lead to two different scenarios. When the price is lowered by the firm to $9.50, if demand is elastic it would rise considerably to the sales corresponding to A where demand is elastic, and only rise to sales corresponding to B if demand is inelastic. Point A is to the right of the equi-profit curve; that is, profits would rise with a price reduction when demand is elastic. But for the inelastic demand, Point B is to the left of the equi-profit curve, which means that profits would decline in that scenario of a price reduction. It is the opposite for price increases. Now, the elastic demand leads to a drop to Point C, which is at the left and lower-profit side of the equi-profit line. And it leads to a higher profit at D for the inelastic demand.[27]

Case Discussion

Contribution Margins

EB had fixed costs estimated at $20 million annually, about $10 million of which was for editing and research. The remaining $10 million was administrative overhead. (These numbers are hypothetical and for illustration only.) *EB* incurred incremental costs to produce and distribute the 30-volume set, at about $500 per set, and the market price of the set was $1200.[28] Its online subscription product had a much lower incremental cost of $5, mostly for administrative processing.

EB had online sales of 200,000 copies per year. Its print sales were approximately 14,000 per year. The basis of allocating the fixed costs between print and online editions of the encyclopedia is 50/50, meaning that each of them will be allocated half of

25 Supplemented and based on chart in Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

26 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

27 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

28 Philip, Evans B. and Thomas Wurster. "Strategy and the New Economics of Information." *Harvard Business Review*. September/October 1997. Last accessed June 17, 2017. ► https://hbr.org/1997/09/strategy-and-the-new-economics-of-information.

the fixed costs, $10 million. Average fixed costs then were for the print edition, $10 million/14,000 about $700; and for the online edition, $10 million/200,000 = $50.

MCs of printing 30 volumes was approximately $500, while online marginal costs are $5 per subscriber. One can use these costs to show the CM, which is the selling price (MR) minus the MC. This is shown in Table 11.3.

Using these CMs, one can calculate the change in sales required to offset the revenue effects of a price change, using the formula

$$S_B = \left[\mathrm{CM} / \left(P\left(1 + \frac{\Delta P}{P}\right) - \mathrm{MC} \right) \right] - 1 = \Delta Q / Q$$

Where:

S_B is the sales required to offset the price change

$\frac{\Delta P}{P}$: % change in price

CM: Contribution margin before price change

MC: Marginal cost

$\Delta Q/Q$: % Change in sales required to maintain same profit level

If *EB* lowers its online price by 20%, by how much must it raise sales to break even? Is such an increase likely? Should *EB* raise its price?

Applying this formula and the numbers from Table 11.3, one finds that a 20% price cut for the online edition will require about a 28% increase in sales to maintain the same profit. However, the same 20% price cut for the print edition would require about a 52% increase in sales to offset the price reduction. Expecting this kind of an increase seems unrealistic. Thus, a price cutting strategy for the online product, with its smaller CM, is more viable than the same strategy for the print edition. Conversely, if the price is raised by 20%, the print edition could drop sales by 25% and still break even, and if it loses only, say, 15% it would be better off.[29] In contrast, the online edition could not afford to lose more than about 18% of sales.

Table 11.3 Costs and profits of encyclopedia versions

Breakdown of unit costs and profits	Online	Print
Marginal cost	$5	$500
Average fixed cost (AFC)	$50	$700
Price (actual)	$65	$1200
Net profit margin	$10	$0
Contribution margin	$60	$700

11.2.2 Market-Based Pricing

11.2.2.1 Commodity Pricing

In many situations of active and competitive markets, firms cannot set a price at a level they like but must follow market prices. For example, for products such as memory chips, or for services such as telecom transmission, conditions of supply and demand determine prices. A firm can lower prices to gain sales volume. But the price cut would often be matched by competitors. This is in particular the case where products are similar and where the initiating firm has no efficiency advantage. The result would be a lower market price equilibrium with lower profits for every firm.

In some cases, even low prices do not create a market equilibrium. When there is significant overcapacity there may be no market-clearing prices, at least not for a while. For instance, consider telecom transmission. The volume of transatlantic traffic minutes greatly increased between 1998 and 2001, but much less than the huge increase in available capacity.[30] Despite a major drop in the price of transatlantic transmission there was a gigantic excess capacity and 90% of the circuits were "dark," in other words unused.

The internet raises the use of competitive pricing. Companies' prices are usually easily available. Search engines, shopping bots, and shopping sites make it easy for customers to compare prices. This is particularly true for standardized products. The result is an occurrence of "price wars."

Case Discussion

Market Pricing?

In the 1980s, the competition among general-audience print encyclopedias was between *EB*, Compton's, Funk & Wagnall's, World Book, and Grolier. *EB* kept a huge price premium over its print competitors, with a price of $1500. Two other publishers, Compton's World Book and Grolier, charged intermediate prices of $400–$600. Funk and Wagnall's went for a low price of $150 and sold in supermarkets.

In contrast, in the CD-ROM market in 2001, *EB*'s price of $69 was fairly comparable to the going market price, since Grolier's price was $50, World Book's was $90, and Microsoft Encarta cost $100. There was one low-end vendor, Compton's, which cost only $15.

Why would EB take such different pricing approaches to the print and the CD-ROM version?

11.2.2.2 Market Price Determination Through Auctions

Auctions and competitive bidding are processes that help find a market price for a good or service.[31] Such an auction price may then set the reference price for similar products. There are several main types of auctions. In open-outcry auctions, bids are public at the time of bidding, which gives the various bidders the opportunity of observing each other. In contrast, in a sealed-bid auction, no party knows the other's bid and it may therefore overbid to be on the safe side. The

29 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

30 Stronge, Tim. "Submarine Bandwidth: Telegeography's 2002 Review." *Submarine Telecoms Forum*. Third Quarter 2002. Last accessed June 17, 2017. ► http://www.subtelforum.com/issues/Issue%204.pdf. Voice Capacity data has been recalculated from minutes to bps to be comparable to capacity, accounting for peak load and multiplexing.

31 Bichler, et al, "Applications of flexible pricing in business-to-business electronic commerce." *IBM Systems Journal* 41, no. 2 (2002) 287-302.

primary purpose of a sealed-bid auction is to prevent collusion. The "sealed first-price auction" is a simultaneous, secret, and one-bid process often used in government contracts.[32]

In "English auctions," prices are ascending, meaning that bids start at a low price and bidders keep increasing the amount. The problem with ascending auctions is that when competition for bids is weak, winners can get a real bargain. For that reason, a minimum "reservation price" might be specified. Bidders can gain advantage by "bid-rigging," that is by agreeing to not bid against each other, thus unfairly reducing the price. From the seller's perspective, an English auction reveals the willingness to pay (WTP) of every bidder, except that of the most important one, the last bidder, who in fact might have been willing to bid higher.

Unlike English auctions, "Dutch auctions" start at a high price, and decrease the price until it is accepted by one bidder. The winner thus reveals his WTP. This type of descending-price auction incentivizes bidders to act quickly as they do not know when the auction will end. The first bidder gets the deal, whereas in an English auction it is the last bidder. Therefore, it is used to sell goods that must be sold quickly, such as cut flowers in the Netherlands, fish in Israel, and tobacco in Canada. Another example of this type of auction is Google's 2004 initial public offering, in which the company sold 19.6 million shares using a modified Dutch auction.[33] In a "Japanese auction," no new bidder may join and no non-bidders can rejoin. In a "reverse auction," a buyer seeks the lowest bids by sellers. Examples are "requests for proposals" that solicit the cheapest offer by vendors.

One issue with auctions is the "winner's curse"—a situation in which the winner of the auction may well have overbid, since the judgment of all the other parties was that a lower price was appropriate. Another problem is under-bidding. In a sealed-bid auction it does not pay to bid honestly (i.e. up to one's WTP, because one might pay more than necessary. The best strategy is to bid less than the true value of the item and hope that it is still the highest bid. This is known as shading of the bid. In a "first-price" auction the top bidder pays the amount of its bid. But in a "second-price" auction, the top bidder pays the amount of the second highest bid. William Vickery, a Columbia professor and Nobel Prize winner, designed a sealed-bid second-price auction, known as a Vickery auction, so that parties can bid the amount at which they value an object,[34] but have to pay only what it would have taken to just win over the second-highest bidder. Vickery showed that a second-price auction does not bring in less money than a first-price auction, and possibly more, even if the payment is that of the second-highest bid, because bidding would be encouraged and under-bidding discouraged. The second-price auction is hence more efficient than a first-price auction.[35]

Today, Google and Yahoo use a variation of a second-price auction for the sale of search engine advertising. The potential advertiser bids for top placement on specific keywords associated with their product, for example "Venice" for travel agencies.[36] Once a user enters such a keyword in the search engine, ads tagged with that keyword will appear in an order corresponding to each advertiser's bid. The placement on the page depends on the bid amount; the highest bid, weighted by its quality factor, will receive the best placement on the page. For such a placement, the winning advertiser (based on bid offered plus several other factors) pays the bid amount of the next-highest bidder. In order to advertise with Google (Google Adwords for sponsored search results and Google Adsense for ads on third-party sites—the auction mechanisms are identical), the advertiser must define the search keywords it wants the ad affiliated with and make a bid for the maximum amount it is willing to pay for one click on it (called maxCPC). Google then evaluates the quality (e.g. layout, loading time, match with keywords) of the website to which that click leads and assigns an individual quality factor; and the bid is then ranked based on the formula: maxCPC x quality factor.[37, 38]

Auctions have become the preferred method to assign licenses for radio-magnetic spectrum, particularly for mobile phones, and increasingly for other uses of the airwaves. The concept of spectrum auctions was proposed by Ronald Coase of the University of Chicago, though much of the credit should go to his student Leo Hertzel who wrote up the idea in a term paper in the early 1950s. It was adopted first in New Zealand, then in the UK, and in the USA in the 1990s, afterwards spreading to the rest of the world. On the whole, spectrum auctions have experienced mixed success, with frequent cases of winner's curse. The inherent problems are that the top bidders are those willing to engage in a cartel to establish a high user price. In the 2000 Germany 3G license auction, bids were very high (the winner's curse), and the winners eventually had to renegotiate with the government for a lower price.[39]

In the USA, spectrum auctions are widely used. Since their implementation in the 1990s and into 2017, the Federal Communications Commission (FCC) has conducted about 100 auctions, raising over $127 billion for the US Treasury.[40]

32 Shor, Mikhael. "Second Price Auction." *GameTheory.net*. August 12, 2005. Last accessed June 12, 2012. ► http://www.gametheory.net/dictionary/Auctions/SecondPriceAuction.html.

33 Hodrick, Laurie Simon. "Google's IPO: A Dutch Auction Works, If You Let It." October 1, 2004. *Columbia Business School: Hermes*. Last accessed August 2, 2011. ► http://www7.gsb.columbia.edu/alumni/news/Googles-IPO.

34 Klarreich, Erica et al. "The Bidding Game" *Beyond Discovery*. March 2003. Last accessed June 17, 2017. ► http://www.nasonline.org/publications/beyond-discovery/the-bidding-game.pdf.

35 It is claimed that already in 1797 the author and statesman Johann Wolfgang Goethe sold a manuscript through what we call today a second-price auction. Moldovanu, Benny and Manfred Tietzel. "Goethe's Second-Price Auction." *Journal of Political Economy* 106, no. 4 (August 1998): 854–859.

36 Varian, Hal R. "Position Auctions." *International Journal of Industrial Organization* 25 (2007): 1163–1178.

37 Varian, Hal R. "Search Advertising With Google: Quality Score Explanation by Google Chief Economist." *YouTube*. March 4, 2010. Last accessed June 17, 2017. ► https://youtu.be/qwuUe5kq_O8.

38 Google. "About the Ad Auction." Last accessed June 17, 2017. ► https://support.google.com/adsense/answer/160525.

39 Moldovanu, Benny and Christian Ewerhart. "A Stylized Model of the German UMTS Auction." *Sonderforschungsbereich 504*, No 02-07. January 1, 2002. Last accessed June 17, 2017. ► https://pdfs.semanticscholar.org/625c/141d7891603435b7d067bd45e170d2819f3c.pdf.

40 Federal Communications Commission. "Auctions Summary." Last accessed June 17, 2017. ► http://wireless.fcc.gov/auctions/default.htm?job=auctions_all#completed.

The "simultaneous ascending auction" is the most popular auction format for wireless spectrum auctions. In this format, several regional licenses are auctioned simultaneously, and bidding continues until the number of active bidders equals the number of licenses. Bidding on all licenses then closes at the same time.

Another application for auctions is for telecom bandwidth trading. Telecom carriers with excess capacity in their cables can sell such unused bandwidth to other carriers or to large users who are in need of extra capacity. Bandwidth trading companies bring buyers and sellers together. They include Arbinet, Band X, Invisible Hand, Rate Xchange, and InterXion.[41]

Auctions are also used in the publishing industry. If there is great interest in a project, the book's agent typically organizes a formal or informal auction for it, and publishers bid on the project.[42] A winner's curse frequently occurs, with publishers at times getting carried away by wanting to prevail and get publicity, but doing so at a price beyond a reasonable chance of profitability.

In the past, auctions (and dynamic pricing more generally) had high transaction costs, and this meant that they were limited to high-volume sectors such as finance, commodities, and art. Subsequently, electronic platforms made it much easier for consumers to use auctions, as typified by the online auction firm eBay. EBay has created a large-scale auction-style marketplace. In China, Taobao, part of the Alibaba Group, has a strong presence in consumer online auctions.

Another approach is a "name your own price" auction. The basic idea is for a consumer to state her price for a hotel, or for a TV set, with conditions on brand or location, by entering a bid (legally binding and backed by a credit card), and the highest bids might be accepted by the seller. The website Priceline used auction pricing first in 1998 for the sale of airline tickets. Airline seats are a perishable commodity. Priceline asks consumers to list how much they will pay to reach a certain destination. Priceline then runs these offers through a database of tickets, and may accept the consumer's offer if it is above incremental cost and if the seat would remain empty otherwise.[43]

Auctions make sense for business-to-business transactions where deals are relatively big and vary, or for special and valuable objects such as artworks where it is difficult to determine market prices. Economic efficiency rises by enabling transactions which might not take place otherwise because buyers and sellers do not connect, or because a price is set too high and no sale takes place, or it is set too low and the seller leaves money on the table.

But for the consumer market, the main problem, even with the introduction of e-auctions, is that most consumers do not want to negotiate for their goods, preferring simplicity over transacting for a potentially lower price.[44] In the case of hotels, consumers also want to know exactly what they are getting. A hotel on the beach is a very different product from one across the highway. Thus, after an initial euphoric embrace of auctions, many economists have concluded that it is often preferable to put a price tag on an item because it reduces transaction costs. In the same vein, vendors do not like selling their goods to customers who are looking for the best bargain, the "bottom feeders." As a general proposition, and excepting perishable commodities such as flowers and airline seats, a company's pricing strategy requires it to be pro-active rather than based on the consumers' WTP at a given moment.

11.2.3 Dynamic Pricing and Peak-Load Pricing

"Dynamic pricing" is a price mechanism that adjusts to short-term changes in demand and supply in a predefined fashion.[45] Dynamic pricing is often used by airlines. "Yield management" helps some sellers to vary prices both upwards and downwards when demand varies and the product cannot be stored. Examples are airline seats, hotel rooms, rental cars, and telecom network capacity. An airline or resort hotel will have a historical booking path for a route or location and a specific date. As the day comes closer it must fill its seats and rooms or be stuck with unsold capacity. By comparing its yield to that of previous years it can observe whether ticket sales are ahead or behind, and whether to discount prices or raise them.[46]

Broadway theaters use a similar approach in selling their tickets. The online box office agency Ticket.com Inc. claims improved revenue per event of 45% by modifying prices on the basis of supply and demand.[47] However, yield management and dynamic pricing are not used by movie theaters, and movie tickets are sold, for a given time slot, at the same price whether the particular theater is half-empty or overflowing. Yet an increase in ticket prices for blockbuster films could increase profits, even if some people dropped out owing to the higher price. Or films could be priced higher based on expected demand, for example because of special effects or popular stars, or if it is the sequel to a blockbuster. Documentaries might be cheaper. The movie theater industry explains the absence of such dynamic and differentiated pricing through several factors: the negative message that it sends out if one prices some films more cheaply; that theatergoers are not price elastic in their choice of a particular

41 Keppo, Jussi. "Pricing of point-to-point bandwidth contracts." *Mathematical Methods of Operations Research* 61, no. 2 (June 2005): 191-218.

42 The Doris S. Michaels Literary Agency. "Outline of the Publication Process." Last accessed July 28, 2011. ► http://www.dsmagency.com/published.html.

43 Priceline offers a "winning bids" section, which lets customers review previously successful bids so that they can make a reasonable offer.

44 Bodow, Steve. "Is That Your Final Offer?" *New York.* January 10, 2000. Last accessed July 28, 2011. ► http://nymag.com/nymetro/news/bizfinance/columns/bottomline/1778/.

45 Bodow, Steve. "Is That Your Final Offer?" *New York.* January 10, 2000. Last accessed July 28, 2011. ► http://nymag.com/nymetro/news/bizfinance/columns/bottomline/1778/.

46 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

47 Fleischmann, Moritz, Joseph M. Hall, and David F. Pyke. "Smart Pricing." *MIT Sloan Management Review* 45, no. 2 (Winter 2004): 9-13.

film; that the long lines for tickets generate valuable publicity for the film; and that at a multiplex people who could not get a ticket to their favored film could settle for another film, so these are not lost sales and maybe even raise ticket sales. Other factors are administrative complexity and unpredictability.[48]

In contrast to film theaters adopting dynamic pricing, sports teams have been actively doing so. Many teams already offer preplanned tickets at prices that use several variables that historically draw larger crowds, such as the date or the opponent. The San Francisco Giants baseball team went one step further by changing prices on a daily basis. The team had experienced a 20% increase in sales when it started the star pitcher Tim Lincecum, winner of the prestigious Cy Young Award.[49] Whenever he was in the team's lineup, ticket sales skyrocketed, and an active scalpers market emerged, meaning that the official ticket price was too low. When he pitched, all other things being equal, prices for a left-field view that sold for $15 the day before became a $20 ticket, a $42 lower box seat rose to $50, and a $105 field club ticket to $130. The Giants therefore adopted a pricing system from the company Qcue and made an extra $500,000 in revenue in a test season, and then several million each year with full adoption. The Qcue software platform forecasts ticket demand uses a pricing engine that is integrated into a club's ticketing system. Qcue itself earns money by an upfront software fee and by a revenue sharing on ticket sales (above a certain level) through the dynamic-pricing model.[50]

Flexible pricing (i.e. variable by consumer characteristics or demand) becomes easy with online platforms. Prices can change daily, and be different for different types of customers and market conditions. E-commerce sites can easily use so-called A/B testing to optimize dynamic pricing and price discrimination models and to operate such systems.[51] Yet short-term gains might conflict with long-term goodwill. Consumers often react negatively to aggressively differentiated pricing.[52] Suppose a vending machine increases prices on hot days? The Coca-Cola Co. got bad publicity when it discussed a machine that would do just that. The company dumped the idea, as well as its chief executive officer (CEO).

When Amazon.com charged different prices for people residing in different areas for the same DVD, it created a backlash.[53] The company is technically able to price discriminate on where people live, what they buy otherwise, how much they spent on purchases in the past. Even more problematic was Amazon's use of dynamic pricing to measure users' price elasticities. Thus, Amazon quietly charged higher prices to buyers who bought many books and thus appeared to be less price-sensitive. These frequent customers were being charged up to 5% more than the regular price. They were outraged to learn that Amazon charged them higher prices because they were taken for granted, instead of getting a discount for being loyal customers. Amazon denied such a policy and explained it as merely a test-marketing, but observers were skeptical.

Price negotiations based on better information works both ways. Consumers, too, are using the internet to easily engage in price comparisons. They can then engage in "cherry-picking" the best offers, with little loyalty to a retailer. This limits the bargaining position of any one website or store to price discriminate.[54]

A sub-category of dynamic pricing is "peak-load pricing," where price variations are already preset. For example, electric companies charge more during high usage periods, thus moving some consumption such as running washers and dryers toward periods of lower demand and making more efficient use of capacity.

In a peak-load situation companies face two types of costs: the variable operating costs, which are based on capacity used, and the fixed capacity costs, based on the capacity available whether used or not. Where capacity limits are reached, the price is set at capacity cost. But where there is slack in demand, where there is excess capacity, price is dropped to operating cost, since the capacity cost is sunk and does not affect the price. And where demand exceeds capacity, the price should be set at a higher level to prevent congestion. It would therefore depend on the price elasticity of demand.

Thus, when it comes to the setting of the peak-load prices, for example for telecom where there is very little incremental cost up to the point where the system is full and congested, the economically correct rule is to allocate the entire fixed cost of the overall capacity to the peak demand period, and to set the price for that period accordingly, which means at a fairly high level. The logic is that the system was built to meet its peak capacity. Where demand is higher than peak load, the price should be set still higher to discourage excess demand and congestion. And when demand is lower than peak load there is no cost being imposed, and the price should be close to zero.

48 Orbach, Barak Y. "Antitrust and Pricing in the Motion Picture Industry," *Yale Journal On Regulation* 21, no. 2 (Summer 2004): 317.

49 Fisher, Eric. "Ticketing's Changeup." *Sports Business Journal*. May 31, 2012. Last accessed July 7, 2012. ► http://www.sportsbusinessdaily.com/Journal/Issues/2010/05/20100531/SBJ-In-Depth/Ticketings-Changeup.aspx.

50 When carried too far, dynamic pricing, as with all differentiated pricing systems, leads to a backlash. The San Francisco Giants management had to mollify the team's base of 21,000 full-season pass holders, who, in a way, overpay for low-demand tickets but underpay for attractive games. By unbundling, they may drop out of season passes altogether. Thus, some concessions had to be made to maintain their loyalty. Fisher, Eric. "Ticketing's Changeup." *Sports Business Journal*. May 31, 2012. Last accessed July 7, 2012. ► http://www.sportsbusinessdaily.com/Journal/Issues/2010/05/20100531/SBJ-In-Depth/Ticketings-Changeup.aspx.

51 Weiss, Robert M. and Ajay K. Mehrotra. "Online Dynamic Pricing: Efficiency, Equity and the Future of E-commerce." *Virginia Journal of Law and Technology* 6, no. 2 (2001). Last accessed July 28, 2011. ► http://www.vjolt.net/vol6/issue2/v6i2-a11-Weiss.html.

52 Kemp, Ted. "The road to one-to-one pricing; retailers are becoming more customer-centric, and that's driving them toward dynamic pricing to foster customer loyalty and maximize revenues and margins." *Fairchild's Executive Technology* 6, no. 5 (May, 2004): 36.

53 Streitfeld, David. "Amazon Flunks Its Pricing Test / Sliding costs anger shoppers." *SFGate*. September 28, 2000. Last accessed June 17, 2017. ► http://www.sfgate.com/business/article/Amazon-Flunks-Its-Pricing-Test-Sliding-costs-2703998.php.

54 Weiss, Robert M., and Ajay K. Mehrotra. "Online Dynamic Pricing: Efficiency, Equity and the Future of E-commerce." *Virginia Journal of Law and Technology* 6, no. 2 (2001). Last accessed July 28, 2011. ► http://www.vjolt.net/vol6/issue2/v6i2-a11-Weiss.html.

11.2.4 Indexed Pricing

Prices are affected by the more general developments in the overall economy, in particular by inflation—the rate at which the general level of prices for goods and services is rising.[55] One type of pricing is to regularly adjust the price upwards by an index of inflation.

Why is there price inflation? The causes of price inflation have been an area of great debate by economists and others. There are several theories and they all have an impact on one's view of expected price trends:

- The quantity theory of money holds that a growth in the money supply that is larger than the growth of the economy results in inflation. Prices may rise when governments raise the money supply by various monetary policy means, such as printing more money, lowering the reserve requirements of banks, lowering the discount rate charged to banks, or by buying government bonds and injecting liquidity into the economy. Firms thus need to watch a government's monetary policies to anticipate price trends.
- The Keynesian economic theory argues that when aggregate demand for goods grows faster than supply (a "demand-pull"), price increases are the result.[56] Causes could be a rise in government spending as well as consumption and investment, a lowering of taxes, and a drop in the exchange rate.[57] These are factors that require monitoring by a firm concerned about price trends in the near future.
- The rational expectations perspective observes that an expectation of inflation can itself lead to inflation.[58] Firms thus need to watch each other and how serious government is about holding inflation in check.
- The cost-push inflation view argues that price increases are driven by increases in the costs of producing goods, such as wage inflation brought about by strong labor unions, natural disasters, depreciation of the exchange rate, monopoly power, and taxes.[59]

Inflation can get out of control and spiral into hyperinflation. Examples include:

- Germany, 1923: inflation reached a rate of more than 30,000% per month, with prices doubling every few days.
- Hungary, 1946: daily inflation exceeded 200%, which equates to an annual inflation rate of more than 13 quadrillion %. Prices doubled every 15 hours.
- Israel, 1984: an annual inflation rate of 445%.
- Argentina, 1980s: the annual inflation rate reached 12,000% in 1989.
- Zimbabwe, 2007–2009: hyperinflation that at its peak exceeded 79 billion % per month.[60, 61]
- Venezuela after 2016: the 2018 inflation rate was 15,675%.

What then are companies to do with their pricing when high inflation hits? In cases of extreme instability of a currency, companies might have to take strong steps. For example, when prices are out of control a company might leave the market altogether to let things settle down. For example, when the Russian ruble started to drop like a rock in 2014, Apple was caught off guard and at first did not raise iPhone prices. As a result the price of an iPhone in Russia was the lowest in Europe. Tourists from other countries came to Moscow to buy them. Apple then stopped selling its products in Russia. Soon, however, Apple increased its prices by 25%, and then by another 35%,[62] this time overcompensating beyond actual inflation.

In other cases companies may tie their prices to an inflation measure such as the consumer price index. Contract prices, bank debt, or wages would then increase automatically in every period (e.g. quarterly) by the same factor as the price index increases. In countries that regulate telecom retail prices based on price caps (to be discussed below) there is usually a built-in inflation factor that adjusts the regulated price each year. A variant of this system is for all transactions to be denominated in a relatively stable foreign currency, such as the US dollar or the Euro. The advantage of such indexing is that" real" prices stay (approximately) the same. The disadvantage is that by making inflation more tolerable it reduces the will of a government to regain control over prices.

11.2.5 Value Pricing

11.2.5.1 Economic Theories of Value

So far, we have discussed pricing based on variations of cost and market conditions. A third approach is to set price based on value. This can be both objective and subjective. To a firm, the value of an asset can be measured objectively by the net present value of future income streams. But to a consumer, value is more subjective. Price does not mean value. These are two different concepts. To a worried parent of a gravely ill child curable by penicillin, the value of the drug might be almost infinite. But the price in the drug store is only $5.95. The difference is known as the consumer surplus. Conversely,

55 Investopedia. "Inflation." Last accessed June 17, 2017. ► http://www.investopedia.com/terms/i/inflation.asp.

56 Investopedia. "Keynesian Economics." Last accessed June 17, 2017. ► http://www.investopedia.com/terms/k/keynesianeconomics.asp.

57 Agarwal, Prateek. "Demand Pull Inflation." *Intelligent Economist*. Last accessed June 17, 2017. ► https://www.intelligenteconomist.com/demand-pull-inflation/.

58 Fair, Ray C. "Inflationary expectations and price setting behavior." *The Review of Economics and Statistics* 75, no. 1 (February 1993): 8-18; Konieczny, Jerzy D. and Andrzej Skrzypacz. "Inflation and price setting in a natural experiment." *Journal of Monetary Economics* 52, no. 3 (2005): 621-632; Lach, Saul and Daniel Tsiddon. "The behavior of prices and inflation: An empirical analysis of disaggregate price data." *Journal of Political Economy* (1992): 349-389.

59 Amadeo, Kimberly. "What Is Cost-Push Inflation? With Causes and Examples." *The Balance*. January 18, 2017. Last accessed June 17, 2017. ► https://www.thebalance.com/what-is-cost-push-inflation-3306096.

60 Investopedia. "What are some historic examples of hyperinflation?" June 15, 2015. June 17, 2017. ► http://www.investopedia.com/ask/answers/061515/what-are-some-historic-examples-hyperinflation.asp.

61 Badkar, Mamta. "10 Hyperinflation Horror Stories of the 20th Century." *Business Insider*. March 19, 2011. Last accessed June 17, 2017. ► http://www.businessinsider.com/10-hyperinflation-stories-of-the-20th-century-2011-3.

62 Huddleston Jr., Tom. "After ruble's plunge, Apple reopens Russian online store with big price hike." *Fortune*. December 22, 2014. Last accessed June 17, 2017. ► http://fortune.com/2014/12/22/russia-apple-online-hike/.

the price of a fashionable handbag may be high, but for consumers who do not care or know about fashion its value would not be higher than that of a regular handbag.

Early economists tried to determine objective rules for a product's value. In the eighteenth century, French economic thinkers known as physiocrats, such as A.R.J. Turgot, related value to the cost of production. The classical economists Adam Smith and David Ricardo similarly held that the value of a good is closely related to its cost of production.[63] Karl Marx also followed this line, except that his cost-based value theory recognized only labor inputs. In his 1867 work with Friedrich Engels, *Capital*, he wrote: "the value of a commodity can be objectively measured by the average amount of labor hours that are required to produce that commodity."[64] Thus, if shoes take twice as much labor to make than a TV set, the long run price of shoes would be twice that of a TV set. This labor theory of value ignores several factors, including the contributions of raw materials, production machinery, supply and demand, and risk.

In the second half of the nineteenth century, the neoclassical theory of value began to be defined not from the perspective of production but in terms of user satisfaction. Economists such as Alfred Marshall, Stanley Jevons, Leon Walras, and Vilfredo Paredo promoted the concept of "utility." This depends on individual taste, needs, and preferences. Utility—and hence value—may also depend on other users who share the experience, which means the value is subject to network effects. Utility is varied for individuals, but consumers' incremental utility declines with consumption. This means that the more one has of a good, the less extra satisfaction is gained from an additional unit of that good. In 1890, Harvard psychologist Henry James provided a physiological interpretation for diminishing marginal utility. This assumption was important in terms of mathematical and analytical properties of neoclassical economists. The underlying principle is that buyers increase their purchase of a good until their marginal utility (the satisfaction gained from buying that extra unit) balances what they have to give up to get the unit (the item's price).

A newer way to look at prices based on psychology has emerged more recently from behavioral economists, who observe that people's valuations are not necessarily rational or analytical but based on rules of thumb, or heuristics. Daniel Kahneman was awarded the 2002 Nobel Prize in Economics for his application, with the late Amos Tversky, of such heuristics. They included asymmetries in valuation, where adding a unit provides a lesser extra satisfaction than does subtracting that same unit.[65]

Value pricing is important for information products. But to engage in value-based pricing requires some uniqueness of the product or market power, since competition would otherwise push prices down toward the very low MC.

11.2.5.2 Willingness to Pay

If value pricing is a good method of pricing information products, what, then, would be the optimal price for sellers? The simple answer is this: the seller's optimum price is at each individual buyer's WTP price.[66] WTP is the maximum the buyer would pay. Any higher price, and the potential buyer will obtain less in added utility than the payment for such utility. Any price that is lower, on the other hand, is a bargain to a consumer, and provides a consumer surplus. But to charge such a WTP price requires a seller's knowledge of what the buyer's WTP is, and also the absence of a price competitor and the absence of arbitrage among buyers.

How does the seller identify the WTP of a customer? One could ask, of course. But the fundamental problem with measuring WTP through surveys is that buyers are rarely truly forthright, or conscious, about their WTP, and instead engage in a strategic response that low-balls their actual WTP.

One method for measuring aggregate WTP is by estimating the elasticity of demand with respect to price. Estimating this price elasticity is the basic question for any pricing strategy. The price elasticity of demand is the percentage change in quantity divided by the percentage change in price:

$$\frac{\Delta Q/Q}{\Delta P/P}$$

This measure is used to determine how responsive customers are to price changes for a given good.[67] With minor exceptions, the elasticity will be negative, because an increase in price will reduce demand. Exceptions are where a higher price may lead customers to consider the products as having higher quality or prestige, hence making it actually more desirable. Another exception is where a price reduction leads, first, to a greater number of users. When the users interact, the value of a larger user base is greater than before, and therefore users would be willing to pay more than before and the price could therefore rise. Thus, the new equilibrium is at a higher price and a higher quantity.

Although price elasticities are mostly negative, analysts (including this book) ignore the negative sign and just talk about "high price elasticities" when they mean "more highly negative elasticities." If elasticity is 1 or greater, then demand is sensitive to price. Lowering the price of an item will result, through the greater quantity sold, in higher revenue. On the other hand, if elasticity is lower than 1 (e.g. 0.5), then demand is relatively insensitive to the price. In this circumstance, a *higher* price, though it would reduce the quantity sold somewhat, still raises overall revenue. At the midpoint, when the elasticity $\eta=-1$, the revenue will be maximized. As seen in ◘ Fig. 11.2, elasticity values higher than 1 are elastic, and values smaller than 1 are inelastic.

63 Rhoads, Steven. "Marginalism." *The Concise Encyclopedia of Economics*. Last accessed August 2, 2011. ► http://www.econlib.org/library/Enc/Marginalism.html.
64 Pryohitko, David. "Marxism." *The Concise Encyclopedia of Economics*. Last accessed August 2, 2011. ► http://www.econlib.org/library/Enc/Marxism.html.
65 Nobelprize.org. "Daniel Kahneman-Autobiography." Last accessed August 3, 2011. ► http://nobelprize.org/nobel_prizes/economics/laureates/2002/kahneman.html.
66 More precisely, where the WTP is above long-run marginal cost (LRMC).
67 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.

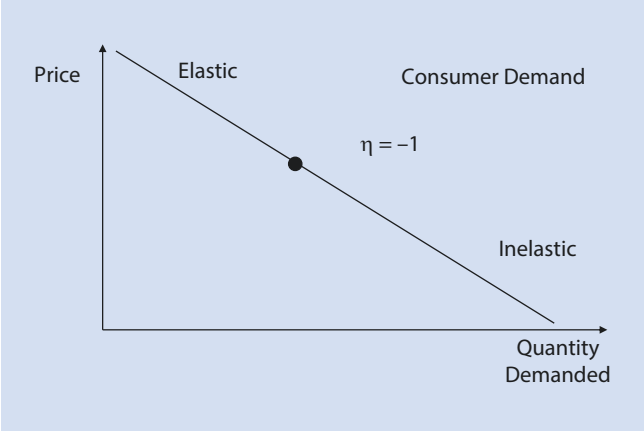

Fig. 11.2 Price elasticity of demand

Factors Affecting Price Elasticity

A number of factors affect an individual's price sensitivity for a product, including:

- How proximate is the product to substitute products?
- How high is the prestige of the product?
- How expensive is it to switch to another product?
- How difficult is it to compare prices?
- How big is the purchase?
- What is the end-product effect?
- Is the product a necessity or a luxury?

An example of proximity to substitute products is the newspaper industry. In the UK, newspaper readers once were loyal to their newspaper's style and politics, and the price elasticity of demand for newspapers in the 1970s was therefore found to be quite low, in the range between –.08 and –.10, which would suggest that prices could be raised and revenue would increase. And that indeed is what Rupert Murdoch was able to do when he acquired several UK papers. However, more recently, online news as well as free print newspapers have created an alternative access to free news media,[68] with much higher demand elasticities. In a study of the consequences of price increases between 2007 and 2010 for quality papers,[69] the price elasticity for *The Guardian*, whose readership is fairly committed, was found to be at the low end, only –0.25, in other words fairly inelastic. Price elasticities for US newspapers varied from –0.3 to –1.1, with an average of –0.7. [70] Thus, where price elasticity was low (*New York Times*, *Boston Globe*, and *Washington Post*) significant price increases (respectively from $1.25 to $2, from $ 0.75 to $1, and from $1.50 to $2) actually improved circulation revenues by 5%, 7%, and 10%. (On the other hand, the lower circulation leads also to lower advertising revenues, so the bottom-line calculation is more complicated.)

Another factor is the cost of switching from one product to another. For example, the transaction cost associated with switching to a new mobile phone service provider may be very high when users have to change phone numbers and notify their friends and colleagues of the change. In consequence, "number portability" was mandated by regulators, and this action raised price elasticity since customers were less captured by their existing service provider.

The magnitude of a purchase also affects price sensitivity, with buyers being more price sensitive when the expenditure is large in dollar terms or as a percentage of their household income.[71]

The price sensitivity of products cascades through the value chain. The more price sensitive the demand is for a company's output, the more price sensitive the firm will be when buying its inputs for its production. This is known as the end product effect.

The pricing of a good or service is affected by its status as a necessity or a luxury. For instance, consider the pricing of entertainment products. The conventional wisdom is that entertainment is non-essential and hence highly sensitive to changes in price and income. But actually, certain entertainment prices actually increase during economic slowdowns. In 2009, in the midst of the most severe recession since the 1930s, the price of movie tickets in the USA rose by an average of 4.5% and the average TV cable bill went up 5%. One recession earlier, in 2000/2001, the cost of a theme park visit rose by 7.2%, the average movie ticket price by 6%, and the average cable TV subscription by 10.6%. For museums, prices were up 20–30%.[72] Similarly, the years of the Great Depression and of World War II were the Golden Age of Hollywood. How can this be explained? When people are out of a job, they have more time and more need for diversion. Popular entertainment is pretty cheap, on an hourly basis. And demand elasticities are low, so relatively few people drop off when prices rise.

What is the impact of advertising on product prices? On the one hand, advertising allows better product comparison and reduces prices. But advertising also creates brands and barriers to entry, which generates higher prices. Price elasticities are affected by advertising. In formal terms, advertising is paid by the sellers of a product. But it may well end up being paid by the product's buyers if the price increases when the advertising increases demand and makes demand for the product less elastic. From the company's perspective, the most successful advertising is paid for by buyers through higher prices.

The price of advertising itself is determined from both the demand side (the likelihood of impact and the number of other parties interested in the advertising slot) as well as the supply side (the inventory).

68 Reekie, W. D. "The Price elasticity of Demand for Evening Newspapers." *Applied Economics* 8, no. 1 (1979): 69-79.

69 Filloux, Frederic. "Why Newspapers must raise their price." *The Guardian*. September 3, 2012. Last accessed July 17, 2017. ► https://www.theguardian.com/technology/2012/sep/03/monday-note-blogpost

70 Weber, Andre and Kyle Poyar. "Calling all newspapers: A premium model is your best hope." *Simon Kuchar & Partners*. August 7, 2012.

71 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

72 Gale Group. "What Price Entertainment? Or, More To The Marketing Point, Do Consumers Care?" *Entertainment Marketing Letter*, 2001.

Price sensitivity for its product is bad news for a company. It can be dealt with by some of the following stratagems:

- differentiate the product from competing options;
- focus the customer on unique features, especially those essential to the buyer;
- raise the cost of out-switching, and lower the cost of in-switching;
- make comparisons with rival's products difficult;
- promote the product's prestige;
- strengthen applications and interoperabilities with other products and services, and hence the centrality of the product.

Looking to the future, a relevant question to consider is this: is the demand for media entertainment getting more elastic (i.e., more price-sensitive)? This question has two answers. Demand for "commodity" entertainment and information, such as news, is getting more elastic, to the point of great resistance to pay anything at all. On the other hand, for unique entertainment products and services demand is not becoming more elastic, or at least not by much. And for essential services, such as broadband and mobile connectivities, price elasticities are declining as customers get more independent on them. In a competitive market for such services, prices would not rise up to users' WTP. They would therefore enjoy a significant consumer surplus. But in a monopolistic or oligopolistic market, the companies would reap a considerable benefit from reducing this consumer surplus. Hence incentives clearly exist for companies in these essential services to reduce price competition.

11.3 Measuring Price Sensitivity

Measuring price sensitivity is part of demand analysis. For details, see ▶ Chap. 9 Demand and Market Research for Media and Information Products.

Methods to determine price elasticity include:

- personal interviews, focus groups, and online surveys;
- test marketing;
- surveys of experts and retailers;
- computer simulation;
- statistical and econometric analysis of time trends or cross-product sales data;
- historical analogy to other products;
- psycho-physiological tests;
- automated observations such as metering and computer-cookies;
- point-of-sales monitoring;
- lab experiments.

The research methods are either uncontrolled or controlled. In uncontrolled studies the researchers are only observers. In controlled studies, the researchers are able to change variables and observe their effect.

11.3.1 Econometric Estimation of Price Elasticities and Hedonic Prices

With enough data one can use statistical methods to estimate variables that explain prices. This is known as econometrics. It is discussed in ▶ Chap. 9 Demand and Market Research for Media and Information Products. Econometrics generally relies on a number of techniques of regression analysis, which is basically the determination of a line that best fits the direction of a scatter of data points, with a certain statistical significance, and in multiple dimensions. Such an analysis shows, for example, the contribution of price to sales, and can isolate and separate the impact of other factors. But it must be noted that since it draws on past data, it makes the implicit assumption that future consumers will keep behaving today and tomorrow as they did yesterday or follow the same trend as before.

There are two main ways of applying econometrics to pricing analysis. In the first, price is the explained variable (also known as the left-hand variable.) The task is to determine the factors that seem to explain a price, such as the season, the number of competitors, the age of the product design, and so on. The second type of estimation has price as the explanatory variable (or right-hand variable), which affects a left-hand variable such as sales or demand. Variations in price affect demand, and hence enable us to estimate demand elasticities.

Sometimes price is both the explained and the explanatory variable. For example, price is explained by demand conditions, but it also determines that demand. This is a case of simultaneous equations, and it calls for more complex forms of econometric estimation.

The following equation describes the variable "sales" as a value dependent of three factors: price, advertising, and a set of "other variables."

$$\text{Sales} = b_o\,(\text{price})_{b_1}\,(\text{advertising})_{b_2}\,(\text{other variables})_{b_i}$$

If we take the natural logarithm this equation becomes:

$$ln\ \text{sales} = lnb_0 + b_1 ln\text{price} + b_2\, ln\,\text{advertising} + b_i ln\ \text{other} + e$$

This can be estimated as a simple linear regression. The coefficients of these logarithmic models are the elasticities (b_1 is the elasticity of sales with respect to price, b_2 is the elasticity of sales with respect to advertising expenditures, etc.).

As mentioned, in most examples, price is a variable explaining sales. But another approach has prices as the explained variable. This approach is known as that of hedonic prices, in which several factors explain the value (as expressed in the price) of a product. The hedonic approach assumes that a price P a consumer is willing to pay is based on the sum of value of several characteristics β, at a quantity x.

This can be written as $P = \beta_0 + \sum_{k=1}^{K} \beta_k x_k$

For example, factors in a price of a laptop computer would be its weight, processing speed, and battery life. These are the factors k of the equation, and each has a certain weight β that indicates how much the factor affects the price. When we plug in the actual values for that factor (i.e. x), such as 2 pounds of weight, 3.6 GHz of processing speed, and six hours of battery, we could estimate the likely price. The impacts of the characteristics are assumed to be additive.[73]

Hedonic pricing is used in the appraisal of residential homes. Pricing is dependent on the characteristics of the house, such as size and condition, and the characteristics of the neighborhood, such as pollution and school access, proximity to public transit, and the tax rate.[74] Depending on the scores of a house on each of these dimensions, the appraised value goes up or down by an estimated amount.

For an example of the hedonic approach, consider the price of newspapers. How do consumers value different attributes of newspapers? To answer this, an econometric study explored how various characteristics affect the prices of British papers.[75] The study examined several quantitative factors, including: page size (tabloid versus full size), the number of pages, and the ratio of advertising to total newspaper size (AD/ED), the color supplement, the existence of a Sunday edition, the number of regional editions, and the overall circulation. It adjusted for a variety of factors, including the social class of readers (ABC1) in the area, the national region (e.g. Scotland), and so on.[76] Table 11.4 shows the study's findings for significant variables impacting a newspaper's price.

Price is related to several factors: the quantity of news offered relative to advertising (the more advertising relative to news, the lower the price), the number and size of pages, the Sunday edition, and the color supplement. The study found that national papers (London HQ) command a price premium over provincial papers. Papers in Ireland are more expensive. The social class of the paper's local readership played a small role in price.

Another example of hedonic analysis deals with mobile phones. What is the relation of different features on the price of mobile phones? A study considered several phone features, including age of model, weight, size, volume, battery duration, number of ringtones, MP3, multimedia messaging service (MMS), and Bluetooth capabilities. Table 11.5 shows the relationship of these characteristics with the mobile phone's price.

Table 11.4 Hedonic prices for British newspapers

Characteristic	Effect on price
Ratio of advertising/editorial pages	−0.074
Page size	0.098
Color supplement	3.037
Sunday edition	5.147
London HQ	2.254
Ireland HQ	16.444
Social class of readership	0.034
R^2	0.797
F	15.383
n	34

Thompson, R.S. "Product Differentiation in the Newspaper Industry: A Hedonic Price Approach." *Applied Economics* 20, no. 3 (1988): 367–376

Table 11.5 Features' relation to cellphone price

Feature	Price impact (in €)
Volume (in ccm)	−0.59
Model age (in months)	−7.76
Battery duration/weight	147.65
Ringtones	1.87
Bluetooth	193.24
MP3	205.38
MMS	115.71

Dewenter, Ralf et al. "Hedonic Prices in the German Market for Mobile Phones." *Telecommunications Policy* 31, no. 1 (February 2007): 4-13

This table illustrates the change in price that are associated with a change in one of the characteristics. A decrease in volume of the phone by 1 cubic centimeter is associated with increases in the price by €0.59. If the phone's manufacturer decreased the device size they could expect an increase in its price to roughly correspond to that number. Older phone models were cheaper. A phone's battery life, ringtone variety, and additional features were also all found to greatly affect the price that could be charged by the manufacturers. Of all the features evaluated, the ability to store MP3 files was found to relate the most to the price, at least at the time of the study, when this was a fairly novel and differentiating feature.

73 The hedonic model can also be written as an exponential equation, with the beta coefficients as elasticities. Brachinger, Hans Wolfgang. "Statistical Theory of Hedonic Price Indices." *DQE Working Papers.* August 2002. Last accessed June 17, 2017. ► http://www.unifr.ch/dqe/papers/files/wp0001.pdf.

74 Investopedia. "Hedonic Pricing." Last accessed June 17, 2017. ► http://www.investopedia.com/terms/h/hedonicpricing.asp.

75 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

76 Thompson, R.S. "Product Differentiation in the Newspaper Industry: A Hedonic Price Approach." *Applied Economics* 20, no. 3 (1988): 367–376.

11.3.2 Conjoint Analysis

Another tool to identify a consumer's valuation of product characteristics is through conjoint, or tradeoff, analysis. Here, one weighs the various factors that contribute to customer value against each other. This is popular for measuring price sensitivity, both overall and for different customer segments, as well as consumer sensitivity to product attributes. It is discussed further in ► Chap. 9 Demand and Market Research for Media and Information Products and elsewhere in this book.

The methodology of conjoint analysis is to disaggregate a product's value for the contributions to value of each attribute. The fundamental principle holds that the value of a product is equal to the sum of the utilities which the consumers derive from all the attributes of the product. This enables the pricing of a product and its various add-on features.

Conjoint analysis works best for products that are considered by consumers on the basis of specific attributes, in contrast to products chosen according to their image, such as beer or cigarettes.[77] In the questionnaire stage, participants are asked to respond to different combinations of product attributes and the likelihood that they would purchase it, on a 100-point scale. The next step is the use of the statistical methodology of conjoint analysis to examine the respondent choices and calculate the utility for each level of each attribute. The algorithm for this statistical analysis is complex in terms of computations but software packages are available.

This methodology can also be used to identify customer segments with different price sensitivities and attribute preferences, and helps identify the combination of prices and attributes to target them. A particular group will be tested for different combinations of attributes at different price levels to gauge what the impact of different prices would be; for example the effect of a price adjustment of 10% up or down for that attribute, and then pricing the attribute accordingly.

11.4 Strategies to Keep Prices Above Cost

11.4.1 A Company's Goal of Reducing Consumer Surplus

Many viewers would be willing to pay for a TV program they currently get free. But they don't have to. The difference between WTP and actual price is the consumer surplus.

Figure 11.3 shows schematically the total amount of value (in terms of aggregate WTP) which viewers get. Users are ranked on the horizontal axis according to their WTP, which is depicted on the vertical to the demand curve. With free TV, price is $P = 0$ and the value to consumers is the entire triangle under the demand curve. If instead the TV is not free but by pay subscription only, then a price of $P_{\text{pay-TV}}$ is charged. The number of users is then only $Q_{\text{pay-TV}}$. Overall value to the consumers is the trapezoid to the left of $Q_{\text{pay-TV}}$. They must pay the amount shown by Area A, the product

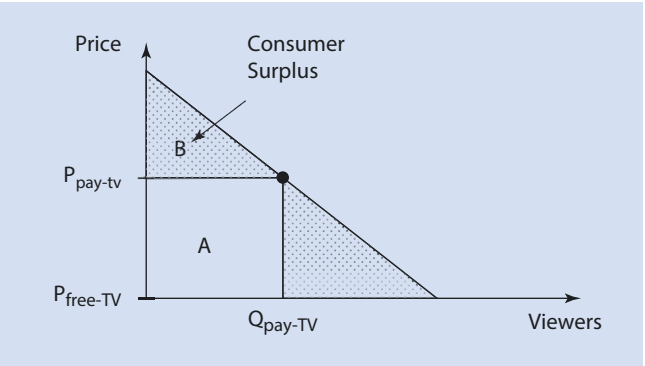

Fig. 11.3 Consumer surplus

of price and quantity. Area B is the consumer surplus—what they would have been willing to pay but did not have to.

In information products, the consumer surplus is often quite high, especially where competition exists, where exclusion is impossible, and when payment collection is difficult. Then the service might even be free in terms of direct payment. In such a situation, the providers of the service, such as TV broadcasters, will seek advertisers. But there are strong reasons for a media company to prefer direct sales to audiences rather than indirect sales to advertisers. The value of a viewer to a TV broadcaster is about 10 cents an hour in terms of advertising revenues, but the value of the TV program to the viewer could be about 50 cents an hour.[78]

In television, pricing is enabled through technology options. If there is an ability to grant selective access through encryption, a price can be charged. That price might be $P_{\text{pay-tv}}$. At that price, the consumer surplus is much smaller.

11.4.2 Strategies to Maintain $P > MC$

The fundamental struggle in most pricing of information products is to maintain prices above the low MC. This is perhaps the most critical task of media managers when it comes to pricing. There are several basic options and they are discussed in the following.

11.4.2.1 Integrate Information with Hardware

When information is bundled with a unique hardware device, one can charge for it because it would not be easily available to users who do not buy or subscribe to the device. By creating a mechanism for exclusion and access, it becomes possible to charge a price above MC. When the devices are registered to specific individuals it also becomes possible to price-discriminate among them.

11.4.2.2 Create a "Lock-In" of Customers

Making it difficult for customers to switch to another provider enables a provider to charge a higher price. A customer lock-in can be created by contractual commitments, loyalty

77 POPULUS. Last accessed July 28, 2011. ► http://www.populus.com/files/Conjoint%20Introduction_1.pdf.

78 Avrahami, Ram. "Cost of Time and Attention in Mass Communication Systems." *ProQuest Dissertations & Theses Global.* 2008. Last accessed June 17, 2017. ► http://ezproxy.cul.columbia.edu/login?url=http://search.proquest.com/docview/304650587?accountid=10226.

programs, or brand-specific training. Another way to create a lock-in is to get customers to invest in the supplier's technology by their participation in customization. Customers thereby raise their own switching costs if they want to get out. In order for a seller to successfully lock-in customers, the customers will require concessions to agree to be locked in, and the seller must invest in lock-in through upfront discounts.

How high could the price be above MC and still discourage switching? If customers' switching cost (including the hassle of change itself) is lower than the present value of future higher prices charged to them, then they would switch. This means that the future extra profits that a seller can earn from a customer equals the total switching costs. As Hal Varian points out, one can therefore value a company's entire customer base by calculating its customers' switching cost rather than calculating the revenue, cost, and revenue streams.[79]

11.4.2.3 Bundling

Often a product is only offered as a part of a bundle of several products and services, and the price of the bundle is usually lower than the sum of the individual prices.[80] In 1963, George Stigler (later a Nobel Prize winner in Economics) observed that selling products in bundles without the option of purchasing the components separately was actually a way to allow the seller to price discriminate and to reduce consumer surplus.

For example, cable TV companies will not let customers subscribe to the channels of their choice only, but rather to a bundle ("tier") of channels. Why would selling only a bundle make business sense? The reason is that different customers value different channels differently. Consumers may hold a low value for one good but high value for the other. By pricing the products separately, the company would either underprice some of them for some customers and overprice them for others. But by bundling them into a single price, it would capture most of the WTP.

Example: The Pricing of Pay TV Channels

Assume two viewers 1, 2; and three pay-TV channels *X, Y, Z*. Assume a set of WTP by the two viewers.

Channel	*X*	*Y*	*Z*
WTP_1	11	6	2
WTP_2	2	6	11

Pricing Options

A: Charge same median price ($6) for each channel.

B: Charge the maximum WTP for each channel ($11, 6, 11).

C: Bundle and charge total WTP ($19) for a bundle of all channels.

The company seeks the strategy that maximizes its revenues, while leaving consumer surplus—the money left on the table—as low as possible.

Strategy A (unbundled, same price of $6)

- Viewer 1 selects channels *X*, *Y*:
  - unbundled revenues: $X + Y = 6+6=12$;
  - consumer surplus: $(11 - 6) + (6 - 6) = 5$.
- Similarly for Viewer 2.
- Therefore, total revenues: 24; and consumer surplus: 10.

Strategy B (unbundled, max WTP for each channel, $11, 6, 11):

- Viewer 1 selects channels *X*, *Y*:
  - bundled revenues: $X + Y = 17$
  - consumer surplus: $(11 - 11) + (6 - 6) = 0$.
- Similarly, viewer 2.
- Therefore, total revenues: 34; consumer surplus: 0.

Strategy C (bundled, all channels); total WTP $19:

- Viewer 1 selects bundle *X*, *Y*, *Z*;
- bundled Revenues: *X*, *Y*, *Z* = 19;
- Consumer Surplus: 0.
- Similarly, for Viewer 2.
- Therefore, total revenues: 38; consumer surplus: 0.

C—the bundling strategy—is the optimal strategy, with total revenues highest (at 38) and a consumer surplus of 0.

(Note that such a strategy is possible only if the consumer has no alternative provider who would price differently, such as offering pricing scheme A or B.)

The internet has disparate effects on bundling. It makes disaggregation more feasible by providing consumers with the ability to break out of bundles and pick and choose. But it also creates more possibilities for bundling by providing a more convenient technology to do so.

Case Discussion

Bundling

An encyclopedia is a bundle because one cannot buy a single volume or a single entry. In addition, *EB* also sold a variety of higher-level product bundles. One such bundle, offered in 2007 as a competitive response, combined the three full encyclopedias (the 32-volume *EB*, the *Student Encyclopedia*, and the *Elementary Encyclopedia*). The edition included both collegiate and student editions of the *Merriam-Webster Dictionary and Thesaurus*, as well as collegiate, student, and Britannica editions of the *EB* Atlas and timelines. In total, the package included upward of 100,000 articles, 22,000 photos, 2523 Atlas maps, 555,000 dictionary and thesaurus entries, and 166,000 links to high-quality sources. Additional special features included Explore and Virtual Note Cards (which let the customers participate interactively on tours, while giving them the ability to take notes on them), Brainstormer (which allows the customer to look at a topic more comprehensively), and Homework Help Desk (which helps students with assignments).

The price of the bundle was significantly below the sum of the separate elements, with the discount estimated at $500. But *EB*'s bundling pricing strategy did not turn things around. The reason is that to be a successful bundler one must be able to offer at least some elements with a considerable inelasticity of demand, that is where customers are fairly insensitive to price. Otherwise they will not care enough to buy a bundle that includes such an element. In the case of *EB*, no such element seemed to exist anymore.

79 Shapiro, Carl and Hal Varian. *Information Rules: A Strategic Guide to the Network Economy.* Cambridge, MA: Harvard Business Press, 1998.

80 Noble, Peter M., and Thomas S. Gruca. "Industrial Pricing: Theory and Managerial Practice." *Marketing Science* 18, no. 3 (1999): 435-454.

11.4.2.4 Establish Market Power Through Monopoly

In a monopoly market, one firm dominates the industry. This firm has a strong influence over the market price. To gain market share, the firm might engage in mergers. It might try to drive out rivals through superior price, product, and marketing. It might have a legal monopoly through a unique patent or an exclusive license.

The constraints on a monopolist's pricing power are market demand conditions and legal rules. Even a monopolist cannot make people shell out more than their WTP, which is defined by the utility of the product to them. How would such a monopolist set prices? If there are legal constraints against price discrimination or arbitrage (reselling) among customers is possible, then the monopolist would charge the same high price to each customer.

But, if the price is too high, there will be fewer buyers. If the price is too low, the firm leaves money on the table. The monopolist maximizes profit when MR = MC. The point defines a quantity sold and a price. In contrast, the pricing for a competitive firm would be P = MC. The difference in the price creates a "supernormal profit," also known as the monopoly rent. The situation where a monopolist can engage in price discrimination is discussed further below.

11.4.2.5 Participate in an Oligopoly

In an oligopoly, an industry has only a few producers. They each recognize that their price depends on their own actions and those of their rivals. They are not merely price-takers of a market-determined price. In an oligopoly, companies tend to be rivals but not price competitors. Non-price competition focuses on other strategies for increasing market share, such as advertising, innovation, and marketing. Each firm must consider the likely reactions of other firms when making its own pricing decisions. This can quite possibly lead to co-operation. The price interdependence between the major firms leads them to act jointly either by agreement or do so tacitly. For the reasons we discussed earlier, the economic characteristics of media and communications often lead to oligopoly.

In contrast to the situations of either competition or monopoly, where an analysis of optimal prices is relatively straightforward, the intermediate situation of oligopoly pricing is much harder to analyze.

In one scenario, the oligopoly firms collaborate to charge the monopoly price. They then split the joint profit.[81] The main problem is that such a price collusion is illegal. A second problem is that it is hard to keep a partner in the collusion from cheating by charging a slightly lower price in order to raise sales.

81 The French economist Antoine Augustin Cournot, an early contributor to oligopoly theory (nineteenth century), analyzed that situation.

Two firm's competitive responses to one another's price changes crucially affect the absolute sizes of the two price elasticities. This relationship is called the cross-price elasticity:

$$\begin{aligned}&\text{Cross-elasticity}(X,Y)\\&\quad=(\text{Change in quantity of } X/\text{Change in price of } Y)\\&\quad\times(\text{Price of } Y \,/\, \text{Quantity of } X).\end{aligned}$$

Where cross-elasticity is high, the two firms are competitors because one company's price affects the sales of the other. Their products are substitutes. In contrast, where there is no impact the two firms seem to serve different markets. The US Department of Justice has been using cross-elasticity as a way to define markets for anti-trust purposes. Products are in the same market–that is, they are substitutes—when a price change for one product (or firm) impacts the sales of the other. When a price increase for CD players significantly raises sales for MP3 players, they are substitutes and in the same market. If Blu-ray DVD player sales are unaffected, they are in different markets. And if the sales of another product actually rise, such as in the case of CD discs themselves, they are complementary goods.

11.4.2.6 Game Theory

Game theory is often applied to the analysis of oligopoly pricing. Game theory models look at oligopolistic behavior as strategic moves and counter-moves. A firm in an oligopoly uses the analysis in order to take into account the reasoning of other firms and analyze their strategic behavior. From a management perspective, game theory forces a firm to analyze its own strategic alternatives and to assess how each competitor will respond. We discuss game theory in ▶ Chaps. 8 Entertainment Law and Regulation and 14 Strategy Planning in Media and Information Firms.

Co-operative games are games in which the participants co-ordinate their pricing strategies. In non-co-operative games, they do not co-ordinate formally, but each firm takes the other firm's likely response into account. A "Nash equilibrium" occurs when each player sets her best strategy in anticipation of the expected strategy of her competitor, and neither can gain by a change, when they factor in the other's response to their change.

However, price collusion, whether co-operative or tacit, is difficult if there are many firms in the industry or if the product is not standardized. It is easier if there are only a few firms. But even then, it pays for each firm to "cheat" on its partner in collusion, lower its price, quietly granting discounts to gain market share, and increase profits. To enforce collusion, the other companies, especially through a "price leader" firm, will threaten retaliatory pricing to hurt the maverick. Entry deterrence also needs to be maintained in order to keep out potential new rivals.

Case Discussion

Game Theory

When setting initial prices, *EB* at first charged customers a high price for the CD-ROM edition, $1,200 (the same price as a printed set of books), and then a more realistic $200), while Microsoft Encarta charged $120, dropping to $100. After facing losses, *EB* realized that it could not price its products higher than its competitors. It underpriced Encarta at $90, then at $50 and $40 when Encarta lowered its prices to $45 and $37.50. Table 11.6 shows a comparison of prices of *EB* and Encarta (sales data is hypothetical).

The Nash equilibrium was reached in 1995 when Encarta was priced at $110 and *EB* cost $200. The subsequent price war hurt both companies. Even without co-operation they could have predicted the competitive response to their own price reduction, and refrained from making it (assuming no additional major rivals in the market).

Table 11.6 The pricing of *Encyclopaedia Britannica* and Encarta CD-ROMs

Year	*Encyclopaedia Britannica*			Encarta		
	Price	Sales	Revenues	Price	Sales	Revenues
1994	$1200	2,000	$2,400,000	$120	150,000	$18,000,000
1995	$200	100,000	$20,000,000	$110	200,000	$22,000,000
2000	$90	180,000	$16,200,000	$100	120,000	$12,000,000
2007	$50	230,000	$11,500,000	$45	170,000	$7,650,000
2008	$40	150,000	$6,000,000	$37.5	150,000	$5,625,000

11.4.2.7 Leader Pricing

Price leadership is the strategy of a dominant firm in the market to initiate a price change, expecting other firms to follow. It is often an element in oligopolies. Symmetrically, the other firms are price followers.

"Signaling" is often used in oligopoly markets because it allows members of an oligopoly to co-ordinate prices without explicit agreements. Co-operation is possible when the players interact repeatedly and they can continuously observe other participants' behaviors. The internet shortens the intervals between interactions and makes signaling as well as checking on compliance with a fixed price easier.[82] (This means that the internet does not always increase competition and lower prices; it also makes the enforcement of tacit collusion easier.)

Universal Music Group was the largest distributor of global music in terms of sales. In 2003, it announced that it was lowering the suggested retail price on CDs by $6, from $19 to $13. This squeezed the profit margins of retailers. The Universal move would make sense only if rivals also followed, because otherwise retailers would lower their sales effort for Universal's music and concentrate on its rivals instead, since the profit margins of servicing their products were higher. But Universal's move was not followed by its three main rivals. Normally, the other companies set their price near each other. But the other firms (Warner Music, Sony BMG, and EMI) did not follow. In consequence, Universal soon raised its prices. This caused a 2005 investigation by the New York State Attorney General Eliot Spitzer to determine whether the companies colluded in the pricing of music.[83]

Another example of price leadership can be seen with DVD players. In 2002, Wal-Mart and Target initiated a major price cut to establish price leadership for DVD players.[84] In 1997, a DVD player cost approximately $600–1000. After Wal-Mart and Target's price cuts, prices spiraled downwards. Specialty retailers such as Circuit City had to follow, which included making several changes in their operating model in order to remain competitive, such as replacing commissioned sales personnel with hourly rate pay and dropping prices to match competitors.[85]

11.5 Price Discrimination

For information and digital products, being adept in price discrimination is perhaps the most important skill in pricing. As we have seen, a single price may well be too low to cover

82 Oligopoly Watch. "Signaling and Oligopolies." May 18, 2003. ► http://www.oligopoly-watch.com/2003/05/18.html.

83 Leeds, Jeff. "Pricing of Downloaded Songs Prompts Antitrust Subpoenas." *New York Times*. December 24, 2005. Last accessed June 17, 2017. ► http://www.nytimes.com/2005/12/24/business/pricing-of-downloaded-songs-prompts-antitrust-subpoenas.html.

84 Pogue, David. "State of the Art; DVD Players Under $100: What Price a Bargain?" *New York Times*. February 7, 2002. Last accessed June 17, 2017. ► http://www.nytimes.com/2002/02/07/technology/state-of-the-art-dvd-players-under-100-what-price-a-bargain.html.

85 Heller, Laura. "High Tech Goes Low Price: Mass Contributes To Commoditization- Annual Industry Report, Top 150: CE & Entertainment." July 7, 2003. Last accessed July 27, 2011. ► http://findarticles.com/p/articles/mi_m0FNP/is_13_42/ai_105160292/.

overall costs. It will lead to an undercharging of some users below their WTP, while overcharging others and thus losing them as customers. Since different consumers value a product differently, a firm will try to charge them different prices accordingly. Price-discrimination means to consider pricing via assessing value to different users and charging each of them based on that value.

There are multiple price discount structures, such as:

- trade discounts to favored retailers;
- quantity discounts;
- promotional allowances;
- locational discounts;
- loyalty programs[86];
- price reductions to seniors or students.

Generally, to charge different prices to different customers requires their segmentation from each other. Preventing resale—arbitrage—is essential for price discrimination. Discounts can be given to categories of potential buyers whose ability to pay is generally lower, such as seniors.[87] Airlines are masterful in price differentiation because they have an effective enforcement mechanism for segmentation. Tickets are tied to an individual, partly for security reasons but also, conveniently, for purpose of price differentiation. The potential resale of discounted tickets is rarely possible.

Economists speak of three types of such differentiation. First degree price discrimination is selling the same product and same quantity to each user at different prices. Second degree price discrimination means offering different prices to users based on the quantity they purchase. Third degree discrimination is to change different prices to different categories of consumers, such as students.

While the term price discrimination has an odious sound, it also has positive aspects. For example, it may provide the product to people who would otherwise not be able to afford it at the higher uniform price. It also enables production which otherwise would not occur. Suppose a symphony orchestra where the symphony is in deficit at the uniform price of $30, and even more so when the price is raised or lowered. Instead, it decides to charge students a lower price and engage in price-discrimination. Similarly, many of the audience who bought $30 tickets would be willing to pay more. This is their consumer surplus. If part of such consumer surplus could be collected through charging them a higher price, the show could go on.[88]

Figure 11.4 shows differentiated WTP. It is a graphical representation of three customers and three prices. If we set a single price (P_{JOE}), it would be too high for Pam but a bargain for Mike. Differentiated prices would eliminate both discrepancies.

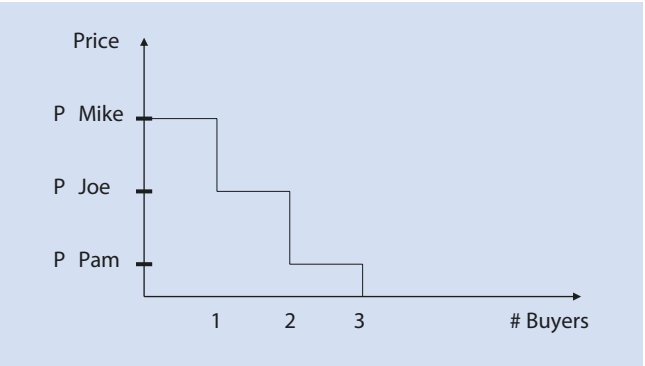

Fig. 11.4 Willingness to pay

For the seller, there are several negatives to price differentiation. They include the cost of maintaining different prices and of segmenting markets to prevent reselling, with the low-price customers selling the product to high price customers. There is also a likelihood of consumer resentment. In addition, it may well be a violation of consumer protection and competition laws.

Another problem is that if customers get used to a discount they will resist the regular price next time. Some furniture stores, for example, have year-round "sales," because buyers expect a discounted price and will wait for them. Cable TV companies will offer a broadband service at a low introductory price. But when they are later confronting a subscriber with a low offer from a telecom company, they will prolong the introductory price to match the competitor. Price differentiation hence may invite bargaining behavior. When price discounts are given freely, they can transform a regular customer into a difficult customer.[89]

And it is easy to offend loyal customers by taking them for granted while enticing fickle customers.

11.5.1 Optimal Price Discrimination

Given the information sector's fundamental characteristics of high fixed costs and low MC, price discrimination is the key to media profitability.

Assuming that a firm could legally engage in price differentiation, how should it optimally set different prices? If there is a different price elasticity among different consumer groups, it would charge a higher price to the group with the more inelastic demand and a lower price to the group with a more elastic demand. Price elasticity (change in demand in

86 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.

87 DeJong. "How Price Discrimination Will Be Different in the Online World." *University of Virginia Darden School of Business*. Last accessed July 28, 2011. ► http://faculty.darden.virginia.edu/gbus885-00/Papers/PDFs/DeJong%20-%20PriceDiscrimination.pdf.

88 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge, MA: Harvard University Press, 2000.

89 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

Table 11.7 Price elasticity and price

Customers	Price elasticity	Price
Average Joe	−1.0	50
Must Have Mike	−0.1	500
Pennysaver Pam	−10	5

response to price), time elasticity (length of time allowable to make purchase), and time volatility (consumer response to price change over time) are key components of price discrimination techniques.[90]

The basic rule is known as Ramsey Pricing. This states that optimal price discrimination follows the inverse elasticity rule. The price given to a consumer is the price average divided by the price elasticity of demand of that consumer or consumer group:

$$P_i = P_{\text{average}} / \eta_i$$

Users with a more inelastic demand would be charged a price higher above MC, and those with a more elastic demand would receive a price closer to MC.

In this example (Table 11.7), we see three consumers and their respective price elasticity of demand. They will each be charged different prices for the same good. Average Joe has a price elasticity of 1.0; suppose he is charged a price of 50. Must Have Mike desperately wants the good and so his demand is inelastic. He would be charged with the highest price of 500 since he really needs the good. Pennysaver Pam is frugal and price sensitive. She would only be charged a price of 5 (50/50) as long as it covers the MC.

11.5.2 Versioning

First-degree price discrimination is difficult to implement because sellers typically do not have information on the preferences of individual users, so they must try to get consumers to self-select themselves by purchasing different quality versions.[91]

An example of this could be found in the sale of books. A book can be published as a hardback or a paperback. Usually the hardback will be published first, and then the paperback will follow. That price difference is much larger than the cost difference.

Another way to let consumers self-select is through offering discounts that require some effort to collect. Price-sensitive customers might be offered a discount coupon that must be sent in.[92] However, only about 2% of all coupons are redeemed. Those, presumably, are among the most price sensitive consumers.[93]

Another example would be movie release sequences. Movies are first released in theaters, and seeing a film on the big screen has the highest perceived value. The cost of seeing a movie in the theater ranges from $10 to $20. With each subsequent release, the price of seeing the movie drops. Discount theaters would price it at $8 per person, pay-per-view would price it at $4, and video rentals would cost $3.

The practical number of versions is often three. Sometimes this is called "Goldilocks pricing," in other words not too hot and not too cold. It utilizes people's aversion to extremes. By having three different versions at a low, medium, and high price, low-end buyers may trade up to a higher priced model. People often avoid the cheapest option or the most expensive option, thus making them inclined to pick the medium-priced option. Adding an expensive version raises the demand for the medium-priced version because it looks like a good deal in comparison with the expensive one. Behavioral economists call this the isolation effect.[94] A choice looks more attractive next to a costly alternative than it does in isolation.

The price difference of versions is only loosely related to the actual difference in the cost of producing them. An example is the provision of stock market information. A subscription for $50 per month might get real-time quotes. For $8.95 per month the user gets stock information with a slight delay. The cost of production and distribution are near identical. Similarly, airlines reduce the attractiveness of a low-price option by placing otherwise unnecessary restrictions on economy class tickets. IBM placed a chip in its cheaper printers to slow them down. Federal Express sometimes plans routes to avoid delivering standard packages before 10 am. Software packages may come in three types: professional edition (higher price), consumer-oriented regular edition (lower price), and student edition (lowest price). In all cases, the companies degrade the quality of the service or product, so that they can charge more for a premium version.[95]

90 Jallat, Frédéric and Fabio Ancarani. "Yield management, dynamic pricing and CRM in telecommunications." *Journal of Services Marketing* 22, no. 6 (2008): 465-478.

91 Shapiro, Carl and Hal R. Varian. *Information Goods*. Boston: Harvard Business School Press, 1999.

92 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

93 Consumers that are even more price-sensitive will not even utilize the coupons.

94 Tellis, Gerard J. "Beyond the Many Faces of Price: An Integration of Pricing Strategies." *Journal of Marketing* 50, no. 4 (October 1986): 146-160.

95 Varian, Hal. "Versioning Information Goods." *Digital Information and Intellectual Property*. January 23, 1997. Last accessed June 17, 2017. ► http://people.ischool.berkeley.edu/~hal/Papers/version.pdf.

11.5.2.1 Case Discussion

Versioning

EB offered distinctly different versions of its product, each with a very different pricing. Its versions were:

- *Encyclopaedia Britannica Ultimate*. This combined the three full encyclopedias (the 32-volume regular *EB*, the 16-volume *Student Encyclopaedia*, and the 16-volume *Elementary Encyclopaedia*). The edition offers both collegiate and student editions of the *Merriam-Webster Dictionary and Thesaurus*, as well as collegiate, student, and Britannica editions of the *EB Atlas* and timelines. The bundle was available in a print version or a DVD version. The price of the bundles was significantly below the sum of the separate elements. The print version was priced at $2500.
- The *Deluxe Edition* was a package that includes the entire 32-set of books together with other reference sources such as *Year in Review*, *Merriam-Webster's Collegiate Dictionary*, a thesaurus, a world atlas, and more. The print version cost $1600.
- The regular *Britannica print edition*, 32 leather-bound volumes, which was priced at the premium level of $1,400.
- EB's *Compton's Encyclopedia*, with 26 volumes aimed at high-school students ages 10-17, was priced at $899.
- *The DVD version of the Britannica Ultimate Edition* described above, cost $450.
- *Britannica Student Encyclopaedia* (aimed at ages 8–12), 16 volumes, was priced at $449.
- *Britannica Elementary Encyclopaedia* (ages 5-8), aimed at entry-level students learning to read and developing life-long study habits: 16 volumes priced at $440.
- The *DVD version of the Deluxe Edition*, described above, cost $350.
- A student-oriented *online learning bundle* was available at $130 a year, which included the main encyclopedia online along with a kids' version of the content.
- Subscription to *full online access* was priced at $75 a year.
- DVDs were sold a low price of $40, given the package's inconvenience.
- Mobile app access cost $15/year.
- A per-student per-year access price for school districts was priced at $0.25. Short summary articles (60,000) were available online and on mobile app for free.

11.5.3 Pricing of Quality

One way in which to differentiate prices is to offer different quality levels. In the online world, websites, portals, e-commerce providers, and streaming services must have some assurance of the quality of the product they provide to the end user. If that quality is low or erratic, user experience suffers and the website's reputation is negatively affected. This leads websites to negotiate with ISPs for higher priced "quality of service" (QoS) guarantees, which is a much stronger commitment than a "best effort" that does not mean much.

QoS typically involves differentiating network traffic based on priority, so that certain data gets through the network first.[96] It also means different speeds i.e., throughput rates. ISPs typically offer internet at different prices dependent on connection speed chosen by customer.

Companies such as banks, stockbrokers, or airlines need to ensure that their websites are reliable, and for that service quality they are willing to pay more. A similar quality issue arises for voice phone service over the internet, or for video conferencing where the packet transmission has to be "real time," in contrast to email or streaming movies, which can lag a little or be "bursty." Companies in need of communications that must be absolutely secure and reliable, such as stock brokerage firms, have therefore traditionally opted out of the public (i.e. general) networks in favor of private (i.e. segmented and dedicated service), at a premium price. Other companies with huge data transmission requirements have also created or used private networks in order to lower the cost.

11.5.4 Second-Degree Price Discrimination

Second-degree price differentiation means different prices based on the quantity consumed. Customers with larger orders get a lower price as a quantity discount. The better deal is not necessarily based on efficiencies and lower cost. Similarly, repeat customers are given the incentive to return for a benefit that is a kind of discount, for example an airline's frequent flyer program. Large-scale buyers are typically more price sensitive than small ones, because even minor price differences add up to more money.[97] At the same time, servicing a larger account costs less on a unit basis. So, the cost difference justifies a price discount. The quantity price discount also encourages buyers to make larger purchases rather than smaller and more frequent purchases, shifting some of the cost-holding inventory to the buyer.

Conversely, high usage suggests a greater dependency on the product and hence a lower price elasticity. Such a

96 Hoy, Nate. "QoS ("How can I solve outbound audio problems caused by too much traffic?")" *Vonage Forum*. Last accessed June 5, 2007. ► http://vonage.nmhoy.net/qos.html.

97 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

customer could therefore be charged more rather than less. Thus, companies such as IBM or Xerox have tied ancillary products or services to the hardware device, in order to change high-volume users more on a per-unit basic, since they are dependent on the product. This is done by raising the incremental price for usage above actual incremental costs. This is like charging only a little for the razor and a lot for the razor blades. Heavy shavers end up paying more.

One way to accomplish such price discrimination is a two-part pricing. There is one flat fee plus another fee based on usage. The user pays two separate charges for one service or product, one as a flat rate for participation and the other one for actual usage. Phone companies have a fixed basic charge plus added fees based on how many minutes (or buckets of minutes) are used, the changes having little to do with added cost.

An example of how to determine the optimal usage-based pricing is provided for Disney's theme parks. Disney had to figure out how much to charge as an entrance fee to the park (the basic charge) and how much to charge for the individual attractions inside the park (usage fees.) The first option was to charge a flat entry fee at the gate with no subsequent per-ride charge. The second option was to charge per ride with no entrance fee. The third option was to charge an entry fee plus per-ride charges. How to calculate the best pricing system?

The profit per user would be equal to the rides consumed multiplied by the price per ride, plus the entry fee, minus the cost of a visitor.

$$\pi = XP + E - C(X)$$

X = rides consumed / time

P = price per ride

E = entry fee

C = cost as a function of X

To optimize its profit Disney should charge the highest admission fee E so that the patron is just willing to enter the park,[98] and then set the price per ride equal to its MC (P = MC). The optimizing rule is to charge the monopolist price for entry and then charge the competitive price P for a ride. Even better for Disney would be a two-part pricing with two kinds of discriminations: the admission charge would have several types of discounts, based on age, group membership, prepayment from other countries, season, time of day, congestion, even weather. The price per ride would also differentiate, though according to congestion, with a possible priority lane pricing.

98 Oi, Walter Y. "A Disney Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly." *Quarterly Journal of Economics* 85, no. 1 (February 1971): 77–96.

11.5.5 Third-Degree Price Discrimination: Differentiation by User Category

In a third-degree price discrimination scenario, different customer categories are charged different prices based on observed characteristics of their demand elasticity. Third-degree price discrimination can be applied to different geographic markets, product use markets, and customer types. For example, a student or a senior consumer will have a different WTP than a middle-aged consumer because of budget constraints and lower time constraints. Prices increase for consumer categories with a more inelastic demand and decrease for consumers with a more elastic demand. Consumer categories with a more elastic demand are better off with price discrimination.

There are several ways to segment a market. One is location. Grocery chains rank their locations by the intensity of competition. They charge more in rich areas (higher WTP) but often also in poor areas (lower competition). Selective pricing is frequent in international markets; Deutsche Grammophon, for example, sold its records in Europe at a price 50% higher than in America, where competition was higher. Japanese automakers did the same with their cars. To find profitable geographic market segments, companies must look at the relative competition in those sub-markets. It is often better to be a big fish in a small pond than a small fish in a big and crowded pond.

An example of segmentation based on customer class is the price for Microsoft's Windows suite. For Version 10 it was $199 for the professional edition and $119 for the home edition, while it was free for students.[99] Segmentation by time is practiced by theaters and airlines. Theaters have midday matinees at lower ticket prices to attract retirees, students, and part-time workers. Restaurants often increase prices for a dinner service over those for lunch because price elasticities are higher for lunch, which tends to be a repeat business. Similarly, a firm will introduce newer models partly as a way to price-discount the previous models, even if they are virtually identical. In semiconductors, Intel releases a new microprocessor at a premium price, and immediately discounts the predecessor chip which is still highly useful.[100] In the advertising market, television and radio stations charge a "preemptible" rate at a low price to make sure they are not left with a perishable inventory of advertising space. Other firms seeking advertising space can get the remaining slots later, with the prices being based on supply and demand.

Segmentation by time can be based on consumer demand. Demand for airline tickets is highest on Mondays and

99 OnTheHub. "Windows 10 Education for Students." Last accessed June 17, 2017. ► http://onthehub.com/download/free-software/windows-10-education-for-students/.

100 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

Fridays. Other industries that cannot save inventory, such as hotels, TV station advertising minutes, and so on, engage in peak-load pricing in order to shift usage to less busy periods. This smoothes out peaks and valleys of consumption and increases the efficiency of utilization. Segmentation by time is often part of a release sequence. It can separate high WTP consumers from low WTP consumers. If segmented by time, the product would first be sold only to Must-Have Mike, later at a lower price to Average Joe, and lastly at the lowest price to Pennysaver Pam.

In price discrimination, the key question concerns the price elasticity of different consumers or consumer categories. However, few customers would volunteer to give up information on their willingness to pay if it will be used to raise the prices they are charged.

Competitors' pricing reduces the ability to price-discriminate but also steps it up as a way to meet competition. Retailers increasingly engage in flexible pricing, using pricing software that analyzes customers and other variables and assigns individualized prices. They monitor pricing schemes based on customer loyalty, and then analyze patterns of purchases and effects of pricing strategies.[101] As a consequence, product prices may fluctuate on a daily basis. For example, at the building products company Boise Cascade over 12,000 items change price daily.

11.5.5.1 Case Discussion

Segmenting

EB uses segmenting according to age, through targeted products. *Britannica Discovery Library* is aimed at three- to six-year-olds and sells for $100; *Encyclopaedia Britannica Elementary* targets entry-level students aged five to eight with the goal of instilling study habits, and is priced at $440; *Britannica Student Encyclopaedia* is aimed at children aged seven to twelve, at $449; and its *Compton's Encyclopedia* targeted ten- to seventeen-year-olds, at $899.

Let us suppose that the managers of *EB* estimate that a $5 price cut will increase sales among the eight- to ten-year-olds segment (i.e. for parents of children in that age segment) by 1500 subscriptions. We can calculate the elasticity:

$$\%\Delta P = -5 / 30 = -.16$$
$$\%\Delta Q = 1500 / 7000 = .21$$

Elasticity = .21/−.16 = −1.3

This shows an elastic demand.

Using the CM formula (see the earlier discussion in this chapter) we find the increase in users required to offset a $5 price cut:

$$-(\Delta P) / (\mathrm{CM} + \Delta P)$$
$$-(-5) / (21 + (-5)) = .25$$

A $5 price cut will therefore create 21% more users, but requires 25% more users in order to break-even. Such a $5 price cut for the eight- to ten-year-olds segment is therefore not profitable. If anything, the numbers indicate that a price *increase* would raise profits, even with a smaller number of buyers.

11.6 Strategic Pricing

Strategic pricing is the use of a product's price as part of a broader and long-term company strategy to position itself in the market. There are several major types of strategic pricing:

- skim/(premium)pricing;
- penetration (value) pricing;
- experience pricing;
- complementary product pricing;
- leader pricing;
- life cycle pricing.

11.6.1 Skim ("Premium") Pricing

Skim pricing refers to using high prices in order to "skim the cream." It works when the revenue from high end clients exceeds the revenue from the middle or lower end buyers. It means that the demand is inelastic. Skim pricing may be used for luxury items in order to build a premium reputation brand. Premium products do not compete on price. They aim to create a high-quality image for the firm. Examples are Godiva chocolates or Rolex watches. This must be distinguished from a monopolist's high price. Skim pricing is a policy by a competitive company, as a way to differentiate itself.

A second scenario is to charge a premium price for the initial period after the product's introduction, so customers who want the new product first pay more. This is known as sequential skimming, starting with a high price and gradually lowering it. We discussed it earlier as a time-sequencing strategy to price discriminate. It is also known as slide-down pricing. Some users have a high need to get the product early and are willing to pay more. Savvy buyers will wait for the price to drop. The company can

101 Kay, Emily. "Flexed Pricing." *Datamation*. February 1, 1998. Last accessed June 26, 2012. ► http://www.datamation.com/entdev/article.php/601761/Flexed-Pricing.htm.

time-sequence its marketing focus too, concentrating on the different buyer groups with their different price elasticities one at a time. The sequential approach also enables it to ramp up production gradually and move down the learning curve and scale to lower cost. It is often used for electronic devices, where, following Moore's Law, cost (and price) decline at a rapid rate.

For skim pricing to work, several conditions are required. Customers are not highly price sensitive, economies of scale are moderate, and competition is low.[102]

11.6.1.1 Case Discussion

Premium Pricing

EB practices premium (skim) pricing with its print edition. It provides a high-quality product priced substantially above its rivals. *EB* sold its print edition for $1400 in 2008,[103] a price higher even than it had been in 2000, despite the competition from CD-ROMs and Wikipedia. Parents are eager to provide a quality education to their children. *EB* grasped this and convinced parents that their product was an investment in their children's' future opportunities. Similarly, *EB* also persuaded relatives and others that its encyclopedia was a worthy and classy present for special occasions. *EB*'s value proposition relied on two key factors: content and look. The content was of high quality. Its authors were authoritative. The look of the product was distinguished. Whether actually used or not, it visibly proclaimed "only best for my child."[104]

In 1994, *EB*'s competitor, Microsoft, priced its Encarta CD-ROM at $120. *EB*, in contrast, introduced its CD-ROM to the market at the price of $1200, the same as its print edition. But this skim pricing proved far too high. In 1995, the price of *EB*'s CD-ROM was lowered to $200, in 2000 to $90, in 2007 to $50, and in 2008 to $40.

Thus the premium pricing strategy did not pan out for *EB* with its CD-ROM edition because there it faced competition, an elastic consumer base that switched to cheaper products, and a product with substantial economies of scale—not meeting any of the three conditions for a potentially successful skim pricing strategy.

For the print version, *EB* similarly engaged in skim pricing. It charged $1200, while its competitors charged a much lower $300–500. *EB*'s price did not drop; in fact it was raised to $1400. *EB*'s perspective was that if it priced the encyclopedia lower, it would cheapen the brand. Here, the skim pricing strategy worked. There was a market with price insensitivity for a product that proclaimed "only the best," whether for a child or for a college library, and whose quality was not matched by a print competitor. The economies of scale in print runs are not particularly high. Thus, *EB* could maintain a premium price, but the sub-market was not large enough to sustain the organization's large overhead.

11.6.2 Penetration ("Value") Pricing

A second major price strategy is penetration pricing, which means setting a low price in order to gain market or to discourage new competitive entry by others. An example was satellite radio, where each of the two US competitors, XM and Sirius, tried to drive its rival out of business by charging a low price. But neither of them succeeded: their costs escalated, as did their losses. Both companies faced bankruptcy. Finally, they merged and then raised the price.

Penetration pricing is favored in the following circumstances, which are the mirror images of the conditions for skim pricing. First, customers are price sensitive. Second, economies of scale are large. A low price can build volume and reduce cost through scale and accumulated experience (the "learning curve"). Third, there are positive externalities (network effects) that raise the value of the service as its user base grows. There is a snowball effect as consumers' benefit increases while costs decline.[105]

There are downsides to penetration pricing. It may be expensive in terms of foregone revenues. The firm must therefore balance its desire for high short-run profit based on a relatively high price with long-term profits based on market share.[106] A second problem may be image. Prices tend to signal a quality level. Therefore, low-priced products can often be viewed as low quality, which deters potential customers. Third, the success of penetration price strategy depends on rivals not lowering their own prices. For example, penetration pricing will not be followed by an incumbent where the new rival is only a minor threat.

A step beyond penetration pricing is loss leader pricing. A company prices a product very low in order to attract buyers for its other products or services. The seller uses this method to build customer traffic. Free software and apps (freeware) to consumers is used in order to increase sales by commercial providers of services to the same consumers.[107]

Another reason is to get consumers to sample a product and then hopefully engage and keep buying the same product at a higher price level. For example, a free three-month subscription is offered to get the user to sample a service. It often requires an action to cancel. Just by inertia many subscriptions are maintained.

102 Spann, Martin, March Fischer, and Gerard J. Tellis. "Skimming or Penetration? Strategic Dynamic Pricing for New Products." *Marketing* Science 34, no. 2 (2015): 235-249.

103 Melcher, Richard. "Dusting Off The Britannica." *Bloomberg.* October 20, 1997. Last accessed June 17, 2017. ► https://www.bloomberg.com/news/articles/1997-10-19/dusting-off-the-britannica.

104 Boudreau, John W., Benjamin Dunford, and Peter M. Ramstad. "The Human Capital Impact on E-Business: The Case of Encyclopedia Britannica." In *Pushing the digital frontier*. Eds. Nirmal Pal and Judith M. Ray. New York: Amacom, 2001.

105 Dewatripont, Mathias and Patrick Legros. "Mergers in Emerging Markets with Network Externalities: The Case of Telecoms." In *Le Nouveau Modèle Européen*. Eds. P. Magnette and E. Remacle. Brussels: Editions de l'université de Bruxelles, 2000.

106 Farrell, Joe and Paul Klemperer. "Coordination and Lock-In: Competition with Switching Costs and Network Effects." In *Handbook of Industrial Organization, Vol. 3.* Eds. Mark Armstrong and Robert H. Porter. Amsterdam: North-Holland, 2007.

107 Huber, Peter. "Two Cheers for Price Discrimination." *Forbes.* (September 27, 1993), 142.

In 2007, Amazon started selling its most popular titles as e-books on its Kindle tablet device for $10, which was significantly lower than the prices charged by traditional bookstores,[108] and even below the cost that Amazon paid the publishers for the license. In other words, Amazon lost money on each sale. Why would it do so? It was trying to drive traffic to its site and to sell its Kindle tablets, of course. But it also wanted to create the standard for e-books and to promote e-book reading more generally. Giving consumers a simple and uniform price would make the e-book experience user-friendly and eliminate reader anxiety.[109]

Another variation of penetration pricing is complementary product pricing. In this method, the core product is priced low when complementary items such as accessories, supplies, and services can be priced with a higher premium. The classic example is selling a cheap razor and an expensive razor blade or selling a cheap camera and expensive film, as Polaroid does.[110] Amazon's Kindle followed the same model. In the case of early radio or today's iPhone, the opposite tack was taken: the content is free, in order to induce a purchase of hardware.

11.6.2.1 Case Discussion

Penetration Pricing?

Penetration pricing was part of *EB*'s decision, in 2008, to offer a free online edition with ads as its only source of revenue. This was successful in creating much heavier traffic than before, but it turned out that the ads were few and that the model was economically unsustainable.

11.7 Other Types of Pricing

11.7.1 Flat Rate Versus Usage-Based Pricing

Flat-rate pricing—"all-you-can-eat"—is the predominant form of pricing on the internet. In economic terms such pricing is often inefficient since it encourages wasteful overusage and because it discriminates against low-usage customers by charging them a high price relative to usage. It can lead to the 20% of users who account for 80% of traffic being subsidized by the others, while clogging up the network for everyone, lowering quality and raising uncertainty.

But flat rate pricing is easier to administer than usage-based charges. And many users tend to prefer flat rate prices because they remove the need to keep track of their consumption and to ration it. For internet access, in 1996 AOL was the first provider to switch to affordable flat rate pricing. Over the next year, usage per person tripled and demand surged ahead of supply. AOL was barely able to expand fast enough to keep up.[111] Another consideration in evaluating the efficiency argument is whether the payments based on usage are in fact cost-related or a way to price discriminate. If the incremental cost imposed by a user doubling her consumption is minuscule because the last-mile and network core connection are underutilized yet the user is charged double the price, then the economic arguments invoking MC pricing are flawed.

It should be noted, furthermore, that a flat rate does not necessarily mean a low rate, except for heavy users. If an airline offered unlimited flying on its routes for $20,000 a year, few consumers would be interested but some business travelers would jump at the option.

The Bell Telephone System conducted experiments during the 1970s to gauge preferences in order to determine the strength of demand for flat pricing. Over 60% of people who made very few calls nevertheless chose the flat rate plan even though they would have saved money with the variable rate plan.[112] The desire for simplicity and predictability is often stronger than the desire for a cheaper price. Similarly, when using the internet, users dislike keeping track of minutes spent online or bytes transmitted. It is the rare mobile customer who knows how much, his cellphone use costs per minute.

Flat rate pricing makes billing predictable and it provides protection against unexpected large bills. For the same reason, many providers offer complex pricing, so as to make the real price less transparent. But this can backfire once users have experienced unexpected high bills. One study of cellphone consumers in Canada shows that pro-actively matching customers' usage patterns with the rate plans that are optimal for their needs reduces customer churn, even if short-term profitability is lower in terms of revenues. Loyal customers are also important as they make positive referrals to others.

The economics of efficient resource allocation conflict with strong consumer preferences for simplicity and the value to them of avoiding transaction costs. Because of the advantages on both sides, intermediate arrangements are often offered as flat rate plans with various caps, baskets,

108 Amazon found that a book that would sell 100,000 copies at $14.99 would sell 174,000 copies at $9.99. Amazon said the lower price ($10) was justified because consumers expected a significant discount relative to a print copy because there was no printing. Also, there are no overprinting issues, no lost sales owing to lack of stock, no storage fees, and no secondary market (i.e. no opportunity to resell). Francis, Diane. "Amazon's tactics not novel." *National Post*. August 5, 2010. Last accessed June 17, 2017. ► http://www.pressreader.com/canada/national-post-latest-edition/20100805/282368330937114.

109 Bishop, Todd. "Amazon: Why $9.99 e-books are better for everyone, including Hachette." GeekWire. July 30, 2014. Last accessed June 17, 2017. ► http://www.geekwire.com/2014/amazon-9-99-e-books-better-everyone-including-hachette/.

110 Noble, Peter M. and Thomas S. Gruca. "Industrial Pricing: Theory and Managerial Practice," *Marketing Science* 18, no. 3 (1999): 435-454.

111 Odlyzko, Andrew. "Internet pricing and the history of communications." February 8, 2001. *AT&T Labs – Research*. Last accessed August 2, 2011. ► http://www.dtc.umn.edu/~odlyzko/doc/history.communications1b.pdf; Fishburn, Peter C., Andrew M. Odlyzko, and Ryan C. Siders. "Fixed Fee Versus Unit Pricing for Information Goods: Competition, Equilibria and Price Wars." *First Monday* 2, no. 7 (July 1997). ► https://doi.org/10.5210/fm.v2i7.535.

112 Odlyzko, Andrew. "Internet pricing and the history of communications." February 8, 2001. *AT&T Labs – Research*. Last accessed August 2, 2011. ► http://www.dtc.umn.edu/~odlyzko/doc/history.communications1b.pdf.

buckets, and tiers, which are flat up to their ceiling and then cost more for the overage.

In the online world, Apple applied the single-price model. The firm uses a price of $0.99 per song for all types of music. Music rights holders can also sell at $1.29 or $0.69 per track, but no further variation is permitted.[113]

Usage-based payment requires the ability to monitor activity. Online connectivity makes usage-based pricing more readily possible. As an example, the Swedish appliance maker Electrolux offered free washing machines to all 7000 homes on the Swedish island of Gotland under a "pay-as-you-wash" system. The smart washers provide feedback to a billing system. In effect, it is a home-based laundromat system, without coins or prepaid cards. In another example, General Electric (GE) offered a jet engine (the GE90 series) that was more fuel efficient and powerful output, but expensive to maintain. Instead of selling the engine to reluctant airlines, GE leased it on the basis of hours flown, the price including the maintenance. "Power by the hour" became popular because the airlines did not have to worry about unexpected expensive maintenance.[114]

11.7.2 Regulated Retail Pricing

In many cases media pricing is regulated by government, especially for telecommunications and cable TV service. Wireline telecoms frequently have a *retail* consumer price regulation, including the requirement to offer services in rural low-density, high-cost areas at the same price as in metropolitan areas. In European countries and Japan, governments set a monthly TV viewing charge payable by viewers, called a license fee or viewing charge. In India, the Telecom Regulatory Authority also sets the prices of cable, pay-TV, and satellite broadcasting.[115]

Also often regulated are wholesale prices charged by network providers, with market power over essential network elements for competitors who must use these network elements. This is particularly the case for telecom and ISP wholesale prices, but it can also affect the price of content.

In 2010, Ofcom, the UK's independent regulator of the communications industry, ordered the satellite broadcaster and channel provider BSkyB to reduce the wholesale price it charged its rivals Virgin Media and BT for the Sky Sports 1 and Sky Sports 2 channels by more than 20%. In the USA, such prices are not regulated as to a specific number, but a vertically integrated provider must offer such channels in a non-discriminatory fashion to rival platforms.

In various countries, including the USA, there are also "compulsory licenses," where music performers or channels may perform music or create variations, but must give notice and make payments to the rights holders, to the songwriters, and in some cases to the artists. This relates to recordings, radio stations, and online music channels. The price of the compulsory license is set by a government agency, in the USA the Copyright Royalty Board. For recordings, this license fee was 9.1 cents per song or 1.75 cents per minute of playing time. For commercial online music channels, it is 0.19 cents per unique listener per song.

At what level should one set such a regulated price? One governmental approach to set prices is to enable the company to earn a "fair profit," not more but also not less. This is the "rate-of-return" system. Prices are set at a level that permits the provider of the service to achieve a reasonable return on its invested capital, plus compensation for legitimate operating expenses and for the depreciation of its assets. Together, these elements—reasonable return, expenses, and depreciation—result in a "revenue requirement," which defines the service prices.

The rate-of-return formula to set price P is

$$P = \mathrm{RR} / Q = \left[E + d + \left(V - D \right) R \right] / Q$$

Where:

P = price per unit of service
RR =approved revenue requirement
Q = quantity sold
E = operating expenses, including taxes
d = depreciation rate
V = investment
D = accrued depreciation
R = allowable rate of return on net capital
$(V-D)$ = rate base
$(V-D)R$ = the total profit allowed on rate base

There are problems applying this formula. Each of its items is based on the somewhat flexible judgments of accounting, and many of the numbers are very big. The way the formula works out is that there are often incentives to overinvest in capital (V), to underdepreciate it, to be wasteful in operations (E), and to shift profits into expenses through generous salaries for top executives (also E). It creates few incentives to reduce cost and is complicated to administer.

An alternative is price cap regulation. This method has become popular in telecoms around the world when state-owned operators were privatized in the 1980s but maintained market power to set monopoly prices. Because there had been historically no accounting for their invested rate base, which in any event was not put up by private investors, the rate-of-return approach could not be readily used. Instead, a simple price cap formula was used, which controls prices

113 Stone, Brad. "Making Sense of New Prices on Apple's iTunes." *New York Times*. April 7, 2009. Last accessed June 17, 2017. ► https://bits.blogs.nytimes.com/2009/04/07/making-sense-of-apples-itunes-new-prices/.

114 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision* Making, 3rd ed. London: Prentice Hall, 2002.

115 Kohli-Khandekar, Vanita. "Why price regulation for TV?" *Business Standard*. August 17, 2010. Last accessed June 17, 2017. ► http://www.business-standard.com/india/news/vanita-kohli-khandekarprice-regulation-for-tv/404713/.

rather than profits. The firm will then have an incentive to be efficient because it can keep its cost savings, at least in theory.

Price cap regulation allows prices to change according to the formula

$$P_{t+1} = P_t + I + P$$

P_t is the price in period t, I is inflation, and PF is the productivity factor that a firm is expected to generate annually.

However, there are problems with price caps. They work only if P_t is already a reasonably efficient price, because otherwise the formula merely perpetuates an inefficient one. If handled inflexibly, the system can lead over time to either huge monopoly profits if prices are very high to begin with, or to ruin companies if they are being squeezed too hard in productivity requirements. There are fewer incentives to invest, but more incentives to lower quality. Moreover, the determination of productivity factor can be subjective and political. To deal with these problems, adjustments are needed, and they must be in reference to some standards of "fair profit." In the end, price caps become de facto similar to the rate-of-return system.

Another alternative for setting prices by regulation is called yardstick pricing. In the cable TV industry, prices for the monopoly franchise territories had to be similar to those prevailing for the cable franchises that had more than one provider and were thus competitive.

11.7.3 Regulation of Wholesale Prices Among Networks

The prices charged by a producer or distributor to a retailer that deals directly with end-users is often called a wholesale price, and the difference called the wholesale discount. This is true for digital services just as it is for shoes. The prices that different networks in a chain of interconnected networks pay each other for taking or servicing each other's traffic are also wholesale prices, typically called interconnection prices. They are widely used in telecom, internet, cable, and for large users who resell service or enhance them.

Options for wholesale pricing include negotiated prices, bill and keep (peering), and regulated pricing. The latter can be based on a profit-based price or on cost-based price.

Negotiated pricing means that networks bargain for the price they pay to each other. The price reflects the relative bargaining strength of the two sides of the negotiation. Those with a monopoly position in an essential element of the network can get a more favorable price. At the extreme, the holder of a monopoly essential link could extract the entire profit from the system, at least until an alternative rival emerges attracted by the high profits. Alternatively, the interconnection price is zero (also known as bill and keep, sender keeps all, or peering), when neither of the two interconnected networks charges the other for accepting and servicing its traffic. This system is useful when the traffic and costs between the entrant and the incumbent are roughly balanced. It is administratively easy to manage. Each company has an economic incentive to increase the efficiency of its own network. But there is also the incentive to unload the transmission to rivals as fast as possible to avoid the cost of servicing it.

In the third scenario, that of regulated wholesale pricing, party holds substantial market power and does not negotiate with rival service providers that interconnect. Indeed, it often avoids servicing the traffic of those networks to drive them out of the market. In those situations, government agencies would set regulated wholesale prices. By setting them low they would help small and weak companies, where the traffic flow is imbalanced, to perpetuate and increase the competitiveness of a market. In contrast, by setting interconnection prices high they would help protect a dominant company, but also enable the setting of conditions on such a company such as upgrades in investments. Thus, regulators used their power to set interconnection prices historically as a major tool to accomplish and finance policy goals such as low-priced rural services.

In Germany, nine telecom competitors filed a complaint with the European Commission (EC) that the incumbent national operator Deutsche Telecom (DT) was charging them higher wholesale prices than it was charging its own retail customers. The competitors who by necessity had to use essential elements of DT's network were charged prices that were so high that they could not compete against DT in the consumer retail market. This type of pricing is known as margin or price squeeze – charging relatively high wholesale prices and low retail prices. The EC issued DT a low fine of €12.6 million and ordered it to stop its squeeze. DT's wholesale prices then became regulated by the German telecom regulatory authority based on a strict standard.

Cost-based regulation needs to be in reference to cost, which requires a clear definition of that concept. As we discussed earlier in this chapter (as well as in ▶ Chap. 13 Accounting in Media and Information Firms), cost is a slippery concept, often used pragmatically to justify the ends sought. There are two approaches, actual cost (historic), or hypothetical cost (forward-looking or best practices).

Actual cost was the original US governmental approach to cost-based prices. The FCC established a system called ARMIS (Automatic Reporting Management Information System) to track the costs, and these figures were the basis for the regulated prices that the network companies could charge each other for carrying traffic.[116]

The subsequent US governmental approach, in support of competitive entry, was for a while to set prices not based on actual (or historical) cost, but on hypothetical "best practice", or "forward looking" costs (known as Telecommunications Element Long Run Incremental Cost, or TELRIC). These costs are lower, thus leading to lower interconnection prices, which favors the smaller new entrants and hence competition. (This is also the approach in Europe and Japan, where it

116 Noam, Eli M. *Interconnecting the Network of Networks*. (Cambridge, MA: MIT Press, 2001), 69-117.

is known as LRIC.) The procedure is to calculate what costs should be, based on current best practices and technology.

There are several arguments for using this approach. Interconnecting carriers (often competitors) should not have to pay for the past inefficiency of incumbent phone company monopolies by covering its high costs. They should pay only competitive prices. But what are these, given that competition does not exist?[117] Some cost figures were therefore determined by various engineering models, known as proxies. They determine the standard cost of serving customers within a geographic area, based on population density, terrain, and regulation. Financial assumptions such as the economic life of the facility, the cost of capital, allocation of common cost, and the adequate levels of universal service subsidies are also needed to determine total investment costs. As one can imagine, all this is not an easy task, especially since the results affect payments of billions of dollars, and the nature (and survival) of competition. In consequence, they are hard-fought in regulatory battles and courts.

A more fundamental problem with such forward-looking cost is that with access prices, competitors might not invest in their own alternative facilities if the alternative is a network element provided to them as a right at a low price.

Entrants prefer forward-looking costs because they prefer charges to be based on the least-cost, most efficient network technology as long as costs are declining over time. Incumbents have an alternative favored system, that of an "efficient components pricing" rule, under which the interconnecting entrants would have to compensate the incumbent not only for actual cost but also for all of its profits foregone because of the competitive entry.[118]

Fights over regulated pricing can be quite vicious. The results make a big difference. Comparison of costs derived in 1999 from three different engineering-based cost models, applied in Utah. They found the average total loop cost per month to be, respectively, $16.51, $18.11, and $15.67. The difference may seem small (16%), but the impact in dollar terms was quite large. It was enough to double profit margins or to reduce them to zero or negative.

11.7.4 Transfer Pricing

In big firms, various divisions of the same company buy and sell from each other. For example, Disney-produced films are bought by Disney's ABC TV broadcast network. Films by Warner Brothers use Warner Music's songs. How do these various divisions of the same company "pay" each other? These payments are known as transfer prices.

Why does the transfer pricing method matter? Is it not simply shifting money from one pocket to the other? Internally, an efficient transfer pricing can create better operational efficiency by providing a clearer picture of costs and profits of the various activities and corporate divisions.[119] Externally, transfer prices can be motivated by a desire to understate reported profits. The incentive is to manipulate transfer prices in order to shift profits away from projects where they must be shared. In the film industry, there has historically been the incentive to overload transfer payments in order to reduce a profit that would have to be shared. A still more prevalent incentive exists to use transfer prices to shift profits to low-tax jurisdictions. A company would do so by having an input from the low-tax jurisdiction priced very high internally, thus lowering the profit achieved in the high-tax jurisdiction. Because such transfer prices could otherwise be set arbitrarily, tax laws often limit how transfer prices can be set.[120] Most countries' tax systems require the trading between two associated companies to be conducted on an "arm's length" basis.[121] However, the reality is another matter. How would one determine the arm's length price unless it is a commodity that is widely traded?

How would a firm determine its internal transfer prices? The options are for such transfers to be free, or to be cost based, or to be market based, or to be set by upper management, in a quasi-regulatory way.

The market price is often the starting point from which the internal transfer price is calculated, followed by a variety of adjustments.[122] For example, if NBC charges the unrelated cable company Charter $1.50 per subscriber per month for the channels NBC, MSNBC, and CNBC, then this would be the arm's-length price that it would charge its own sister company Comcast.

Another option is a discounted or adjusted market rate price. This method discounts the market price by eliminating certain costs that exist for external deals but not for internal ones, such as the cost of negotiation, the cost of risk for uncollectible debt, and so on. NBC might then discount the Charter price of $1.50 by, say, one-third of an internal transfer, if it can justify the difference.

117 Noam, Eli M. *Interconnecting the Network of Networks*. (Cambridge, MA: MIT Press, 2001), 69-117.

118 Thus, if the firm invested in $1 million in a network element it should receive a reasonable profit on it, including compensation for the lower price and profit caused by it having regulation force it provide the elements to its competitor. The economic logic for this has been in dispute. If accepted, would prevent competition based on the mandated sharing of network resources.

119 KPMG. "Transfer Pricing for the Telecommunications Industry." 2006. Last accessed June 20, 2007. ► http://www.kpmg.ca/en/industries/ice/documents/TransferPricingForTelecomIndustry.pdf.

120 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.

121 KPMG. "Transfer Pricing for the Telecommunications Industry." 2006. Last accessed June 20, 2007. ► http://www.kpmg.ca/en/industries/ice/documents/TransferPricingForTelecomIndustry.pdf.

122 Baldenius, Tim, Stefan Reichelstein, and Savita Sahay. "Negotiated versus Cost-Based Transfer Pricing." *Review of Accounting Studies* 4, no. 2 (June 1999): 67-91.

A third major option is a cost-based transfer price where one division pays the other based on the cost of producing the product, but below the market price.[123]

11.7.5 Protection from Price Variations: Hedging

Often, buyers or sellers would want to protect themselves from the risk of changing prices. Such protection is called hedging. Some tools for hedging are options, futures, forwards, and swaps or derivatives.[124]

A futures contract is a contract to buy a commodity or security on a future date at a price fixed today. Forward contracts are custom-made contracts, and unlike futures are not traded in a market. Forward contracts are most commonly done with currency; for example, if a company's chief financial officer believes interest rates will rise, she could make a forward rate agreement with a bank. This could occur if a company that plans to buy another firm soon expects that interest rates will rise between now and then. Companies can purchase futures contract to effectively lock in today's interest rate.

A TV network firm might consider forward contracts if it knows that it will require significant transatlantic transmission capacity in a future month, owing to a major sports event such as the Olympics. Similarly, a telecom firm might fear that prices will fall in the near future. By selling a telecom capacity future at today's price, rather than at a possibly lower price in the fall, it can protect its downside.[125]

A short hedge is hedging risk by selling futures. This is what a telecom company is offering to the TV network. A long hedge is hedging risk by buying futures, which is the TV network's strategy. Those who believe the price will rise in the future will buy it at today's lower price. Similarly, a call option gives its owner the right to *purchase* an underlying asset at a set price within a set period of time. A put option gives the owner the right to *sell* an underlying asset at a set price within a set period of time. The striking price or exercise price is the price at which one has the right to buy or sell the asset.[126]

Pricing of options is usually determined through the Black-Scholes model, a fairly complex formula, but easy to use with computers when several relevant parameters are available. It is discussed in ► Chap. 7 Intellectual Asset Management.

11.8 Legal Aspects of Pricing

11.8.1 The Ethics of Pricing

Companies are not entirely free in choosing their pricing since government and society also play a role in the pricing that is set beyond direct regulation.

In the first instance, transactions must be voluntary and not forced on a desperate party by another, such as on a man dying of thirst. Laws restrict the exploitation of duress, or of dependency in the cases of medical drugs, or of payphones in emergencies.

The second level of ethical and legal constraints deals with transactions with unequal information about the exchange. An example is the selling of a product with a hidden defect known to the seller. Laws and liability rules lead to disclosure, which affects price.

The third level of ethical constraints states is more complex. It deals with the limits of profits. Under a notion of moral constraints, a seller, it has been argued historically, should take only a fair profit from the sale of necessities. In medieval society, profiteering was considered a mortal sin. Traders were morally obliged to charge a price close to the cost. But this admonition was not matched by reality. Sellers and traders often priced substantially above cost, which explains the wealth of some families and cities. Under Soviet Communism, charging a price higher than the official price was a criminal act, even if the state did not supply the good. In some cases, profiteers were put to death.

The notion of the just price is hard to define, still harder to operationalize, and even harder to enforce.[127] The concept depends on many variables that change over time.[128,129] Psychological experiments survey people's reception of fairness in changing prices. The results show an asymmetry. It is generally considered fair for a firm to raise prices or cut wages when its profits are declining. It is also considered fair to maintain prices at the same level even though production costs are falling. But it is considered unfair to take advantage of rising demand by raising prices.[130] Raising prices on necessities such as housing rents or medical drugs is considered profiteering. For that reason they are sometimes controlled by price regulation.[131]

123 ACCA. "Transfer Pricing." Last accessed June 17, 2017. ► http://www.accaglobal.com/us/en/student/exam-support-resources/fundamentals-exams-study-resources/f5/technical-articles/trans-pricing.html.
124 Brealey, Richard A. and Stewart C. Myers. *Principles of Corporate Finance.* (New York: McGraw-Hill/Irwin, 2003), 758.
125 A market for the multilateral trading of telecommunications bandwidth has emerged. Exchanges and brokers, as mentioned, include Arbinet, Band-X, InterXion, RateXchange, and Invisible Hand. Keppo, Jussi. "Pricing of point-to-point bandwidth contracts." *Mathematical Methods of Operations Research* 61, no. 2 (June 2005): 191-218.
126 Rendleman, Jr., Richard J. *Applied Derivatives, Options, Futures and Swaps.* Malden, MA: Blackwell Publishing, 2002.
127 Davidson, Kirk. "In search of fair prices." *Marketing News* 31, no. 12 (1997): 4.
128 de Roover, Raymond. "The Concept of the Just Price: Theory and Economic Policy." *The Journal of Economic History* 18, no. 4 (December 1958): 418-434.
129 Gielissen, Robert. "Perceptions of Price Fairness: An Empirical Research." *Business & Society* 47, no. 3 (2008): 370-389.
130 Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler. "Fairness as a Constraint in Profit Seeking: Entitlements in the Market." *The American Economic Review* 76, no. 4 (September 1986): 728-741.
131 Heilbroner, Robert. *The Making of Economic Society*. Upper Saddle River, NJ: Prentice-Hall, 1962.

11.8.1.1 Case Discussion

11.8.2 Legal Constraints

Does it Face Ethical Constraints in its Pricing Decisions?

Should *EB* have a moral obligation to provide access to its encyclopedia to public schools in poor areas for less than the regular price of then $1400 per set? Or to its online service at a lower than regular price?

EB entered into an agreement with three Florida educational agencies by which 25% of middle and high school students were granted free access to *EB*'s web encyclopedia, Britannica Online. This agreement was the first of its kind in the USA.[132] *EB* was paid $353,000 to provide up to 1 million Floridians with free access to Britannica Online for a year. The students could be in public schools (up to 225,000 K-12 students of the total 1.1 million), community colleges, state universities, and public libraries.[133] Beyond the free service, schools were able to buy *EB* access at a discounted price of $0.25 per student rather than the annual access price of $495. For example, a school with 1000 students would have to pay $250.

Can this pricing policy by *EB* be explained primarily as a good business strategy, or is it motivated by social concern?

In Western liberal democracies and market-based economies, legal constraints on pricing include:

- anti-trust laws prohibiting price fixing and discrimination;
- international trade laws;
- laws about vertical price fixing (resale price maintenance, RPM) laws;
- laws about anti-predatory pricing laws and anti-dumping trade laws.

11.8.2.1 Price Fixing

In the USA, the Clayton Act of 1914 prohibits agreement among firms aimed at price fixing and its close cousins, restriction of output and market division of territories or customers. Similar prohibition are set in the UK Competition Act 1998, which prohibits agreements between businesses which prevent, restrict, or distort competition. Agreements that are likely to be prohibited include those which fix prices for goods or services, limit production, divide markets, and discriminate.[134]

Article 101 of the EC Treaty prohibits agreements among firms to fix prices or share markets.[135] Article 102 prohibits firms in a dominant market position from abusing their power (e.g. via predatory pricing aimed at removing competition). The Japanese Anti-Monopoly Law (JAML) was enacted in 1947 as part of the Economic Democratization Policy introduced by the occupation forces. Originally based on US anti-trust laws, in time it acquired features unique to Japan. China's Anti-Monopoly Law (AML) came into force in 2008, drawing from elements of both US and European Union (EU) competition laws, though it is more closely tied to the EU model.[136] Officially, the AML targets all companies equally. There are, however, many ways in which the Chinese authorities can use the law to discriminate against foreign companies.

In the USA, there are several ways for harmed competitors, customers, or suppliers to seek remedies, including:

- A court order such as a cease-and-desist order for pricing practices by the relevant government agency or court.
- In private anti-trust lawsuits, a winning complainant can get three times the actual damages plus attorney fees.
- Rivals can be forced to collaborate with competitors or suppliers by granting patent licenses or by stopping certain marketing tactics.[137]
- Rivals that have a chronic history of violations might be broken up to enhance a competitive market structure.

Some pricing practices are banned outright. For example, in the USA price agreements among competitors are not allowed. Price discrimination, RPM, below-cost pricing, dumping, or pricing fixing are also mostly prohibited.[138] Under the anti-trust laws (governed mostly by the Sherman Act of 1895) a firm could be split up if it engages in unfair pricing practices. In the past, firms that have been split up include the Hollywood studios from their film theaters, the telecom giant AT&T, and the dominant NBC radio company. Microsoft and IBM narrowly escaped. The Sherman Act states that a firm can be fined up to $10 million and individuals can be fined up to $350,000. There is also a possible prison sentence of up to three years.

In US anti-trust cases, price fixing was long regarded as per se illegal, even if it was owing to benign motives such as trying to stabilize a volatile market that created apprehension among potential buyers and among workers.[139] But today, courts will consider an initial cost benefit analysis before applying the per se rule. An example is the case of

132 Olson, Renee. "FL Schools, Public Libraries Jointly Adopt Britannica Online." *School Library Journal* 43, no. 10 (October 1997): 18.
133 Florida Times Union. "Online Encyclopedia Will Give Students Link To Information Service." August 18, 1997, A5.
134 Business Link. "Competing Fairly." Last accessed May 23, 2011. ► http://www.businesslink.gov.uk/bdotg/action/detail?itemId=1073792322&type=RESOURCES.
135 European Commission. "Antitrust Overview." Last accessed June 17, 2017. ► http://ec.europa.eu/competition/antitrust/overview_en.html.
136 US-China Business Council. "Competition Policy and Enforcement in China." September 2014. Last accessed June 17, 2017. ► https://www.uschina.org/sites/default/files/AML%202014%20Report%20FINAL_0.pdf.
137 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.
138 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.
139 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

Broadcast Music Inc,[140] in which 4000 authors and composers were allowed to issue non-exclusive rights for their musical compositions in a block (a "blanket license"). Radio stations were required to take a blanket license to an artist's entire repertoire, as well as that of thousands of other composers. The price for the license was based on the advertising revenues. The TV network CBS challenged this system as illegal price fixing by the composers. The courts found that the collective arrangement had efficiencies as it reduced transaction costs, and thus could be justified. Furthermore, individual composers could sell licenses outside the blanket license.

Related to price fixing is its necessary instrument, the exchange of price information among competitors. This is not unlawful per se but courts have set certain conditions:

- Data does not disclose individual transactions or customers
- There is no disclosure of present or future information
- The data is available to the public
- There is no coercive mechanisms to pressure members to adhere to price schedules
- There are legitimate business reason for the exchange of information

The general problem is that uniform prices across competitors can mean two radically different things: either harmful collusion or the opposite, perfect competition. Rivals can reach the exact same price in order to stay competitive. In the USA, courts held that "parallel behavior" by competitors is itself insufficient to prove a price-fixing conspiracy. One must find evidence for secret meetings, calls, letters, or other direction co-ordination to find a conspiracy. Parallel market behavior that cannot be explained except as the product of concerted action can also be a factor.

In the *Matsushita* case, several Japanese consumer electronics firms set their prices in the USA below those in Japan. The claim was that they aimed to drive US firms from the market, and later raise prices. But the courts decided that there was not enough evidence for a conspiracy, and that there were enough independent business justifications for the parallel pricing.

Collusion has also been suspected in the digital music business. The US Department of Justice and New York State in 2005 began investigating the major music companies about the uniform price of their digital music tracks. Later, Apple was challenged, along with the music companies, over their price uniformity (typically $0.99 per track). Two-thirds of the world's online music was being sold by a handful of music firms at the price set by Apple.

Apple was also charged, along with major book publishers, for raising the prices of books. After Apple's iBooks Store opened in 2010, prices rose for new-release e-books by about 17%. This led the Justice Department and 33 state attorneys general to sue Apple and five major publishers for horizontal price-fixing. In 2013, a US District Judge ruled against Apple. Apple lost the appeal in the Supreme Court in 2016 and had to pay $450 million in damages and attorney fees. This is discussed in ► Chap. 12 Distribution of Media Information.

The question is whether prices rose because of price fixing, or because Apple provided the publishers with an alternative to Amazon, which depressed prices below market level. Apple argued that, in fact, its entry energized competition, and thus lowered price levels.

The problem was Amazon's fight with the publishers. Amazon held close to 65% of the e-book market and 40% of the total book market. The publishers, losing bargaining strength, rallied consumers to their side even though their goal was to keep consumer prices high. Publishers sold their digital works to Amazon on the same wholesale model, with the same wholesale prices used for print. Amazon sold new book releases and bestseller for $9.99, even though these books typically sold in hardback for $26 to $35. Amazon's goal was to accelerate e-book sales. Publishers, though they collected the same wholesale price whether for print copies or e-versions, feared that in time a dominant Amazon would press them for much cheaper wholesale prices.

To keep prices at $9.99, Amazon had to absorb substantial deficits. By 2009 it was covering $2, $5, and $7 losses on the sale of nearly every copy of the most popular titles.[141] Enter Apple. In contrast to Amazon, Apple operated a different model. Whereas Amazon used a wholesale model in which it set its own retail prices, Apple operated on an agency model. It took the same 30% commission for books, on whatever price the publishers charged. Apple had a "most favored nation" arrangement with publishers, which gave it the right to match the price at which any e-book was being sold by another retailer, Amazon for example. If Amazon priced a book at $9.99, Apple could then sell that book at $9.99 too, and the publisher would make only 70% of $9.99 from Apple—that is, $7 instead of the $12 or $15 wholesale price it would get for that book from Amazon.

The publishers therefore had to push Amazon to get off its low price of $9.99. Macmillan's CEO John Sargent, leading the industry, gave Amazon a choice. Amazon could switch to agency (i.e. a percentage cut-off whatever price the publishers chose), or it could stay on the wholesale model. In that case, Macmillan would then window all its digital new releases, releasing them gradually. Amazon then pushed back: it removed the buy buttons on all Macmillan books. This exercise of market power led to very negative publicity. Amazon, having flexed its muscles, agreed to switch to the agency model.

When the iBooks Store opened, most of the five major publishers' new-release books were priced at or near the

140 Broadcast Music, Inc. v. CBS, Inc. 441 U.S. 1 (1979). ► https://supreme.justia.com/cases/federal/us/441/1/case.html

141 Parloff, Roger. "Second Bite: Can Apple clear its name in the ebooks drama?" *Fortune*. December 2, 2014. Last accessed June 17, 2017. ► http://fortune.com/2014/12/02/apple-ebooks-litigation/.

$12.99 or $14.99 price caps, not at Amazon's $9.99. For the publishers this was a positive ending, but for consumers it meant prices higher than at Amazon's subsidized $9.99.

11.8.2.2 Resale Price Maintenance

For much of a century, any agreement by which a supplier set the prices at which retailers could resell its products to consumers has been per se illegal in the USA. In 1911, RPM by a manufacturer was determined to be unlawful in the *Dr. Miles* decision. Congress, in 1937, permitted RPM in the Great Depression, but in 1976, under pressure from consumer groups, Congress repealed this law. RPM was illegal again. But not for long. More recently, in the 2007 case of Leegin Leather Goods, the US Supreme Court eliminated the automatic ban on RPM in favor of a case-by-case approach. It decided that vertical price restraints are not per se illegal but shall be viewed within their circumstances.

In Australia, the existence of RPM is illegal regardless of its effect on the competition.[142] In Japan, on the other hand, Sanhai System (Japanese RPM), established in 1953, allows owners of copyrighted material to set the minimum retail price of products such as CDs, records, cassettes, books, magazines, and newspapers.[143]

According to the EC's Guidelines, RPM falls under a "hardcore restriction" and is therefore illegal. In 2010, the EC softened this stance: it might be possible for RPM to be exempted through efficiency arguments.[144] Major leading cases decided against RPM have involved minimum prices by Bowers & Wilkins for loudspeakers and by Yamaha for musical instruments.[145] RPM is thus, in theory, illegal in Europe. However, in practice it is present and legal for most book sales, where it is known as fixed book pricing agreements. These exist in most EU countries,[146] as well as in Japan, South Korea, Argentina, and Mexico. The public policy rationale is to protect small bookstores from competition by large chains, which compete against them through price discounts to consumers but do not offer the same level of service and variety.

11.8.2.3 The Law on Price Discrimination

In the USA, no price discrimination is permitted for commodities of similar "grade and quality." (Only products are covered but not services). It is also illegal to provide indirect price rebates through differentiated fees for handling, processing, and so on. There are two legal defenses against charges of price discrimination: cost justification (the lower price is based on actual cost reductions owing to volume) and in order to meet the price offered by a competitor.

In the USA, the Robinson-Patman Act of 1936 made it unlawful to discriminate in pricing in order to restrict competition or create a monopoly. But the US government has not prosecuted price collusion under the act since 1977.[147] This is partly owing to the numerous price "deals" offered.

In 1996, the lingerie company Victoria's Secret was sued in a class action lawsuit by a customer for issuing her a catalog with inferior discounts compared with those offered to a male co-worker. She lost and was held accountable for the company's legal fees for pursuing a frivolous legal action. The lawsuit set the precedent that retailers can discriminate between potential and existing customers for undisclosed business reasons. Also in the 1990s, the bookselling industry sued the major publishers, as well as the largest book retail chain Barnes and Noble, for price discrimination. The lawsuits were settled and the publishers promised to change their discount practices in order to not alienate the booksellers.

Price discrimination by dominant manufacturers is prohibited in Europe by a "hardcore provision" as an abuse of market power (if market power is present) for which no exception or justification is possible. Examples of EU/EC price discrimination cases include the 2015 Disneyland Paris case, where the theme park had to stop charging different prices online to different nationalities.[148]

11.8.2.4 Predatory Pricing and Dumping

Predatory pricing means selling below cost in order to eliminate a competitor. The basic elements of predation are prices set below MC and a subsequent recoupment of the losses by raising prices once the competition has dropped out.[149] Yet an anti-predation rule that is too strict might ban favorable price reductions that are not actually predatory and which benefit consumers. Conversely, anti-predation rules that are too lax might allow monopolists to emerge and protect their turf.[150] Because price cutting is typically a benefit to consumers, and because there is a fine line between predatory pricing and promoting a business, courts have been reluctant to rule against companies that have lowered prices and been accused of predatory pricing.[151]

There is a fine line between predatory pricing and promoting a business. In 2008, Amazon.com introduced "daily deals," a radical price cutting offer to catch customer attention. Amazon offered popular music albums at significantly

142 OECD. "Policy Roundtables: Resale Price Maintenance." 1997. Last accessed June 17, 2017. ► http://www.oecd.org/competition/abuse/1920261.pdf.

143 Nippop. "Saihan Seido - Japan's Resale Price Maintenance System." Last accessed May 23, 2011. ► http://nippop.com/features/Saihan_Seido___Japan_s_Resale_Price_Maintenance_System/.

144 Botteman, Yves. "(Minimum) Resale Price Maintenance Under the New Guidelines: A Critique and a Suggestion." *Competition Policy International.* June 14, 2010. Last accessed June 17, 2017. ► https://www.competitionpolicyinternational.com/minimum-resale-price-maintenance-under-the-new-guidelines-a-critique-and-a-suggestion/.

145 European Commission. "Roundtable on Resale Price Maintenance." October 13, 2008. Last accessed June 17, 2017. ► http://ec.europa.eu/competition/international/multilateral/2008_oct_resale_price_maintenance.pdf.

146 Except for the UK, Sweden, Ireland, Czech Republic, and Poland.

147 Weiss, Robert M., and Ajay K. Mehrotra. "Online Dynamic Pricing: Efficiency, Equity and the Future of E-commerce." *Virginia Journal of Law and Technology* 6, no. 2 (2001). Last accessed July 28, 2011. ► http://www.vjolt.net/vol6/issue2/v6i2-a11-Weiss.html.

148 Brunsden, Jim and Duncan Robinson. "Disneyland Paris ditches pricing policy." *Financial Times.* April 15, 2016. Last accessed June 17, 2017. ► http://www.ft.com/cms/s/0/e472eec2-031b-11e6-af1d-c47326021344.html#axzz4lkcDRxz3.

149 Hemphill, C. Scott. "The Role of Recoupment in Predatory Pricing Analyses." *Stanford Law Review* 53, no. 6 (July 2001): 1581-1612.

150 Edlin, Aaron S. and Joseph Farrell. "The American Airlines Case: A Chance to Clarify Predation Policy." *IDEAS*. January 9, 2004. Last accessed August 1, 2011. ► http://ideas.repec.org/p/wpa/wuwple/0401003.html.

151 Federal Trade Commission. "FTC Staff Comment to the Honorable Demetrius C. Newton Concerning the Alabama Fuels Marketing Act." January 29, 2004. Last accessed May 29, 2007. ► http://www.ftc.gov/be/v040005.shtm.

discounted prices of less than $5, when regular prices were about $15–20. Amazon also offered weekly "Friday Five" promotions in which an assortment of five different albums sold for the price of one.[152] But is an aggressive price discount illegal predatory pricing? The US Supreme Court stated that "there is a consensus among commentators that predatory pricing schemes are rarely tried, and even more rarely successful."[153]

It is not easy to apply predatory pricing laws to information sector companies, because it is difficult to determine what "below cost" is when MCs are naturally very low. If the requirement for predatory pricing is "below MC pricing," it will rarely be met. An international example is the French ISP Wanadoo. From 1999 to 2002, this subsidiary of the national telecom incumbent France Telecom (now Orange) priced its broadband service at a loss, allegedly to drive out competition. Its market share peaked at 72% of broadband and 90% of digital subscriber (DSL) lines. In 2003, Wanadoo was fined €10.35 million by the EC for predatory pricing, and the judgment was upheld by the European Court of Justice.[154] (However, the tiny size of the fine relative to the company's revenues (just ~0.25% of one year's revenues) is not exactly a strong deterrent.)

Dumping is a method similar to predatory pricing. It occurs when a foreign manufacturer undercuts domestic prices below its costs or below its price in the foreign market in order to gain market share in the domestic market.[155] Remedies for international predatory pricing are to impose tariffs on violating firms equal to the difference in their price and a "fair price" plus damages. Unlike predatory pricing laws, US anti-dumping laws are aimed at protecting US businesses rather than consumers. The standard for dumping is much less rigorous than US laws on predatory pricing. It only needs to be shown that low pricing is harming domestic businesses. Economists have argued that this is detrimental to the economy as a whole since low prices are beneficial to domestic consumers. The World Trade Organization (WTO) determines what remedies are available to countries and it handles disputes over the legality of anti-dumping laws.[156]

In 2000, the US Congress passed the Byrd Amendment, which directs anti-dumping tariff revenue to go directly to the harmed US companies rather than to the government. This would help these companies while also raising their incentive to complain. Subsequently, the EU, Canada, Japan, India, Mexico, and other countries brought a case to the WTO to oppose the amendment claiming it causes economic damage to their exports to the USA. In 2002, the WTO ruled that the amendment violated WTO rules.[157] It was repealed by Congress in 2006.[158]

11.8.2.5 Anti-Bundling

There are restrictions against "tie-ins," in which a buyer needs to commit to the purchase of other products and services as a condition to getting a product they desire. In the film business, for a long time the strong distributors of major movies required the theaters to also commit to less popular films. Restrictions against block booking by film distributers were therefore instituted in the USA by law.

Bundling has been a major issue in cable TV, where cable firms do not offer individual channels but only blocks of channels (tiers). In most countries, there are several tiers of channels which must be taken as a bundle, in an arrangement known colloquially as *prix fixe*,[159] with access to higher tiers requiring initial subscription to the lower ones. In Hong Kong, in contrast, viewers can select and pay for only the channels they want. In Canada, digital subscribers can buy channels individually or have significant savings on a "5 pack," a "10 pack," or a "15 pack" of their own choosing.[160] Several countries have instituted "a-la-carte" rules, where viewers can pick and choose among the channels rather than be required to get a bundle.

In the USA, Kevin Martin, when serving as the Chair of the FCC, advocated the mandating of "a-la-carte" unbundling option for channels. Under Martin, the FCC concluded that a pure a-la-carte choice can often yield lower prices for consumers than bundling, while still generating sufficient revenue to cover network costs.[161] This contradicted the findings of the very same agency under Martin's predecessor, the more free-market-oriented Michael Powell. At that time, the FCC had concluded that requiring cable operators to make channels on a segmented basis would make more consumers worse off. Consumers would have to pay more than they pay under bundling. Such unbundling arrangements would also hurt niche and smaller channels which would not be subscribed to if they were not part of a bundle.[162] Therefore a-la-carte and themed tier requirements would diminish the quantity, quality, and diversity of programming available to viewers. This would cause many program networks to fail.

152 Entertainment Marketing Letter. "Entertainment amidst Economic Crisis: the Greatest Consumer Value vs. 'The Least Important bill'." October 15, 2008, 1-2.

153 Matsushita v. Zenith Ratio Corp., 475 U.S. 574 (1986). ► https://supreme.justia.com/cases/federal/us/475/574/case.html.

154 European Commission. "Antitrust: Commission welcomes judgment of the Court of Justice in French broadband case." April 2, 2009. Last accessed February 18, 2009. ► http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/147.

155 Congressional Budget Office. "Antidumping Action in the United States and Around the World: An Analysis of International Data." June 1, 1998. Last accessed May 30, 2007. ► https://www.cbo.gov/sites/default/files/105th-congress-1997-1998/reports/antidump.pdf.

156 World Trade Organization. *A Handbook on Anti-Dumping Regulations*. New York: Cambridge University Press. 2003.

157 World Trade Organization. "DS217: United States – Continued Dumping and Subsidy Offset Act of 2000." Last accessed June 17, 2017. ► https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds217_e.htm; Wikipedia. "Byrd Amendment." Last updated November 11, 2016. ► https://en.wikipedia.org/wiki/Byrd_Amendment.

158 Blustein, Paul. "Senators Vote to Kill Trade Law." *Washington Post*. December 22, 2005. Last accessed June 17, 2017. ► http://www.washingtonpost.com/wp-dyn/content/article/2005/12/21/AR2005122102074.html.

159 FCC. "Report on Cable Industry Prices (2016)." October 12, 2016. Last accessed June 17, 2017. ► https://www.fcc.gov/reports-research/reports/cable-industry-prices-reports/report-cable-industry-prices-2016.

160 McCain, John, and Kevin Martin. "TV Served a la carte." *Los Angeles Times*. May 25, 2006. Last accessed July 6, 2012. ► http://articles.latimes.com/2006/may/25/opinion/oe-mccain25.

161 FCC. "Further Report on the Packaging and Sale of Video Programming Services to the Public." February 9, 2006. Last accessed June 17, 2017. ► https://apps.fcc.gov/edocs_public/attachmatch/DOC-263740A1.pdf.

162 Hughes, Siobhan. "Senate Panel Rejects 'A La Carte' Television Programming." *Dow Jones Newswires*. June 28, 2006.

In the USA, the Consumer Union, the retiree lobbying group AARP, and evangelical groups all supported a-la-carte pricing. The "pro-family" advocates wanted to give control to parents so they could determine what went into their homes.[163] This would enable groups to organize and single out a particular channel for a boycott. On the other side of the debate were cable multiple-system operators (MSOs) as well as expensive channels such as ESPN that feared many users would drop them. Cable MSOs pay ESPN over $6 per month per subscriber, and include that cost in the subscription price for the major tier of channels, whether the subscriber is interested in sports or not. At the same time, many of the very small channels also opposed a-la-carte, for the abovementioned reasons put forth by Michael Powell.[164] In the end, FCC Chairman Martin's proposal did not garner sufficient political and regulatory support, and died.

Another instance of unbundling by law exists for telecoms. There are unbundling requirements in several countries on telecom companies with market power, under which they must offer elements of their local network loops that reach the end-user also to rival ISPs without requiring them to get a full bundle.

11.8.2.6 Case Discussion

Encyclopaedia Britannica's Competitor Violates Anti-Trust Laws

After 1993, *EB* encountered significant rivalry thanks to the rise of Microsoft's Encarta. Microsoft had launched a "Encarta series," comprising dictionaries, an atlas, encyclopedias, quotations finder, and a thesaurus, all on a single CD-ROM. This competed against *EB*'s and other encyclopedia companies' CD-ROMs.

Microsoft sold Encarta to its customers bundled with their purchase of Internet Explorer and its Windows operating system. This disadvantaged other encyclopedias. The same bundling policy by Microsoft created problems for applications software more generally. Whereas Encarta was already part of what consumers bought in order to operate their PC, to get other encyclopedias users had to make an additional purchase and install it. The US government and the EU Commission brought anti-trust actions against Microsoft. A federal judge ruled in 2000 that this bundling policy was a violation of anti-trust laws since it discouraged competition. The judge went as far as ordering that the entire company had to be broken in two: an operating systems company and an applications company.[165] Eventually, however, the company managed to avoid this. But in Europe the company was subject to strict conditions and to large fines.

11

11.9 The Futures of Pricing

11.9.1 "Free"?

Online guru Steward Brand popularized the idea that "information wants to be free," free in content and free in price. But on the other side of the equation, media and digital companies, as well as many creators, want information to be relatively expensive so that that it can pay for its often costly creation. This is a key tension in the media environment.

Many information products move to a free model, that is to a zero price. This has been called "Freeconomics."[166] The "free" but advertising-supported model, however, is often not enough to support a service. Many media firms have found that paid subscriptions, in addition to advertising, are needed. It has also been observed that giving away content for nothing works best for big firms with a larger user base for advertisers,[167] or where the firm offers complementary services to commercial customers, who then pay in order to be able to reach the consumer user base that is clustered around the free service. Their model can be described as a three-party system: a third party pays to be part of a free exchange market set in place between the first two.[168] This has been the arrangement in commercial radio and television for a long time.

Newspapers have struggled to find pricing models for their survival. The *New York Times* established a paywall for content in 2011, after seesawing from free to pay to free and then to pay again. The company allowed a free article quota of 20 articles per month, subsequently reduced to 10. The paywall is fairly easily avoidable through the use of multiple browsers or email accounts, but in all such pay arrangements a company should not let the perfect be the enemy of the merely good. *New York Times* pricing for unlimited access to articles ranges from $15 to $35 per month, depending on the viewing platform (for smartphones it is $15 per month.)[169] There are substantial discounts for students, teachers, and others.

In 2015, 79% of US newspapers with a circulation of over 50,000 used a digital subscription model. 62 % of papers used a metered system in which some articles are free before users

163 Kenney, Jeannine. "Statement of Gene Kimmelman Vice President, Federal and International Affairs Consumers Union on The Consumers Having Options in Cable Entertainment (CHOICE) Act." *ConsumersUnion.* June 7, 2006. Last accessed August 1, 2011. ► http://www.consumersunion.org/pub/campaignmedia/003526.html.

164 National Cable and Telecommunications Association. "Cable Programmers' Perspectives on A La Carte." May 15, 2006. Last accessed August 1, 2011. ► http://www.ncta.com/ContentView.aspx?hidenavlink=true&type=lpubtp11&contentId=3180.

165 Adams, Richard. "Online: Reviews: Bill." *The Guardian.* November 2, 2007, 7.

166 Anderson, Chris. "Why $0.00 is the Future of Business." *Wired.* February 25, 2008. Last accessed June 17, 2017. ► http://www.wired.com/techbiz/it/magazine/16-03/ff_free.

167 The Economist. "Media's Two Tribes." July 1, 2010. Last accessed June 17, 2017. ► http://www.economist.com/node/16486717.

168 Anderson, Chris. "Why $0.00 is the Future of Business." *Wired.* February 25, 2008. Last accessed June 17, 2017. ► http://www.wired.com/techbiz/it/magazine/16-03/ff_free.

169 Filloux, Frederic. "NY Times 'Fair' Price." *Monday Note.* March 21, 2011. Last accessed June 17, 2017. ► https://mondaynote.com/nytimes-fair-prices-69114de00db5.

have to pay, 12% use "freemium" models (most articles are generally free, some premium articles need to be paid for), and only 3% require a subscription for most or all of the content.[170]

Mass-circulation newspapers tend to be free. Firms seeking a large scale do not follow the premium strategy of a pay model. Japan's *Yomiuri Shimbun*, the most widely distributed newspaper in the world, Germany's *Bild*, and France's *La Croix* offer free access to online content. In contrast, premium papers such as France's *Le Monde* and *Le Figaro* or Israel's *Haaretz* charge for expanded content and regular updates.[171] They believe that providing content for nothing and stuffing it with ads diminishes its value in the eyes of the reader. The most likely to charge a hefty subscription price are financial papers whose audience is relatively price insensitive and for whom accurate information delivered rapidly is of great value. Thus, the *Wall Street Journal* and the *Financial Times* charged $20 per month. In Germany, *Handelsblatt* costs, for digital-only subscribers, about $35, and in Japan *Nikkei* costs about $40.

Publications lose online readers when they adopt a paywall. Even the simple registration requirement reduces visitors by half.[172] But both free and pay models have their success stories. The internet makes a variety of new approaches possible. Prices can be differentiated. Different content tiers can be created at different price levels. A basic tier is free and advertising-supported. For more information or a higher grade of performance, a subscription is necessary. This model—known as freemium—has become popular to the point of emerging as the main way to conduct business for internet news content companies. Companies using it include LinkedIn, DropBox, Box, Splunk, and Spotify.[173] A major challenge is to decide how many features of a product should be free and how many should be paid for.

The new technology makes it possible to provide multimedia content with video and audio. Content can be unbundled. In the past, print publications were a collection of news items, analysis, photographic material, essays, and so on. This can be sold in pieces, such as per-article or per-section, including archived materials that in the past had almost no commercial potential. These schemes have not worked well yet, except for academic research articles, but when the payment mechanism is greatly simplified more people will use it, as they do for on-demand films.

A common strategy is to bundle the print version of a newspaper or magazine with its online version, incorporating extras such as hotlinks, archived materials, and chats. Once print customers become more familiar with the online delivery, it will receive a greater push and its price will be raised as a standalone offering.

For many online services, free models have emerged, helped by rapidly falling costs. Examples are email, search, maps, storage, large file transfer, video sharing, music, photo/video/document editing, games (ad-supported casual), and many more. Models co-exist. Google is offering free directory assistance. At the same time, companies such as AT&T still charge for directory assistance.[174] Google is not being altruistic: it gains valuable information from these free phone calls. Google might profit more from its free service than AT&T does from its pay service.

11.9.2 Case Discussion

Online Models

Did advertising-based pricing work for *EB*? *EB* tried to support its online version through ads, but this reduced the cachet of the brand and it did not work out in terms of user demand and hence advertising revenues. Let us look at *EB*'s potential ad revenue. In 2002, when *EB* tried to go the ad-supported route, the cost per 1000 impressions for educational/reference websites was $15.53, and the number of unique visits to its website was about 6 million per year. Back of the envelope analysis: *EB* could have charged about $93,000 per ad that was being served to each unique visitor once. Just to cover its fixed costs of about $10 million, the company would have needed to serve each unique visitor over 100 ads per year, while maintaining the price per ad despite the clutter, and despite the glut of other advertising platforms, and the rivalry from advertising-free Wikipedia. Not surprisingly, the ad scheme failed.

11.9.3 Micro- and Nano-Pricing

Micropayments are used for small payments where other forms of electronic payments, such as credit cards, are too expensive or cumbersome, typically less than $10–20.[175] Micropayments are largely focused on the purchase of virtual goods and digital content, such as social gaming and online media products.

The main microtransaction systems in 2017 were alipay (China, 49% market share in that country),[176] and in

170 Williams, Alex T. "How digital subscriptions work at newspapers today." *American Press Institute.* February 29, 2016. Last accessed June 17, 2017. ► https://www.americanpressinstitute.org/publications/reports/digital-subscriptions-today/.

171 Hall, Emma. "Lessons for U.S. Media From European Paid-Content Plays." *Ad Age.* Last accessed July 5, 2012. ► http://adage.com/article/global-news/lessons-u-s-media-european-paid-content-plays/142319/.

172 The Economist. "Media's Two Tribes." July 1, 2010. Last accessed June 17, 2017. ► http://www.economist.com/node/16486717.

173 Kumar, Vineet. "Making "Freemium" Work." *Harvard Business Review.* May 2014. Last accessed June 17, 2017. ► https://hbr.org/2014/05/making-freemium-work. For more freemium examples see here: ► http://www.freemium.org/category/freemium_online/.

174 Anderson, Chris. "Why $0.00 is the Future of Business." *Wired.* February 25, 2008. Last accessed June 17, 2017. ► http://www.wired.com/techbiz/it/magazine/16-03/ff_free.

175 Kniberg, Henrik. *What Makes a Micropayment Solution Succeed.* Master's Thesis KTH, Institution for Applied Information Technology, Stockholm, 2002.

176 iResearch Global Inc. "Market Shares of Main Players in China Online Third-Party Payment Market in Q 2014." July 2014. Last accessed July 17, 2017. ► http://www.mightythings.co/wp-content/uploads/2014/09/alipay_01.jpg

the USA PayPal (78%), Apple Pay (1%), and Google Wallet (4%). Applications vary widely. An example for an application is Apple's music store iTunes. Users can download songs for which the prices are set at $0.69–$1.29 per song. Users can choose to pay with a credit card, debit card, or PayPal.[177]

Cost is a major reason why micropayment transactions have lagged. When compared with larger transactions, micropayment transactions have a higher proportional cost associated with them. The time required for entering the information of an account or card is another obstacle. But with mobile phones, transactions have become simple and universally available, and transcend the restrictions of cash.

The greater ease for micropayments, however, creates a backlash. Even if the payment is small, "free" and "almost free" are very different markets in the perception of users.[178] This psychological perception is one of the reasons for the problems of adoption of micropayment application. Consumers often have negative feelings toward them. It appears to be part of a takeover of the free sphere by economic transactions. It may be economically efficient, but consumers want to tune out of having to make decisions with a meter ticking in their head.

Blendle is a pay-per-view platform backed by Dutch and German newspaper publishers. It lets users make micropayments for articles (0.19–0.39 cents). But few users seem willing to do so. In the Netherlands, Blendle only managed to get 1.2% of the population to join the service, of whom only 20% actually pay for content. Micropayments force consumers to determine the value of each story before agreeing to pay for it. The *Winnipeg Free Press* was the first newspaper to try the micropayment business model in North America. Users pay 21-cents per article or a flat monthly fee. However, rarely were readers willing to pay. The market price for articles is quite low. Micropayments also reduce the element of discovery. Consumers who are forced to pay per story will rarely invest in content they do not seek out.

Given consumer resistance, micropayment systems as a whole have failed in the past. BitPass, Digicash, and Millicent are just three that failed over security concerns and mental barriers for paying for online content. CoinTent is a pay-per-view system that partnered with epicurious, GQ, and others to paywall content. It allows users to make micropayments (5–25 cents for articles). milliPay is a Swiss company that makes fraction of a cent transactions possible, and is testing out with European regional newspapers. Hipay Mobile is a platform that lets the user select different payment methods, including SMS, landline, and prepaid cards. It particularly targets people without bank accounts. SatoshiPay, founded in 2014, uses micropayments of fractions of cents.

The next step is nano-transactions. Today, the environment in which information exists and operates is becoming increasingly complex and decentralized. There are vast interconnections of devices and facilities for storage and processing. Servers and websites interact with each other. Machine-to-machine transactions are accelerating, such as with automobiles transacting directly with highways, or smart appliances dealing with e-commerce and electric utilities. A nano-payment system would charge each packet or group of packets for transmission, access, processing, and so on, and that packet would be able to pay the fee, based on an e-wallet it carries.

Some might think that all packets must be treated equally for technical reasons, but actually individual packets can be treated quite differently. With identification, information streams become much more like airline transport. The passengers can be individualized and a strong price differentiation can be maintained. Video entertainment packets could receive discounts over voice packets and streaming in real time might require a premium. There can also be differentiation according to technical quality and security.[179] Such automatized nano-payment systems are not yet operational, but with added computing and transmission power they will emerge in the future.

11.9.3.1 Case Discussion

How Could *EB* Use Micropricing?

EB could introduce a pay-per-read system with micropayments for the unique elements of its content. This would maximize value to users, since by using a micropayment system they could just pay per usage. Moreover, *EB* could offer specialized services such as an artificial-intelligence process that can identify information in response to direct questions, such as "What were the effects of railroads in the twentieth century?"

For *EB*, what are the advantages of micropricing when it can simplify operations by offering a package subscription deal? There are different types of potential users, ranging from frequent general readers, to specialized-interest ones, to occasional users. By offering both subscription pricing and micropricing, *EB* can cater to a broader set of customers. *EB* would have to pay attention to the risk of losing a considerable number of subscription customers to on-demand pay per use. In order to offer both types of pricing simultaneously, these must be placed strategically so that light users are guided toward the pay-per-read system and heavy users toward subscription payment.

177 Apple. "iTunes Music" 2011 Last accessed August 1, 2011. ► http://www.apple.com/itunes/whats-on/.

178 Anderson, Chris. "Why $0.00 is the Future of Business." *Wired.* February 25, 2008. Last accessed June 17, 2017. ► http://www.wired.com/techbiz/it/magazine/16-03/ff_free.

179 Eli Noam, US Patent 7203657, *A General Packet-Based Payment and Transaction Method and System, 2007.*

11.9.4 Voluntary Pricing

Voluntary pricing mechanisms often exist. They are based on social reciprocity, community spirit, generosity, and guilt.

Offering a good freely is often part of a social exchange. Actions create good will and a co-operative exchange. If you borrow my car today, you might help me move my couch next month. Transaction theory suggests that there are many benefits to a social exchange outside a traditional market transactional framework.[180,181]

One such non-traditional transaction is to make payment voluntary and flexible, based on the ability of the buyer and the value she has derived. In one experiment, customers could determine their own prices within a range, with the minimum being $5 and the maximum being $18. The recommended amount is $8. The majority of people paid slightly over the recommended amount. Only 14.5% paid the minimum. However, the average payment tended to decline with the number of purchases,[182] suggesting that the spirit of voluntarism might not be sustainable for routine transactions.

An application of micropayment technology is to provide methods for voluntary payments, such as a donation platform. Flattr is a microdonation provider for online content. Users can credit their accounts with small amounts (minimum $2) monthly, which is then allocated to websites based on how well they "flattered" (liked) them. An average user tips 15 cents. ChangeTip is another microdonation provider for online content.

11.10 How Firms Organize Their Pricing Function

11.10.1 Setting Pricing Policy

Tactical pricing is short-term oriented and based on the current market situation and customers. It must respond flexibly to competition and demand. Strategic pricing, on the other hand, is set with the perspective of overall profitability, marketing, and positioning. As Thomas Nagle points out, the problem that firms face is when tactical pricing takes over. Managers and sales people, partly motivated by sales quotas and targets, may become too flexible and offer price concessions that are "customer specific." They engage in bargaining. But the result will often be, as mentioned, to transform "good customers" into "difficult customers."[183] Pricing strategy then dissolves into a series of ad-hoc deals. Instead of discounts, companies should provide options with different prices. A price-sensitive buyer can then be offered a lower-priced option that comes with a lower quantity or quality. Rather than lowering the price, the seller should provide a menu of price–feature tradeoffs. These options should be set in advance, with a clear menu of choices and prices. "Instead of flexible pricing for a fixed product the firm should offer fixed prices for flexible offerings."[184] This also gives customers an incentive to be honest about their needs and issues rather than be strategic in their communications as part of a bargaining process. Discounts can be given to certain customer categories, but these should be set in advance, be transparent, and follow clear criteria. For example, educational institutions might get a discounted price.

What this means is that pricing should, in principle, not be done at the level of the sales force, but organized on a strategic and central level as an important management decision. Companies must therefore establish pricing groups or committees—including representatives from finance, marketing, sales, and strategy—to co-ordinate pricing, including on a global scale. When sales run lower than expected, the committee should review the pricing policies and alter them, if necessary, rather than provide price exceptions. More fundamentally, it might also decide to modify the product and its features or to launch a new advertising campaign.[185]

11.10.2 Pricing Strategies Over the Product Life Cycle

As products (and firms) progress through their life cycle, their pricing strategies must change over time.[186] In the first or introduction stage of a product, potential buyers are relatively price insensitive. Some buyers will seek to be early adopters, while others will use price as a proxy for quality. Development costs will have been high and will require recoupment. A firm might therefore opt for the high-price skim pricing strategy. But in other early situations, where network effects and economies of scale are high, the opposite makes sense: penetration pricing in order to gain market share.

In the second stage, that of growth, sales increase rapidly. Profits are driven by expanding demand. On the other hand, rivals enter, too. Prices become competitive and brands matter. With active competition the firm again has two major options: to differentiate the product through product design, marketing, and a high price; or to take a cost leadership through superior operations and set a low price.[187] It will aim for a larger volume but a lower profit margin per unit. Thus, in this stage of growth, either skim pricing or penetration pricing makes sense depending on the goal and ability to differentiate either in product or in its cost.

180 Coase, Ronald H. "The problem of social cost." *Journal of Law and Economics* 3 (October 1960): 1-44.
181 Williamson, Oliver E. "The economics of organization: The transaction cost approach". *The American Journal of* Sociology 87, no. 3 (1981): 548-77.
182 Regner, Tobias and Javier A. Barria. "Do Consumers Pay Voluntarily? The Case of Online Music." *Journal of Economic Behavior & Organization* 71, no. 2 (August 2009): 395-406.
183 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.
184 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.
185 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.
186 NetMBA. "The Product Life Cycle." June 3, 2004. Last accessed August 1, 2011. ► http://www.netMBA.com/marketing/product/lifecycle.
187 Nagle, Thomas T. and Reed K. Holden. *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, 3rd ed. London: Prentice Hall, 2002.

In the maturity stage, there is still competition, and consumers are more price sensitive. Prices fall and profit margins decline. Weaker firms drop out. One major strategy is to gain market power and use it for a higher price. A related strategy is oligopolistic co-ordination with other firms to keep prices high.

In the decline stage, markets are saturated, new products have emerged, consumer behavior changes, and unsold inventories are high. Price cuts seem the logical response, yet with lowered demand average costs per unit will increase, and the price cuts will be matched by these rivals and are not likely to be effective. Alternatively, the firm could keep the old price and harvest its product given its familiarity, brand reputation, and consumer loyalty. In such a situation, once the price-sensitive users have dropped out, the firm might even raise the price! An alternative strategy is a retrenchment that includes a gradual exit from the product or market. Still another alternative is to consolidate market share and thus be able to raise prices. The firm needs to be pro-active rather than wait it out. But then again, if it were truly anticipatory it might not be in that predicament in the first place.

11.11 Conclusions

11.11.1 Case Discussion

Conclusions

It is, of course, difficult for a business to compete with a rival that sets its price at zero. Technology and community dynamics have enabled easy, cheap competition to *EB*'s premium product. As a result, the only way for a pay-service to survive in the future is to provide substantial value benefits over free alternatives. Consumers may be willing to pay for a premium quality product or a better fit with the user's need. This might derive from the prestige of authors or from an investment in graphs, maps, and so on.

Has *EB* been able to compete with free? The answer is no. In 2012, it announced that after 244 years and 7 million sets sold, it was no longer printing new editions of its flagship encyclopedias. Its focus would shift to developing more comprehensive digital content (whatever that might mean).[188] This followed a continuous decline of over two decades. In 1990, the company peaked with 120,000 sets of encyclopedias sold. By 1996, that number had dipped to 40,000 and by 2010 to 8500. The final 2010 edition (all 32 volumes) was sold on its website at a price of $1400 until the stock of 4000 volumes sold out.[189]

How could *EB* have handled its dilemma? There were a number of options to consider.

Premium strategy. Technology enabled cheap and easy competition to *EB*'s main product. The response to "free" may be "better," "easy," and "prestige." Consumers may be willing to pay for the premium image, premium quality, and convenience. Thus, one way to survive would have been to provide substantial value benefits over free alternatives. But this is difficult, and *EB* did not persuade enough people that it was worth the money.

Differentiating the product. One differentiation might have been quality. Another differentiation might have been a better fit to high school student needs than Wikipedia's one size fits all. There might have been signed selective articles by luminary authors to raise the intellectual prestige, and an extra editorial budget for graphs, maps, photos, and other complementary material. This would have been in line with its traditional premium brand strategy. One online blog observer, Andrew Hayword, wrote: "Britannica is, quite frankly, the gold standard and is universally acknowledged. In developing countries, it is still the brand that people tend to go to first. Wikipedia is increasingly seen as a 'corrupt' source of information and is not totally reliable." In response, Jimmy Wales, Wikipedia's leader, scoffed that "when it comes to breadth of coverage, Britannica is a puddle to Wikipedia's sea and the web's ocean." *EB* generated $11 million in revenue and featured one language. Wikipedia, on the other hand, generates $60 million in donations, has 284 different languages, 19 million articles, and 82,000 editors.[190] *EB* could have turned this weakness around as a strength and presented itself as selective and careful, a gourmet meal instead of supermarket.[191]

Product extension. *EB* could have branded new products with the "Britannica" name. It could have expanded its product line by creating targeted editions and focusing on customization by creating supplementary materials for different age groups. To some extent, it tried to go that route. It offered a *Britannica Student Encyclopaedia* which primarily targeted students in grades three through six. Similarly, there were editions for high-schoolers and college students.

Bundling. *EB* did this with its Deluxe Edition, a comprehensive package that included the entire 32-set of books together with other reference sources such as *Year in Review*, *Merriam-Webster's Collegiate Dictionary and Thesaurus*, a world atlas, and so on. However, for effective bundling at least one element of the bundle must have generated a powerful and fairly inelastic demand.

188 Encoh, Nick. "Your Tome is up … Encyclopedia Britannica Ends its Print Edition After 244 Years as it Fully Embraces Digital Age." *Mail Online*. March 13, 2012. Last accessed June 12, 2012. ► http://www.dailymail.co.uk/news/article-2114646/Encyclopedia-Britannica-cut-print-edition--244-YEARS.html.

189 Manjoo, Farhad "Expensive, Useless, Exploitative." *Slate*. March 15, 2012. Last accessed June 17, 2017. ► http://www.slate.com/articles/technology/technology/2012/03/the_encyclopedia_britannica_was_expensive_useless_and_exploitative_i_m_glad_it_s_gone_.html; Encoh, Nick. "Your Tome is up … Encyclopedia Britannica Ends its Print Edition After 244 Years as it Fully Embraces Digital Age." *Mail Online*. March 13, 2012. Last accessed June 12, 2012. ► http://www.dailymail.co.uk/news/article-2114646/Encyclopedia-Britannica-cut-print-edition--244-YEARS.html.

190 del Castillo, Michael. "Britannica App Can't Get No Love." *UpStart.com Business Journal*. March 26, 2012. Last accessed June 12, 2012. ► http://upstart.bizjournals.com/companies/media/2012/03/26/encyclopaedia-britannica-wins-appy-gets-totally-overlooked.html.

191 Bray, Hiawatha. "Enter Britannica." *The Boston Globe*, March 31, 2009. Last accessed June 17, 2017. ► http://archive.boston.com/business/technology/articles/2009/03/31/enter_britannica/.

Customization. Customization of its encyclopedias and content was a way forward for *EB*, if it could market supplementary materials for different age groups and interests. *EB* tried to do so, but the price was too high when rival information was available for nothing online from multiple sources.

Copy its rival. Another strategy is to emulate Wikipedia's model by allowing subscribers to contribute to and improve any article, but with quality control by editors who are identified by name. This would deal with the problems created for Wikipedia by the free editing of its content.[192] For example, in 2011 the lawyers in a class action lawsuit were accused of editing pages on Wikipedia in order to reduce the credibility of the lawyers on the other side. To deal with ideological attacks,[193] Wikipedia had to lock or restrict the editing of articles on certain persons and subjects in order to prevent "editorial vandalism."[194]

Focus on niche markets. *EB* could focus on its primary market of schools, libraries, and those users who depend on reliable information.[195] *EB* could then target segments which would highly value a paid-for version of its content over a free alternative. Parents of 2nd–12th graders are a good potential market. For their schoolwork and research projects, the *EB*'s level of detail would have provided an extra benefit. These strategies would have allowed for highly differentiated schemes based on demands across grade levels. They would have also catered to a very large potential market, as there are about 45 million 2nd to 12th grade students in the USA alone, and hundreds of millions worldwide. *EB* would have created differentiation value for these products relative to free alternatives with age-appropriate information, guaranteed authenticity, fast delivery, and perhaps inclusion of online research documents that would assist student with paper formatting, writing, and organization. These strategies therefore combine versioning and third-degree price discrimination (the varying of price by customer segment). *EB* followed such a strategy by offering a *Britannica Student Encyclopaedia* aimed at ages seven to 12 ($449), *Compton Encyclopedia* (ages ten to 17), as well as several lower-priced CD-ROM or online packages aimed at students.

Wait for Wikipedia's own decline. Inevitably, Wikipedia's exponential growth slowed in time.[196] The number of articles added daily declined from 2200 in 2007 to 1300 in 2009 to about 800 pages in 2016.[197]- Inside Wikipedia, "Deletionists" and "inclusionists" competed for control, internal fights dividing the organization as the deletionists predominated. It became increasingly difficult to make a successful edit. Normal users were often excluded. Wikipedia is often in the news because of inaccuracies. Its focus has consequently shifted from growing its content to ensuring its accuracy.[198]

Adopt the advertising model. In 2008, *EB* put its content online with free access. According to Ian Grant, its UK general manager, "the site was free at one point … but perhaps we were too far ahead of our time then. We had no commercial model, our servers crashed with all the traffic to the site, and the changes didn't work at all. This model was introduced by the new owner at the time, who felt we had to adapt to the internet, and it took us years to recover from this. [I am] not convinced that the free, ad-supported model for the consumer website would work. Advertising can be hard to come by and undermines the value proposition."[199] In another example, the well-known German encyclopedia Brockhaus tried to survive with a free and advertising-based model for its encyclopedia. It, too, failed. Expansion by mergers with other traditional encyclopedias, both English language and others, does not overcome the fundamental problems, only enlarges them. Yet another possibility would be to merge with Wikipedia itself, probably becoming part of the latter, as its pay "Wikipedia Britannica Plus" brand.

Yet this approach did not work either. Wikipedia's had grown by 2015 to over 36 million articles, of which more than 5 million were in English. Wikipedia's monthly visitor base was 500 million individual readers in 2014; Britannica Online had 112,000 articles and received only 2 million views.[200]

Five days after the closing of the print version was announced, *EB*'s smartphone app, an effort to get on new platforms, won a Appz Award. However, would 80,000 articles of the app, at $1–2 per month, be enough to compete against the free Wikipedia with its millions of entries?[201] In 2016 the app itself became free and the subscription access cost $15 a year. Access to 60,000+ articles was free of charge. Estimates for 2016 app downloads were less than 5000. Most of the company's revenue now comes from the institutional market, such as schools and universities, rather than the consumer market. Thus, an app is not likely to be very successful.[202]

Changing its business model was not new to *EB*. Its business model and pricing have changed several times in its history. From 1768 to 1771, for example, it consisted of weekly pamphlets bought separately. But in the current age, Encyclopedia Brittannica's management did not exhibit the necessary foresight and determination to change course and to carry a venerated analog brand into the digital age.

192 Tobin, Ariana. "Founder Jimmy Wales Says Wikipedia Offers Insight into Cultural Dynamics." *St. Louis Beacon*. March 26, 2011. Last accessed April 4, 2011. ► http://www.stlbeacon.org/arts-life/neighborhoods/out-and-about/109144-jimmy-wales-visits-wustl.

193 Schonbrun, Lawrence W. "Wikipedia Wars." *Huffington Post*. March 30, 2011. Last accessed April 4, 2011. ► http://www.huffingtonpost.com/lawrence-w-schonbrun/wikipedia-wars_b_842819.html.

194 Bray, Hiawatha. "Enter Britannica." *The Boston Globe*, March 31, 2009. Last accessed June 17, 2017. ► http://archive.boston.com/business/technology/articles/2009/03/31/enter_britannica/.

195 Bray, Hiawatha. "Enter Britannica." *The Boston Globe*, March 31, 2009. Last accessed June 17, 2017. ► http://archive.boston.com/business/technology/articles/2009/03/31/enter_britannica/.

196 Johnson, Bobbie. "Wikipedia approaches its limits." *The Guardian*. August 12, 2009. Last accessed June 17, 2017. ► http://www.guardian.co.uk/technology/2009/aug/12/wikipedia-deletionist-inclusionist.

197 Wikimedia. "WMCharts." Last accessed June 17, 2017. ► https://tools.wmflabs.org/wmcharts/wmchart0002.php.

198 Johnson, Bobbie. "Wikipedia approaches its limits." *The Guardian*. August 12, 2009. Last accessed June 17, 2017. ► http://www.guardian.co.uk/technology/2009/aug/12/wikipedia-deletionist-inclusionist.

199 Charlton, Graham. "Q&A: Ian Grant of Encyclopedia Britannica UK." *Econsultancy*. February 10, 2009. Last accessed June 17, 2017. ► https://econsultancy.com/blog/3268-q-a-ian-grant-of-encyclopaedia-britannica-uk/.

200 Channick, Robert. "Encyclopedia Britannica Ends Print Run." *LA Times*. March 14, 2012. Last accessed June 12, 2012. ► http://articles.latimes.com/2012/mar/14/business/la-fi-britannica-ends-print-20120314.

201 Charlton, Graham. "Q&A: Ian Grant of Encyclopedia Britannica UK." *Econsultancy*. February 10, 2009. Last accessed June 17, 2017. ► https://econsultancy.com/blog/3268-q-a-ian-grant-of-encyclopaedia-britannica-uk/.

202 Sword, Alexander. "Encyclopaedia Britannica: How a Print Company Embraced Disruptive Innovation in Publishing." *Computer Business Review*. May 19, 2016. Last accessed June 17, 2017. ► http://www.cbronline.com/news/cloud/encyclopaedia-britannica-how-a-print-company-embraced-disruptive-innovation-in-publishing-4898586/.

11.11.2 Conclusions on Pricing

Pricing is one of the most important tasks for an information sector firm.

Media firms may send in their lawyers to protect their property rights from unauthorized usage. However, even if they could get rid of the pirates, competition will still drive down the price for most content that is not truly unique. Price deflation can occur owing to high production and commoditization competition. Low MCs lead to pricing below breakeven prices. Without differentiation, a firm will not be able to sustain itself economically. Innovations in technology and content are the greatest differentiators. However, such technology or content originality are difficult to sustain for long periods. Rivals will catch up or leapfrog.

One alternative is to seek market power or organize price stability and higher prices through a cartel. This, too, is not likely to endure owing to competitive and legal challenges.

Refinement of pricing offers a way out of this dilemma. There are numerous approaches to set prices-as we have seen. Some pricing policies are market-strategic—such as to gain market power. Other pricing policies deal with the problem of covering high fixed costs, such as through price differentiation and by maintaining prices above MC.

What is the impact of technology? On the positive side, we now have new technical tools of internet connectivity, local people meters, measurement software, cookies, and wireless connectivity, which all provide powerful methods of near-instant feedback. Thus, measurement of sales and the impact of prices can be increasingly real time, global, disaggregated, and with larger samples.

Technology also creates tools to identify, segment, and customize users, usages, price elasticities, and prices. It enables inserting micropayment systems into websites and apps and instituting algorithmic hedging techniques.

In that environment, what would be the optimal pricing strategy for sellers? It would be to price at each individual buyer's willingness to pay as long as it is above long-term MC. This requires knowledge of customers, as well as the market power to avoid competition and control over arbitrage. Yet such ability is growing with the sophistication of data mining, e-commerce, and large media platforms.

The least desired pricing for the seller is to be in a commodity situation—a competitively set market price at a short-term MC, and below average cost. With such commodity pricing, the likelihood of survival is poor. Major strategies to prevent this situation—where long-term superior cost efficiency is not available—would be consolidation and product differentiation by innovation. The alternative is to design and protect pricing systems that enable firms' prices to remain above cost. (It should be noted, though, that any quantitative analysis is a useful tool but not a substitute for a manager's and buyer's experience and insights of markets. Judgment and analytics are essential complements.)

Even with the advanced tools of gauging consumers and markets it is harder to set prices today, because of the rapidly changing environment with fragmented buyer markets, and with much greater choice, more buyer information, and globalization of buyers and rival sellers. At the same time, the fundamental economics of information and digital products are shifting, with the trends of rising fixed costs and declining MCs, which make pricing more complicated and risky.

Pricing methodologies and their integration into operations, product design, and marketing are evolving and are subject to rapid innovation and flexibility. Whereas pricing used to be a fairly quiet activity, it is becoming a key competence for managers in the information economy, and one with enormous significance for firms as they translate products into profits.

11.12 Review Materials

Issues Covered

In this chapter, we have covered the following issues:

- How to organize the pricing function of a company.
- Whether to implement cost-plus pricing.
- How to strategically price a product.
- How to use MC analysis in pricing.
- How to use auctions for market-based pricing.
- How to use yield management and dynamic pricing when product demand varies.
- How price deflation of information products affects the industry.
- How inflation indexed pricing works.
- How value-based pricing works.
- How to measure the WTP.
- What factors affect price sensitivity.
- How to determine a product's value using the hedonic price approach.
- How to keep prices above cost when WTP decreases.
- How to create customer lock-in.
- How to determine optimal price discrimination.
- What the reasons for flat rate versus usage based pricing are.
- How regulation affects pricing.
- How governments regulate interconnection prices.
- How to use hedging to avoid price variations.
- Why predatory pricing exists.
- How firm internal transfer pricing works.
- What ethical constraint to pricing means.
- Why RPM often exists.
- How micro and nano-pricing have changed the industry.
- Whether the industry is moving to a model of "Free-conomics" in which the content or service are free.
- When markets fail.
- What the life cycle of pricing is.

Tools Covered

We used various tools to deal with these issues. They include:

- Strategies to maintain price greater than MC.
- Types of auctions, including second-price Vickrey auctions.
- Determining the price-elasticity of demand.
- Bundling strategy.
- Monopoly pricing.
- Oligopoly pricing and Cournot solutions.
- Game theory.
- Ramsey pricing and optimal price discrimination.
- Versioning.
- Rate of return and price-cap methodologies.
- Cost plus pricing strategy.
- How to define and measure cost.
- Understanding fixed and MC.
- CM analysis.
- Incremental breakeven analysis.
- Inelastic versus elastic demand.
- Yield management and dynamic pricing.
- Value pricing.
- Measuring price sensitivity.
- Market surveys.
- Hedonic pricing.
- Conjoint analysis.
- Price leadership.
- Skim pricing.
- Penetration pricing.
- Lock-in strategies.
- Bundling.
- Flat rate versus usage based pricing.
- Hedging, options, and their pricing.
- Regulation of pricing.
- Transfer pricing.
- Regulation of interconnection prices.
- Organizing the pricing function in a firm.
- Inflation-indexed pricing.
- Auction designs.

11.12.1 Questions for Discussion

1. Explain the differences between cost-plus and value-pricing. Which is more appropriate for media products? Why?
2. What is a contribution margin? What are the pricing strategy implications for a product with a low CM? High CM? Which type of products are media goods likely to be?
3. Discuss some determinants of price elasticity. How might a firm enhance elasticity? Decrease elasticity? And why might it want to pursue either strategy? What has been the trend in demand elasticity for consumer media products?
4. How should fixed costs figure into a media firm's pricing/output decision? What about MCs?
5. Under what circumstances is price fixing among competitors legal?
6. Compare and contrast controlled and uncontrolled methodologies for demand estimates. What are the strengths and weaknesses of each?
7. Why may price cutting during the product decline phase not always be appropriate? What are some alternative strategies?
8. How should MCs and distribution costs affect a firm's decision to bundle or unbundle goods? Why?
9. From a producer's view, what are the advantages of priority pricing for an information distribution network like a phone company? Empirically, what do we observe in the pricing structures for these networks?
10. Discuss the role of price signaling in the online marketplace. Does e-commerce always work in favor of the consumer?
11. Explain how nano-pricing will allow for highly differentiated pricing through user profile histories.
12. Explain the importance of network effects for information products. How might a firm take advantage of network effects?

11.12.2 Quiz

1. 1st Degree Price Discrimination is:
   A. Charging different prices for different quality levels of a product;
   B. Charging different prices for the same product to different users;
   C. Charging different prices for the same product depending on frequency of use;
   D. Charging different prices to different groups of consumers (i.e. college students).
2. Which is the most frequent form of price regulation for the telecom industry around the world today?
   A. Yardstick pricing;
   B. Rate-of-return pricing;
   C. Cost-plus pricing;
   D. Price cap regulation.

3. A product has a high CM and high elasticity of demand. What price change is most likely to be profitable?
   A. A price increase, since high CMs suggest decreasing quantity sold to maximize profits;
   B. A price decrease, since high elasticity means that a price rise will create a very small drop in quantity sold;
   C. Uncertain, since high elasticity suggests that demand is unpredictable;
   D. Uncertain, since a price increase with high elasticity may offset a high CM.

4. Which is not an option for wholesale pricing?
   A. Micropricing;
   B. Negotiated pricing;
   C. Peering;
   D. Efficient component pricing;

5. Which of the following is not a feature of telecom element pricing (price regulation and similar)?
   A. Calculates the incremental production cost of adding a subscriber to a network;
   B. Uses forward-looking costs to calculate the costs of providing service at present;
   C. Often used to encourage competitors;
   D. Uses an engineering approach to analyzing the costs of the network.

6. The relationship between a futures price and spot price is:
   A. Spot price converges to futures price;
   B. Future price converges to spot price;
   C. Futures price diverges from spot price;
   D. The relationship can change depending on the commodity.

7. Which is not a characteristic of an information economy?
   A. Capacity constraints periodically bottleneck supply, which contributes to cyclical price increases;
   B. High fixed costs and very high MCs;
   C. Investment and overproduction leading to cyclical price collapses;
   D. Substantial economies of scale in the industry;
   E. There are no real capacity constraints for information economies.

8. Which factor makes exchange of price information among competitors illegal?
   A. Exchanging data on aggregated transactions;
   B. Exchanging data concerning past pricing decisions;
   C. If the data is publicly available;
   D. If the industry in question is concentrated.

9. Which one of the following is a weakness inherent in conjoint analysis?
   A. Can only estimate different WTPs across consumer groups, not each groups demand elasticity;
   B. Only works for items that consumers consider as a whole, not for products which are composed of attributes;
   C. Its surveys wind up placing too much importance on the tradeoffs consumers make among product attributes when purchasing a product;
   D. Does not formulate user preferences in terms of utility, an important concept in microeconomics.

10. Which of the following is a form of aggregation?
    A. Goldilocks pricing;
    B. Versioning;
    C. Site licensing;
    D. Ramsey pricing.

11. A flat fee is more profitable than a metered rate for a monopolist.
    A. True;
    B. False.

12. Incumbent telephone companies position regarding interconnection prices is:
    A. Prefer these prices to be based on the least cost, most efficient network technology as long as costs are declining over time;
    B. Contend that the most efficient provider will set the prices;
    C. Argue that future costs should be based on each incumbent's existing network technologies;
    D. Both A and B.

13. The optimal number of versions for a product is usually:
    A. Two;
    B. Three;
    C. Four.

14. A competitive equilibrium typically favors the producers charging on per use basis.
    A. True;
    B. False.

15. If differential pricing were not allowed, the low end of the market might not be served.
    A. True;
    B. False.

16. Problems associated with Ramsey pricing include:
    A. Arbitrage;
    B. High informational requirement to set different prices correctly;
    C. Customers not volunteering their WTP if it will increase prices;
    D. All of the above.

17. What does the break-even sales curve show?
    A. Quantities of price and quantity that produce a constant profit level;
    B. Loss in profit required to offset increased market share;
    C. Change in sales required to offset a change in marketing expenditure;
    D. Change in costs required for a zero profit level.

18. The C4 describes:
    A. The four principles of value pricing;
    B. Strategies for maintaining P>MC;
    C. The combined market share of the top four firms in an industry;
    D. The four phases of the product life cycle.

19. Flexible pricing allows companies to do all of the following except:
    A. Hike profit margins;
    B. Boost proficiency of managing sales transactions;
    C. Lower MCs;
    D. Lower inventory costs.

20. An example of an endogenous characteristic of consumer valuation is:
    A. Age;
    B. Zip code;
    C. Quality level purchased;

21. When a produces charges more to those who value the information the most, and less to those who value it the least, this is a form of:
    A. Versioning;
    B. Ramsey inverse-elasticity pricing;
    C. Mixed bundling.

22. Which one of the following element attempts to capture the value when bringing a product to the market?
    A. Shaping the product;
    B. Its promotion;
    C. Its distribution;
    D. Its pricing.

23. An important reason to identify costs is to be able to calculate an accurate CM.
    A. True;
    B. False.

24. Although at current sales volumes each product earns the same net profit, the effect on each of a change in sales volume is dramatically different. This is an example of:
    A. Incremental breakeven analysis;
    B. CM analysis;
    C. Conjoining analysis;
    D. Oligopoly pricing analysis;
    E. Cost benefit analysis.

25. In which type of auction does the highest bidder wins, but the price paid is the second highest bid?
    A. English auction;
    B. Dutch auction;
    C. First-price sealed-bid auction;
    D. Vickrey auction;
    E. Spectrum auction.

26. "Call option" gives the owner the right to sell an underlying asset at a set price within a set period of time.
    A. True;
    B. False.

27. Predatory pricing is:
    A. Selling below cost (MC) to eliminate a competitor;
    B. The price is raised above the competitive level once the competition is eliminated;
    C. Fundamental elements include below MC pricing and recoupment;
    D. Must eliminate competition long enough for company to recoup its losses by charging artificially high prices;

28. Skim pricing or penetration prices are usually set in what stage of the product life cycle?
    A. Introduction stage;
    B. Growth stage;
    C. Mature stage;
    D. Decline stage.

29. Which of the following is *not* an approach to set prices?
    A. Penetration;
    B. Cost-plus;
    C. Dumping;
    D. MC;
    E. Bundling.

30. It occurs when a foreign manufacturer undercuts domestic prices below its costs or below its price in its home (foreign) market to gain market share in the domestic market. This is:
    A. Price deflation;
    B. Skim pricing;
    C. Predatory pricing;
    D. Penetration pricing;
    E. Dumping.

Quiz Answers

1. B
2. B
3. A
4. A
5. B
6. C
7. B
8. A
9. D
10. C
11. B
12. D
13. B
14. B
15. A
16. C
17. A
18. C
19. C
20. A
21. B
22. D
23. A
24. B
25. D
26. B
27. A
28. B
29. C
30. E

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12.1 Introduction

What was the world's largest private company in the eighteenth century? As mentioned in ▶ Chap. 2 The Information Economy, it was the Thurn und Taxis postal firm, which ran the postal monopoly in the Habsburg territories of Central and South-Eastern Europe. And in the late nineteenth century? Western Union, with its telegraph monopoly in the USA. Similarly, for most of the twentieth century, the telecom company AT&T was the world's largest business firm, with almost 2 million employees.

What are the common elements? All of these companies were distribution networks for information. It seems that this activity, through several centuries, has been large in scope, important, and profitable.

This chapter will therefore discuss the role of distribution as a central activity in the information sector, with its especially rapid technological innovation and change. The chapter is part of a section that covers four major business functionalities that link a product with a consumer: demand research, marketing, pricing, and distribution.

We will cover in this chapter:

- The architectures of distribution networks.
- The economics and analytical tools of distribution.
- Wholesale and retail distribution and their trends.
- The impact of distribution on content.

At the end of this chapter, you will have an added understanding of the subject and managerial prowess to operate this function or to collaborate with it. This will be useful in many endeavors. There are few examples of a company or non-profit organization whose products and services do not require some form of distribution to users or other producers.

12.1.1 The Definition of "Distribution"

First, let us define the term. Distribution must be distinguished from marketing, logistics, or packaging. Distribution is concerned with moving the product or service to the customer, while marketing deals with developing a market for a product. Logistics is the management of the flow of products and inputs in support of distribution. Packaging, such as the assembly of content by a cable channel, TV network, or music label, is the creation of a branded steady flow of media product. That content package is then distributed.

12.1.2 The Myths of Media Distribution

The three legs of media are distribution, content, and technology devices. Within media firms, the distribution function is usually considered less prestigious than content production, yet it is an essential skill in an environment of glut, globalization, and multiple platforms. Indeed, we will end up concluding that it is effective distribution that gives a media firm the edge over its competitors. To reach that conclusion requires an analysis of several prevailing myths.

12.1.2.1 Myth #1: "Content Is King"

"Content is king" is a cliché in the media sector. It is based on the belief that content is scarce and difficult to produce, while distribution is a fairly pedestrian logistics operation and business activity. But is it possible that in actuality "distribution is king"? The relative power of the elements in a value chain is based on the relative scarcity prevailing at that stage and the market power of its providers. We will observe that distribution, given its fundamental economics, is typically conducted in much more concentrated markets by very large firms, compared with content production, which has much lower entry barriers and is not inherently concentrated. Distribution firms often leverage their strength in their own particular stage of distribution into a role in content creation and content aggregation.

12.1.2.2 Myth #2: Technology Breaks Up Market Power in Distribution

New technology creates new and powerful methods of distribution: broadband internet, fiber optic networks, mobile wireless, and additional cable and satellite channels. More advanced distribution technology indeed means fewer technical bottlenecks, but not less market power for a distribution company. Technical advance is supposed to overcome traditional market power in distribution. But as we shall see, technology has raised the economies of scale of distribution networks, and hence reduces the number of players and raises their market power. Therefore, distribution markets become more rather than less concentrated.

12.1.2.3 Myth #3: E-Distribution Leads to the Disintermediation of Retailing and Wholesaling

The notion of disintermediation, in which manufacturers can deal directly with customers and leapfrog retailers, or wholesalers, or both, has been popular. But in fact retailers and wholesalers are needed and fulfill several essential functions. There are new types of distributors but the function itself does not disappear. On the contrary, the new distribution intermediaries are more powerful and central than ever.

12.1.2.4 Myth #4: Electronic Distribution Is Very Different from Physical Distribution and as a Result Everything Changes

People often make a big distinction between electronic and physical distribution, between the delivery of "bits" versus that of "atoms," but in reality there are great conceptual, structural, and organizational similarities between these two types of distribution. In particular, both electronic and physical distributions are organized around networks, whose "architecture" is based on similar principles even if the technical nature of their components differs. Thus changes in the

competitive position of the major distributors are usually not inherent in the technology but in the inability of existing distributors to modify and adapt.

12.1.3 Distribution Networks

To discuss the nature of distribution in the media and information sector, we will start by looking at the central structure of distribution—networks.

Networks are systems for the distribution of products, raw materials, people, energy, and information. A network is a set of nodes that are interconnected by links, among which there is a flow of products or signals.[1]

Examples of physical distribution networks, with their key technological breakthroughs and commercial introduction are:

- ships and barges (steamships, 1807, by Robert Fulton);
- railroads (1830, by George Stephenson);
- automobiles (1896, by Gottfried Daimler);
- pipelines (1870s, Rockefeller's Standard Oil Co.);
- airlines (1930s, Juan Trippe's Pan American).

Some networks are not made up of physical infrastructure at all, but exist as virtual relational systems among people. Old boy networks or networks of political supporters are examples. Business relationships are another example. Bill Joy, co-founder and chief technologist of Sun Microsystems (now a part of Oracle) expands on this: "The network is the economy and the network is the market."[2] In other words, the entire economic system is a vast network, and it conducts its business as a network and on a network.

Markets are affected by distribution technology. When such technology consisted of pack animals, markets were local and simple. In time, carters and merchants established warehouses and wagon stations in order to store and transport goods over greater distances. Stage posts enabled the exchange of horses for speedy travel, food, and accommodation, and became the progenitors of a postal service, which in turn begat telecommunications networks such as the telegraph and the telephone.[3] Port facilities were created for ships and barges. Regional transportation hubs emerged, and cities grew around them.[4] When ships became an ocean-going distribution technology, markets became global. When railroad technology was introduced, national brands emerged.

Many content firms such as the providers of films, music, books, games, newspapers, TV and cable programs – actively distribute content to retailers. But other content companies tend to rely on third-party distributors such as independent producers of film, TV, and music, or magazine companies. For example, New Line Cinema, an American film studio, does not distribute its own films internationally. Instead it relies on other companies, such as Warner Bros. in Germany and Metropolitan Filmexport in France.

Many media and information industries are in fact primarily distribution networks, including the telecom industry, Internet Service Providers (ISPs), and many cable and satellite firms. There are also media firms—such as Hollywood studios, major music distributors, TV networks and local newspapers—which combine their own content production with a distribution function, including often for third parties.

Before the nineteenth century, information was available mostly only as a physical product, such as letters or newspapers, and could travel no faster than people or animals (such as horses or carrier pigeons). For example, a piece of correspondence sent from New York to Chicago in 1800 took six weeks to arrive.[5] By 1857, with the advent of the railroad, the same letter would get to Chicago in two days.[6] Even this was still painfully slow from today's perspective.

Human beings have always searched for ways to speed up the physical delivery of information by moving to non-physical signaling. Early attempts included signals by drums, torch, or smoke. In 1810, Napoleon enlisted the inventor Claude Chappe to help run his empire and army by creating a semaphore telegraph. A message could be sent from Paris to Brussels at a peak speed of 100 miles per hour with the use of hilltop relay towers which signaled coded letters by way of changing the configuration of two long arms. However, the Chappe System had a low capacity, could only be used in good weather and daylight, and was limited to military and official use.

Electric data networks became a reality after 1836. Samuel Morse, a noted portrait painter, was driven by his wife's untimely illness and death—news of which had not reached him in time—to invent the electric telegraph as a means of rapid long-distance telecommunication. The US government financed the first telegraph line in 1844. Although limited by its capacity and requiring an operator to enter and read a "Morse Code," the telegraph sent messages that could travel nearly at the speed of light. Soon, a telegraph line between Missouri and California put the Pony Express out of business. Telegraph networks exhibited the classic characteristics of network infrastructure: early government support, a near-monopoly by a dominant organization, followed by a regulatory role of government. In Europe and Asia, governments established their monopoly over telegraph networks and typically ran them through their state postal administrations.[7] In the USA, the private company Western Union Telegraph, founded in 1851 by Hiram Sibley, soon achieved a near monopoly. A transatlantic telegraph line was laid in 1858 but only worked for one week. By 1866 the first suc-

1 Castells, Manuel. *The Rise of the Network Society*. (Malden: Blackwell Publishers, 2000), 470.
2 Schwerin, Rich. "Hardware and Software. Engineered to Work Together." *Oracle*. November/December 2010. Last accessed June 26, 2017. ► http://www.oracle.com/technetwork/issue-archive/2010/10-nov/o60news-175809.html.
3 Noam, Eli. *Telecommunications in Europe* Oxford University Press 1992.
4 Frederick Ross, David. *Distribution Planning and Control.* (Norwell, MA: Kluwer Academic Publishers, 2004), 60.
5 Pred, Allan R. *Urban Growth and the Circulation of Information: The United States System of Cities, 1790–1840*. (Cambridge, Massachusetts: Harvard University Press, 1973), 176.
6 Chandler, Alfred D. Jr. *The Visible Hand: The Managerial Revolution in American Business*. (Cambridge Massachusetts: Harvard University Press, 1977), 85.
7 Lines of the Western Union Telegraph Company. *Michael Schwartz Library, Cleveland State University.* ► http://souther311.clevelandhistory.org/files/2011/11/westernUnion008.jpg

cessfully working oceanic cable came into use. Since then the continents have been linked electronically. The next step was Alexander Graham Bell's telephone, which swept the world after 1876.[8] Electronic information distribution networks kept evolving, with new technology generations following each other almost every decade. After a scientific and engineering phase, they spread widely.

- 1840s: telegraphy;
- 1880s: telephony;
- 1900s: wireless radio telegraphy;[9]
- 1920s: radio broadcasting;[10]
- 1940s: television broadcasting;
- 1960s: cable TV distribution;
- 1970s: communications satellites;
- 1980s: mobile cellular wireless;
- 1980s: packet data networks;
- 1990s: the internet;
- 2000s: fiber-based broadband networks.

12.1.4 Trends in Electronic Distribution

12.1.4.1 Trend #1: From Synchronous to Asynchronous

One must distinguish between two major types of networks. Most mass-media networks are one-way networks, with no (or limited) return paths. One-way networks distribute information from a central sender to numerous surrounding receivers; in TV or radio we call this way of distribution "broadcasting." This distribution method allows the sender to send information to receivers as it is the same information for all. Many forms of physical distribution are, similarly, mostly one way in nature: water distribution, sewers, but also the retail distribution of newspapers and magazines. It is a "one-to-many" distribution.

On the other hand, the mail, telecoms, and internet are two-way distribution networks. They have multiple senders and receivers—a "many-to-many" connectivity. Transmission is individualized here, each sender and receiver communicating in a unique way with each other. Two-way users do not share the transmission in a synchronous fashion at the same time, as broadcasting does. Instead an asynchronous, or individualized, transmission is taking place, which requires the allocation of some transmission capacity such as a channel, a frequency, a packet stream, or a bandwidth. Since the aggregate capacity is limited, the transmission capacity between each pair of users used to be small.

Thus, in the past, there were two distinct types of information distribution networks. There were those that moved a lot of information shared by many, and those that moved a relatively small amount of information on an individualized basis. Broadcasting and TV are examples of networks that moved a lot of information shared by many through electronic distribution. Telephone networks are an example of low-information, highly individualized distribution systems.

In terms of technical engineering, the shared broadcast pipes had a capacity of the equivalent of megabits per second (millions of bits), while the individual pipes of telephony voice were in the order of low kilobits per second, 1000 times less. However, we are now in the midst of a historical move from the skinny kilobit stage of individualized communications, to a fat megabit stage of individualized broadband networks, now emerging to the ultra (gigabit) stage, another 1000-fold increase. On top of it, individualized networks have also become mobile, and they are therefore geographically ubiquitous, in contrast to the fixed wireline networks, whose geographic reach was much more limited.

12.1.4.2 Trend # 2: From Analog to Digital

In the past, electronic information was produced, manipulated, stored, and transmitted in the form of signals of varying frequency and strength. Examples are music recording and transmission over the radio. The emergence of computers led to digital electronics, where each tone is instead given a number, and it is that number that then gets stored and transmitted. The number, in turn, is expressed in a binary fashion, with zero and one being the only two options. Thus the base ten numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 are expressed in the binary base two mode as 1, 10, 11, 100, 101, 110, 111, 1000, 1001. The advantages are that these zeros and ones can be expressed on computer and other electronic devices as "on" and "off," and are therefore highly convenient for data processing. They are easy to store, amplify, edit, transmit, encrypt, and compress. Semiconductor chips generally work with digital signals. Software is programmed in a digital way. As electronic technology has progressed in leaps and bounds, all information has moved to a digital form, all except the initial human interfaces of inputs and outputs, because our eyes and ears do not process number-coded signals but rather the frequency (high notes, colors), strength, luminance, and so on. Thus media devices need to transform digital signals into analog ones when they reach humans. A computer or TV monitor might be digital inside in its operations, but the signal it emits to the eye is analog. The opposite conversion takes place when the flow of information is reversed, from humans to machines.

All types of information can be expressed through numbers. Today, after decades of transition, virtually all media activities are digital. Film theaters have been moving to motion pictures that are digitally produced, transmitted, and exhibited, rather than being celluloid-based ones. Broadcast TV, after a complex transition, is digital, as satellite and cable TV already were. Music is recorded and stored (and often performed) digitally. What are the exceptions? Print books, newspapers, and magazines, though these, too, have been moving to alternative electronic digital formats. Terrestrial

8 Lindsay, David. "Alexander Graham Bell." *PBS.org*. Last accessed July 7, 2010. ► http://www.pbs.org/wgbh/amex/telephone/peopleevents/pande01.html.
9 A World of Wireless. "Early Days of Wireless." Last accessed July 7, 2010. ► http://home.luna.nl/~arjan-muil/radio/history/history-frame.html.
10 A World of Wireless. "Radio Days." Last accessed July 7, 2010. ► http://home.luna.nl/~arjan-muil/radio/history/history-frame.html.

radio is usually analog, mostly because of the huge installed base of analog radio receivers that would be obsolete otherwise. Satellite radio and the slow-to-catch-on "HD-radio" are digital. Live performances are analog, though assisted by digital production technology. Vinyl music recordings have their aficionados. But those exceptions are mostly in the nature of legacies. Right now, the coding of information by zeros and ones is predominant, though if clever engineers find a still more efficient way to operate electronics, for example through a double-binary coding of 0, 1, –1 this could change again.

12.1.4.3 Trend #3: From Dedicated Pathways to Intermingled Packets

In the old days, the communication between two parties required that a dedicated circuit be established between them, at least while they were communicating. This was relatively inefficient because it did not occupy the entire capacity of the communications link. Things changed in the 1970s, when the US military sponsored the first "packet" networks. In packet communications the message is broken down into short chunks of those digital 0s and 1s, and they are bunched together just like a letter and sent off into the network to seek their destination. A packet contains three parts: an information "payload"—the actual information—which is surrounded by operational information. There is a "header" with details about the destination and the sender, just as it is on the envelope of a letter.[11] With this header information, packets can be routed toward their destination. There is also a "footer" to end the packet. This method fills channels efficiently.[12]

A typical packet payload contains about 1000 to 1500 bytes, with the maximum size for a packet in the internet protocol (IP) IPv4 set at 65,535 bytes, usually referred to as 64 kilobytes. In terms of text, 1500 bytes are about 250 words, about the length of a typed page, and about 45 pages for a maximum packet load. For audio transmission (at the quality level of streaming of Pandora or Spotify, which transmit at 192 kbps), a full-sized packet could transmit about three seconds of audio, and less if the packet is not loaded to its maximum. For video, which transmits at about 10 Mbps for high definition video on streaming services, such as Netflix, a fully loaded packet would contain about 1/20th of a second of video. The next generation IP, IPv6, permits "jumbo packets" in specially configured complex networks, and this has reached packet sizes of 4 GB, which would support about 50 minutes of such video.

Much of data communications and the internet are based on packets being routed and handled according to an agreed-upon protocol known as TCP/IP. The information transmitted includes text, images, audio, voice, and video. Various devices understand this protocol and follow it. This creates compatibility, interoperability, and efficiency.

12.1.4.4 Trend #4: From Copper to Fiber

Fiber has a gigantic capacity, and even more in reserve for the future. In addition to glass fiber strands being a superb way to move light signals at extremely fast rates over long distances without frequent reamplification, one can also send simultaneously signals of different wave lengths ("colors" or "windows") on the same fiber. One can send 1000 wavelengths per strand, though a lower number is generally used. The transmission rate can be, with present technology, 10 billion (giga)bits per second per window. Moreover, a single fiber strand can have several "cores."

For cable distribution, there were typically 35 analog channels in 1976 with 250 Mhz of bandwidth, 80 channels in 1994 with 550 Mhz, and 180 channels in 2000 with 1 gigahertz. Digitalization increased channel capacity with 6:1 compression, likely to rise to 10:1 or 12:1. With such compression, 2000 channels are possible in engineering terms. This capacity rises still further with progress in electronics and fiber-based cables. Optical fiber is cheaper than coaxial cable per mile and per channel. However, a more expensive conversion equipment (optical/electronic) is required at each end. Because the physical installation of fiber in the home is labor intensive, the compromise is typically a fiber/coax hybrid, with the home segment being coax. In 2015, researchers were able to transfer at the rate of 255 terabits per second on fiber utilizing 50 windows and seven cores.[13] Such bandwidth, when it reaches operation, is theoretically capable of simultaneously transmitting 520 million compressed video channels over a single fiber strand. For a fiber cable with 12 strands this would equate to about 6 billion channels. While such channel quantity would not be feasible or economical on the consumer level, it means that transmission could be greatly individualized while still providing a lot of capacity per user. In the above example, the transmission capacity could be split among 10 million users and still leave each with 600 individualized video channels. This suggests that transmission capacity is ceasing to become a constraint. This will change the face of media in terms of content format, business organization, and policy.

12.1.4.5 Trend #5: From Wire to Wireless

Whereas in the past most electronic communications traveled by wire, this is changing, to a certain extent. Cellular mobile communication has now reached almost 5 billion people, more than 60% of the world's population. Not only does it connect people but it also enables them to do many new things in new ways. Yet it would not be quite correct to call it a pure wireless technology, since it is mostly the "last mile" of communication that is wireless, while the core of networks is fiber based. Technology has moved the frontiers of wireless technology in several ways, including:

- The ability to handle increasingly high frequencies.
- Satellite-based transmission: microwave antennae, located high in the sky, often stationary and synchronized with

11 The header also includes an automatic error detection and correction.

12 However, the "bursty" transmission makes real-time connection difficult when the channels are near congestion.

13 Anthony, Sebastian. "255Tbps: World's Fastest Network Could Carry All of the Internet's Traffic on a Single Fiber." *ExtremeTech*. October 27, 2014. Last accessed June 26, 2017. ► http://www.extremetech.com/extreme/192929-255tbps-worlds-fastest-network-could-carry-all-the-internet-traffic-single-fiber.

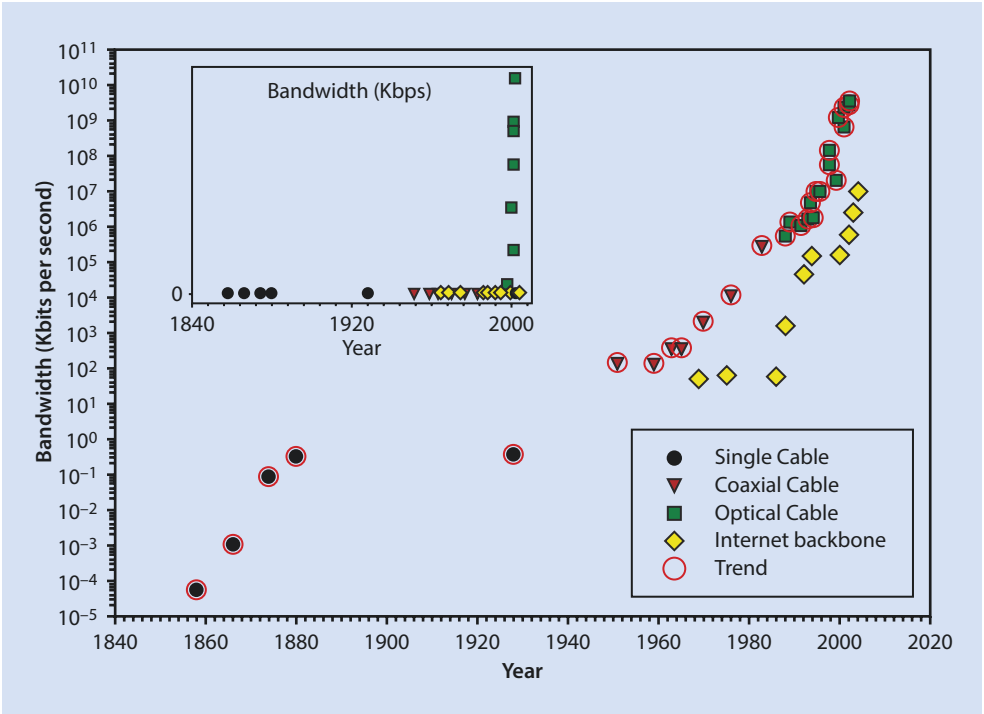


Fig. 12.1 Trend of transmission speed (capacity) of communications links over time

the earth's rotation, and solar powered, enabling coverage by a satellite of a third of the earth's surface, and permitting extremely accurate navigation systems.

- An ability to share and reuse frequencies by intelligently linking millions of small "cells," thus enabling ubiquitous mobile cellular communication.
- Wireless home and office networks (wi-fi) linking multiple devices.

12.1.4.6 Trend #6: Interconnected Data Networks

Stand-alone computers and other devices were linked together in local area networks (LANs). LANs, in turn, were connected to each other by wide area networks (WANs), by metropolitan area networks (MANs), and by global network systems, most particularly the internet.

12.1.4.7 Trend #7: From Narrowband to Broadband Networks

While in the 1990s the driver of change was the progress in semiconductors that heavily increased computing power, in the 2000s the main driver has been optics, which has drastically decreased the price of transmitting information. According to Gilder's Law, bandwidth grows at least three times faster than computer power. Moore's Law forecasts that computing power doubles every 18 months, communication power will double every six months, and total bandwidth of communication systems will triple every year for the next 25 years. Figure 12.1[14] shows the exponential nature of transmission technology in terms of throughput capability of a transmission link.

12.1.4.8 Trend #8: From Expensive to Cheap Transmission

Mirroring the enormous rise in transmission capacity, the cost to transmit information has dropped precipitously. The capacity to move 1 GB of information per second cost $2.07 in 1996. In 2008, it was $0.40. In 2014, Netflix paid about $0.01.[15] In 2016, Akamai was charging $0.002.[16] For $1 one could transmit the content of 781,000 books of 400 pages each.

12.1.4.9 Trend #9: From One-way to Two-way and Multi-way

Traditionally, the communication of content distributors such as newspapers or TV networks with their customers was purely one-directional. Increasingly customers can give direct and immediate feedback.[17] Still more interestingly, users can interact with the content itself, and with each other. This is particularly the case in multiplayer video gaming. It is likely to become the case for other types of video as well.

14 Reprinted from *Technological Forecasting & Social Change* Vol. 73 no. 9, Heebyoung Koh & Christopher L. Magee, A functional approach for studying technological progress, 1061–1083, 2006, with permission from Elsevier.

15 Rayburn, Dan. "Here's How the Comcast & Netflix Deal Is Structured, with Data & Numbers." *StreamingMedia*. February 27, 2014. Last accessed June 26, 2017. ► http://blog.streamingmedia.com/2014/02/heres-comcast-netflix-deal-structured-numbers.html.

16 Rayburn, Dan. "Akamai Slashing Media Pricing in Effort to Fill Network, Won't Fix their Underlying Problem." *StreamingMedia*. September 14, 2016. Last accessed June 26, 2017. ► http://blog.streamingmedia.com/2016/09/akamai-slashing-media-pricing.html.

17 Netflix paid $400 million a year for providing 3.3 billion gigabytes of data delivery to its customers per month, i.e., 40 billion gigabytes per year. Thus, it paid about 1 cent per 1 gigabyte transmission. Taking into account that an average subscriber uses 50 to 100 gigabytes per month, Netflix has total transmission costs per customer of $0.5 to $1 a month. Moreno, Jose. "From analog to digital: How digitization affects the production, distribution and consumption of information, knowledge and culture in the network society." *Academia*. Last accessed June 26, 2017. ► http://www.academia.edu/4804371/From_analog_to_digital_How_digitization_affects_the_production_distribution_and_consumption_of_information_knowledge_and_culture_in_the_network_society.

12.1.5 Case Discussion

Media Distribution

The German firm Bertelsmann is one of the world's most diversified, internationalized, and largest media companies. It is deeply rooted in several media operations whose distribution is being transformed. Adapting to these changes and formulating a fundamental strategy for the future will be Bertelsmann's key to success.

The Bertelsmann company was founded in 1835 as a publisher of hymn books in Germany, with an anti-liberal theological perspective. It became a medium-sized book publisher located in the small town of Gütersloh. The firm grew large, and in time became Nazi Germany's largest supplier of propaganda books. After World War II, a transfer of control was mandated to the owner's young son Reinhard Mohn, who in the 1950s and 1960s successfully took the firm into book clubs and magazines. Later, ownership was transferred to the Bertelsmann Foundation, controlled by the Mohn family. The firm moved into music, film, and TV under Chief Executive Officer (CEO) Mark Woessner (1983–1998), and then into internet media under CEO Thomas Middelhoff (1998–2002). In 2002, Middelhoff and his online vision were ousted and replaced by Günter Thielen, who represented the more traditional business entities. Subsequent CEOs were Hartmut Ostrowski (2008) and Thomas Rabe (2012).

In 2017, Bertelsmann had 119,000 employees (about 40,000 in Germany) and was active in 50 countries. Bertelsmann's structure is highly decentralized. Its 2017 revenues amounted to approximately $20 billion. Of this, 37.6% came from TV (the RTL Group, including its film company UFA and the British TV producer Freemantle), 28% from outsourcing business services (Arvato), 14% from magazines (Gruner + Jahr), 13.5% from books (Penguin Random House), and 7.3% from printing (Be and others).

The RTL Group, Europe's largest broadcaster, has 31 television channels and 33 radio stations in ten countries, with a global audience of 250 million. RTL is engaged both in content production and rights licensing, with 19,000 hours of content broadcasting rights in 150 countries.

Bertelsmann has owned since 1964 UFA (Universum Film AG), a major German film producer (and Germany's largest film company in the 1920s and 1930s), and through it Freemantle, a major TV show producer (*American Idol* and its many national variations, as well as *The Price is Right*, *The X-Factor*, *etc.*)

Penguin Random House, created by a 2013 merger of Bertelsmann's Random House and the UK publisher Pearson's Penguin Group, is the world's largest general-interest book publisher. It puts out approximately 9000 new book titles per year. Random House's presence is strongest in the USA, UK, Spain, and Germany. Random House authors include John Grisham and Toni Morrison. Pearson published D.H. Lawrence, Salman Rushdie, and John le Carré.

Gruner + Jahr, for many years Germany's largest magazine publisher, has 120 magazine titles in nine countries, and also has strong magazine brands in France, Poland, Austria, Italy, Spain, and Russia. It owns five newspapers in Germany as well as the online portals of major magazines.

BMG Music Entertainment (Bertelsmann Music Group) used to be one of the world's top five major music companies. It comprised a number of record labels, such as RCA, Arista and Columbia. Bertelsmann was also one of Europe's largest radio companies. In 2004, it merged its music operations with those of Sony, but then sold its share to Sony several years later and its music publishing to Universal Music Publishing. BMG Rights Management still holds the rights to about 100,000 songs, for which it handles the marketing and artist management.[18]

Arvato provides post production, fulfillment, distribution/supply chain management, and hosting services for information technology (IT) systems. It provides business-to-business (B2B) services for various industries: customer relations services, e-commerce, financial solutions (e.g. risk management, payment transactions, collection), IT outsourcing, digital marketing, business intelligence and analytics, supply chain management, and many other services related to the creation and distribution of printed materials or the digital storage of media.[19]

Be Printers is focused on internal and third-party printing services for magazines, catalogs, book publishers, and others.

For many years, "media clubs" were a key sales channel for Bertelsmann's music and book publishing. Direct Group's media clubs, both general and special interest, had 32 million members in 22 countries, although this declined to 15 million customers in 16 countries. This is still the world's largest.

Bertelsmann is a major European online video company, through the RTL Digital Hub, which includes Broadband TV Style Haul, as well as the online advertising service SpotXchange.

For many years, Bertelsmann distributed its content in the traditional way: analog and physical. Figure 12.2 shows how dominant physical distribution was at the turn of the century—books, magazines, music CDs, films—and how rapidly it was being transformed into electronic distribution, primarily digital in nature.

In a 2012 article, Germany's major news magazine *Der Spiegel* criticized Bertelsmann for having had "a lost decade" and for being far behind competitors, including German media firms such as Axel Springer AG, in terms of online operations. *Der Spiegel* argued that Bertelsmann's problems had started when it focused on the buyback of shares from the Belgian firm GBL instead of investing in future-oriented online activities.

Digital TV increases distributive capacities and the number of channels. The proliferation of other distribution platforms with multiple channels and of on-demand and pay channels squeezes traditional broadcast TV distribution and advertising, its economic foundation. Online-based video accelerates this trend.

Consolidation in online and offline retail increases these sales channels' bargaining power. Audio and ebook distribution platforms rise in importance relative to traditional paper/print.

Channels of distribution have become expensive for non-subscription magazine sales. Competition for shelf space, for example in supermarkets, has been fierce. Online distribution platforms for magazines have grown in importance, but yield much lower revenues per subscriber. On the other hand, they are cheaper to operate and have a wider global range.

Retail chains squeezed out small independent music retailers and generated bargaining strength. Then they succumbed themselves to online distributors, both for physical and electronic products. Online music has battered music companies and their wholesale and retail distribution. The

18 Sony Music. "Sony Music Entertainment." 2010. Last accessed July 7, 2010. ► http://www.sonymusic.com.

19 Bertelsmann. "Official Website-Company Profile". Last accessed June 26, 2017. ► http://www.bertelsmann.com/company/company-profile/; Arvato. "Solutions and Industries" Last accessed June 26, 2017. ► https://www.arvato.com/en.html.

rise of download portals (e.g. iTunes) and of streaming music reduces the relevance of physical distribution.

The questions that Bertelsmann's management thus has to face include:

- What impact has the trend to broadband communications had on Bertelsmann's distribution and operations?
- What are Bertelsmann's main challenges in the distribution of its various media operations?
- How has Bertelsmann's content production benefited from its distribution activities?
- What is the impact of the move to broadband (high capacity internet) communications on Bertelsmann?
- How are the supply chains of Bertelsmann's several business units being affected?
- Will the challenges of digital network distribution force Bertelsmann to become a partly content-based company? Will they force Bertelsmann to become much more of a technology company?

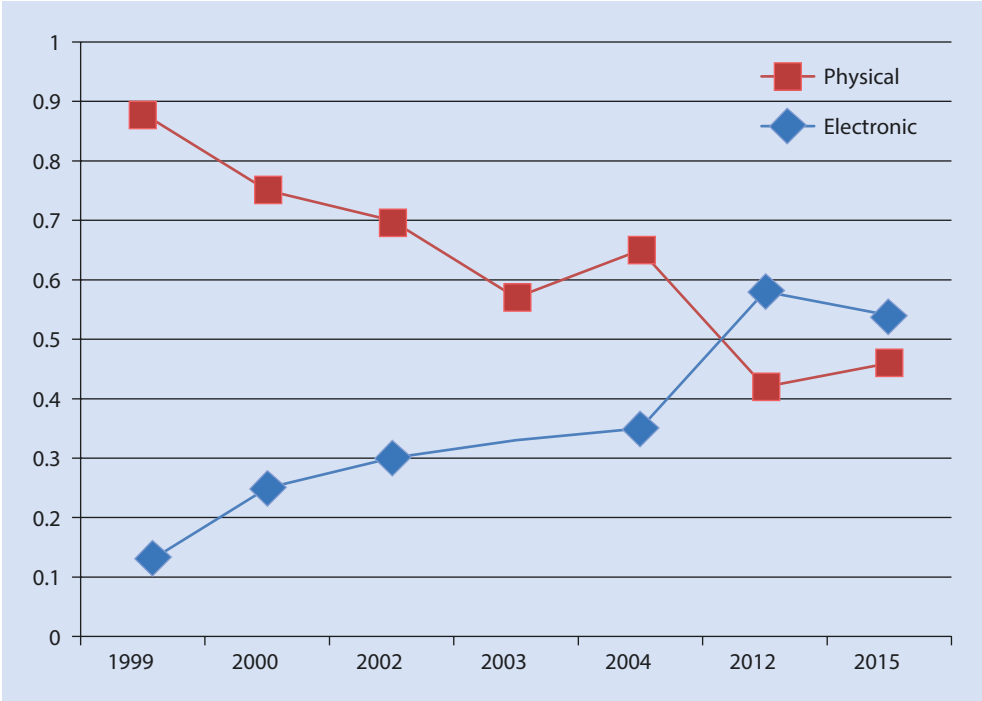


Fig. 12.2 Bertelsmann physical versus electronic distribution

12.2 The Economic Characteristics of Distribution Networks

How is the distribution of media and information products different from distribution more generally?

12.2.1 Economies of Scale

The design of a network will be determined by the economies of scale of its technology on the supply side. In addition, network effects (discussed below) exist on the demand side and strengthen scale economies.

Of the economic factors that shape distribution in the media industry, perhaps the key factor is the characteristic of high fixed cost, low marginal cost. Studies have often shown economies of scale (cost-elasticity with respect to size) of 5–10% in the telecoms industry. Similar economies of scale have also been identified in other markets for the long distance telecoms market,[20] and the cable TV market.[21]

The consequences are advantages to large size and to high market share on the supply side of distribution services.[22] There are also advantages to early entry. This explains why distribution network industries are almost always highly concentrated, meaning there are only a few companies providing distribution services in a market. For instance, in the

20 Denny, Michael et al. "Estimating the Effects of Diffusion of Technological Innovations in Telecommunications: The Production Structure of Bell Canada." *Canadian Journal of Economics* 14, no. 1(1981): 24–43.

21 Noam, Eli. "Economies of Scale and Regulation in Cable Television." In *Video Media Competition: Regulation, Economics, and Technology*. Ed. Eli Noam. (New York: Columbia University Press, 1985), 93–120.

22 Bates, Benjamin J. and Kendra S. Albright. "Issues in Network/Distribution Economics." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

USA there exist four national package delivery systems: the traditional postal service USPS, as well as UPS, FedEx, and DHL. There are only three or four major national airlines left, after a period of consolidation, upheavals, and bankruptcies. Most nations have only one or two national passenger airlines.

There is a similar concentration in railroads. In the USA, 92% of rail freight is being transported by seven Class I freight and track railroads, two of which are extensions of Canadian systems. These railroads are mostly territorial and have a route monopoly. In most countries there is a single railroad track company. In the USA there is one national intercity passenger rail system, Amtrak, and one national bus network, plus regional and federated ones.

In most countries, there is one dominant wireline telecoms company, (though there may be one or two rival long-distance or business-oriented transmission networks), and three or four mobile wireless providers. There is typically one local cable provider regionally, and one or two direct broadcast satellite (DBS) services.

Looking beyond infrastructure, we also observe that the number of distributors for content products is small. In the USA there are six main Hollywood film distributors and three music distributors. These distributors are strong in most other countries too. In Japan, there are three major Japanese film distributors, Toho, Shochiku, and Toei, plus the Hollywood firms. In India, the prominent film distribution companies are Rajshri Productions, Yash Raj, and Eros.[23] In France it is Vivendi, in Germany UFA.

Economies of scale do not mean that smaller firms cannot survive. The large firms often become inefficient, and their costs rise. Inefficient monopoly operations may offset the advantages of scale. The implication for a new entrant, when the incumbent's costs have crept up, is to challenge the incumbent on price. This was indeed how in telecoms in the 1980s new entrants such as MCI, Mercury, and DDI took on the established monopolists AT&T, BT, and NTT. In time, however, the much larger incumbents got their costs under control and could reassert their larger scale economies. The lesson for entrants therefore is to use price and cost advantages only as the opening wedge, and soon shift to product features and differentiation.

The design of networks (the "architecture") is based on the relative cost of transport links versus nodes. The market structure of distribution networks is not determined by the absolute cost of distribution but by the relative cost ratio of fixed versus marginal cost (or fixed versus total cost) that determines market structure. The higher the ratio of fixed costs to marginal costs (FC/MC), the greater the economies of scale. Where that ratio is highest, economies of scale are highest, and with them the market concentration. Figure 12.3 schematically illustrates this relationship. FC/MC is high for industries such as cable

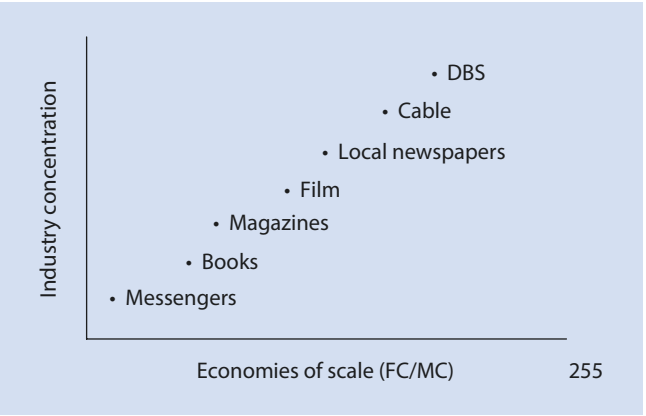


Fig. 12.3 Economics of scale in media industries (schematic)

TV and for broadcast satellite. FC/MC is intermediate for magazines and book distribution, and there the market concentration is intermediate. FC/MC is low for bicycle messenger services. Most of the cost is the labor of biking to the destination, not in the bike itself. Thus, entry barriers and market concentrations are low.

The trend of this cost ratio is to rise. Electronic networks are becoming more expensive in their required upfront investment and less expensive in their marginal cost of bit transport. Fiber, cable, and wireless networks have a high FC/MC ratio.

But physical distribution networks, too, are raising the FC/MC ratio. Companies such as FedEx and DHL create complex national and international distribution networks with high fixed costs and (relatively) low marginal cost. This shift to a higher FC/MC ratio leads to national systems of physical distribution. With the FC/MC ratio generally higher for electronic than for physical distribution, the implications are of higher economies of scale in e-distribution and hence of a greater market concentration of services for electronic distribution. For the physical distribution of media products, too, fixed costs rise while marginal costs decline. Physical distribution by Netflix (DVDs) or by Amazon.com (packages) are examples. As a result, the largest firms have a cost advantage, when scale is high.

One can see this relation of fixed (capital) cost to operational (marginal) cost in Fig. 12.4. Here, the average market concentration (the so called HHI concentration index) is graphed on the vertical axis for 13 media industries, averaged across 30 countries' concentration figures. The horizontal axis shows the capital intensity—the ratio of total assets to total revenues. As one can see, there is a strong correlation: industries that are capital intensive are more concentrated.

12.2.2 Network Effects

Networks tend to have a fundamental economic characteristic: the value to a user of connecting to a network depends on the number of other people already connected to it. This

23 ISSUU. "Indian Film Industry: Distribution Sector." November 2, 2008. Last accessed July 25, 2011. ► https://issuu.com/gbijumohan/docs/indian_film_industry_-_distribution_and_exhibition.

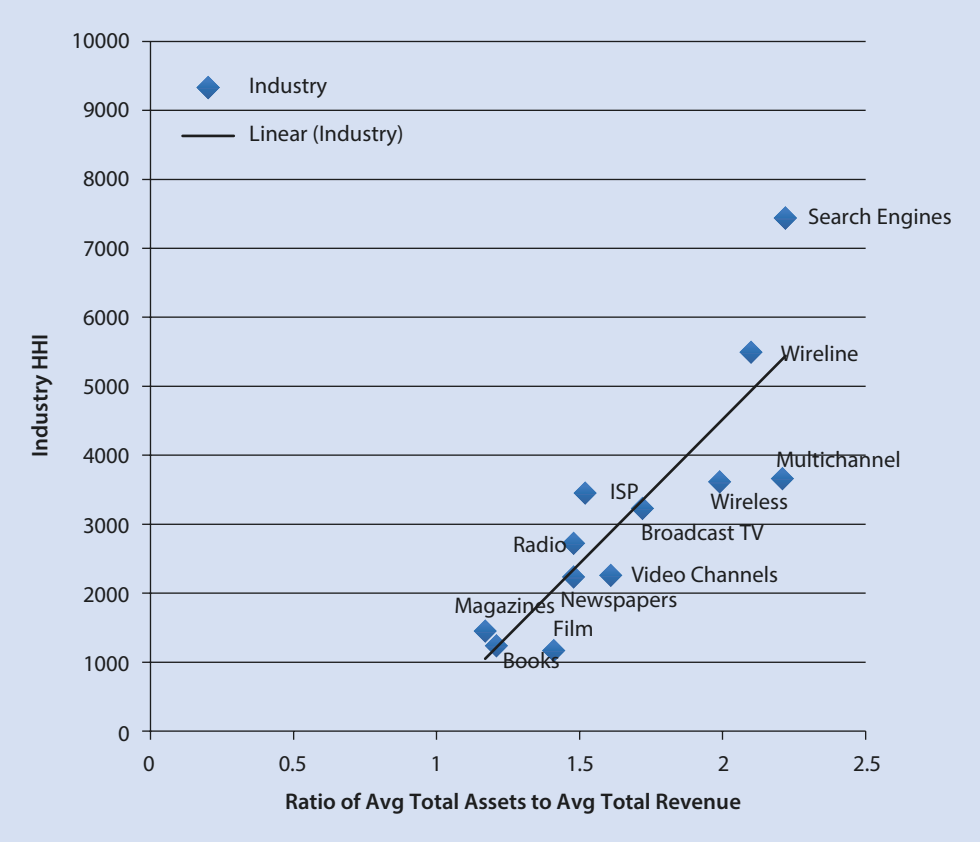


Fig. 12.4 Capital intensity and media industry concentration (Average 30 countries)

is known as network effects, network externalities, spillover effects, or demand-side economies of scale. The larger the network's reach to others, the more value it provides to its users. A large number of participants encourages third parties to develop special applications. Examples are the wide range of software products for computers using the Microsoft Windows operating systems, of tools for eBay, or of apps for the Apple iPhone.[24]

Network effects were described by the inventor of the Ethernet, Robert Metcalfe, as a "law," according to which the total value (V) of the network to all users (n) increases exponentially as the number of users increases, as defined by:

$$V = an(n-1) = a(n^2 - n)$$

a is a scaling parameter.

For example, if the value of a network to a single user is \$1(=a) for each other user on the network, then a network size of ten users has a total value of \$90 (10^2 – 10). The average value is then \$9. If the network grows to 100 users, its total value is \$9900. The average value for a user rises from 9 to 99, about tenfold. A tenfold increase in the size of the network leads to a hundredfold increase in its value. Therefore, according to Metcalfe, the network value rises by roughly the square of the number of its terminals: $V = an^2$.

George Gilder, a noted high-tech guru, expanded this by having the value of a network growing by the square of the processing power of all the terminals attached to it. David Reed, an MIT professor, took a further step and postulated a Law of Community Effect, which conjectures that the value of a network grows exponentially to its size, or $V = a^n$. This suggests a much greater impact of network connectivity than in Metcalfe's formula.

There are specific business implications of network effects:

- A small separate network is less attractive to users and hence less competitive, all other factors held equal.
- A larger network can charge a higher price since the ability to users is higher.
- Interconnectivity to large networks is important to a small network, because this raises its value to customers. Where the interconnectivity becomes essential, such as by small telecom operators into large incumbents' networks, it has generally led to regulated access rights under some pricing rules.
- Correspondingly, the control to access to a large base of users can be a company's greatest asset.

Network effects have an impact on demand. If the average value (utility) of the service increases with the number of other participants, then demand increases with the size of networks. If the network effect is large, it affects the shape of the demand curve in unusual ways. Generally, demand is

24 Goolsbee, Austan D. "Why the Network Effect is so Striking." *Financial Times*. September 27, 1999, 14.

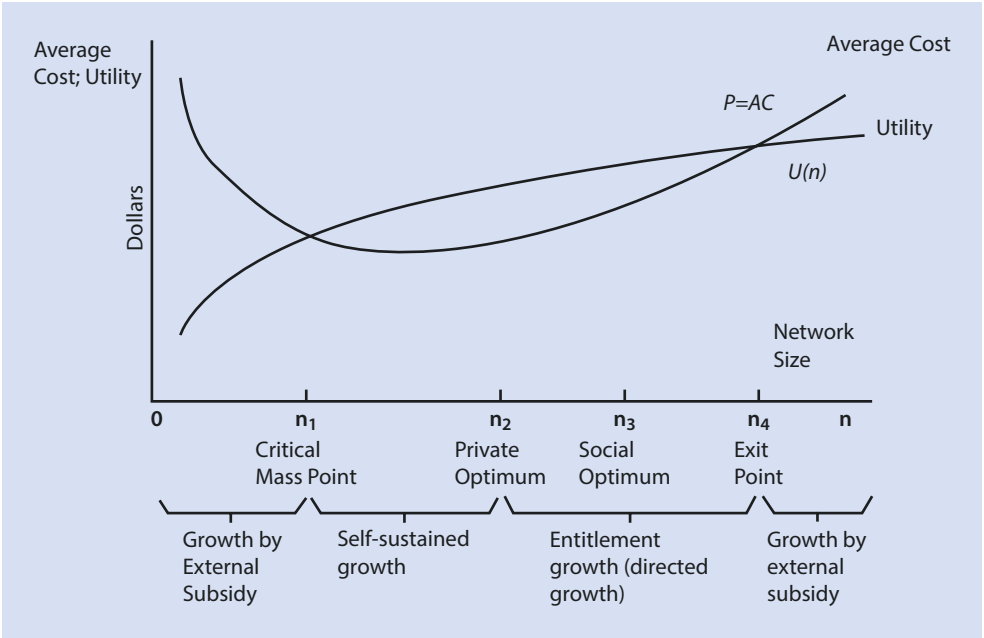


Fig. 12.5 Network size and its cost and utility characteristics

inversely related to price. The lower the price, the higher the quantity demanded. But here, the demand curve may actually slope upwards—that is, the larger the quantity demanded, the higher the value to users, and hence the higher the willingness to pay.

12

Business Strategies to Create "Network Effects"

To generate network effects, a company might resort to some of these activities:

- being the "first mover";
- creating a "buzz";
- undercutting rivals by "vaporware" announcements;
- investing in rapid expansion;
- subsidizing early adopters;
- targeting influential users;
- implementing low ("penetration") prices;
- creating alliances;
- generating complementarities;
- facilitating early interconnect, making it difficult to interconnect once use is achieved;
- creating barriers to rival networks.

Economies of scale and network effects operate together in affecting demand and cost. Figure 12.5 shows cost and the benefit expressed (utility, on the vertical axis) for networks of different sizes (number of users, on the horizontal axis). The U-shaped curve depicts average cost to a network provider. Such cost at first declines with size as the fixed cost is distributed over more users (economies of scale), but eventually it rises as the cost of service to less readily accessible users rises (marginal cost). The second curve, with its inverted U-shape, shows the utility to a user. That utility rises with the size of the network as it adds users. But the incremental value of additional users declines.

In Fig. 12.5 there is a point of "critical mass," labeled as n_1, where the two lines intersect. Before reaching critical mass, the average cost of the network is higher than the average benefit (utility). If charged a price equal to average cost, a typical potential user would not sign up. But if a lower price is charged the network is economically unsustainable. However, after reaching critical mass, as the network grows net benefits become positive, and the network becomes self-sustaining, with the ability to grow on its own. The size that a profit-maximizing firm would choose would be where the utility curve is farthest from cost and per-user profit is highest, at the private optimum size n_2 and not further. But because additional participants on the network also convey externality benefits to society as a whole and these benefits cannot be captured through user fees, the social optimum is higher, at a point n_3 (which could be substantially further to the to the right, depending on the magnitude of the positive externalities). To grow beyond n_2 typically requires regulatory mandates on the network operator, borne by the network users as an internal cross-subsidy. Beyond n_4, however, such an internal subsidy becomes high enough for users to drop out as cost exceeds utility. Beyond that point, therefore, an external subsidy becomes necessary again.

The right tail of the network graph depicts the "universal connectivity" policy issues, while the left tail shows the problems of achieving a critical mass in the first place. There is a chicken and egg situation. A network needs to have many users to be sustainable, but users want a large network with high network effects before joining.[25] In the pre-"critical mass" range of network size, where individual utility is less

25 Economides, Nicholas and Charles Himmelberg. "Critical Mass and Network Evolution in Telecommunications." *Toward a Competitive Telecommunications Industry: Selected Papers from the 1994 Telecommunications Policy Research Conference*. Ed. Gerald W. Brock. (Mahwah, NJ: Lawrence Erlbaum Associates, 1995), 47–65.

than average cost, the network therefore requires an internal or external subsidy which will allow it to stay in business and hopefully grow. For example, early government support helped put the internet on track to growth. In other cases, the network operator will subsidize the early stages of the network, hoping to recoup later.

High network effects, economies of scale, and the need for early internal subsidization are the reason why distribution networks are usually highly concentrated in a few companies. Content creation, on the other hand, has lower entry barriers for newcomers and is less concentrated. Today, there are thousands of people and organizations that want to, and could, create the next hit film or song, and thousands more who want to be, and could be, aggregators of content. But there are few people who have the resources to create the next large distribution network and compete successfully.

The internet, too, is becoming concentrated in its distribution role. Typically, there are only two serious infrastructure networks for broadband: incumbent cable, incumbent wireline telecom companies, and providers, if they exist. Mobile telecom operators can add two or three platforms but at a lower speed. In some countries, independent companies use the infrastructure of the telecom firms to provide digital subscriber lines (DSL) internet service on top of it. This is like several bus companies using a single highway. But this competition is among bus companies, not among road systems, and if the single Highway Authority also operates its own bus service, this inevitably creates problems for the competitors, which leads to some form of regulation.

12.2.3 The Role of Government

For the free flow of information a well-functioning system of distribution without gatekeepers is essential. The role of government is to encourage the creation of distribution infrastructure and to protect it against dominance by a handful of distribution companies through which commerce and information flow. Governments thus might impose anti-monopoly restrictions on distributor power and on the vertical integration of production with distribution. Or, they might establish regulatory policies such as common carriage for telecom and "net neutrality" for the internet. Or governments will own the distribution platforms themselves, providing affordable access to all. In other cases, governments will license the providers of distribution networks, for example for TV broadcasting, cable and satellite TV, or telecoms. The number of such licenses is limited and they usually come with regulatory conditions.

Often governments will provide subsidies to establish a widespread distribution system that reaches all parts of a country and society. This applies to railroads, highways, telecom networks, and TV. In other cases, governments seek to control information through a control over such distribution facilities.

12.2.4 Price Deflation

The prices for electronic distribution have dropped enormously. As mentioned, in 1984 it cost $1.8 million per year to lease a T-1 line (1.5 Mbps) between New York and Los Angeles. In 2000 the cost was $63,348 a year. In 2008, it was $8000 and in 2015, $880. In mobile wireless, average per-minute voice prices in the USA (pro rata for actual consumption) have fallen from 47 cents in 1996 to 10 cents in 2010 and 5 cents in 2015.[26]

As we can see in Fig. 12.6,[27] distribution costs for a unit of information (a megabyte, or 1 million bytes, or 8 million bits, the rough equivalent of 500 pages of text, or one minute of a song, or half a second of HD video) have been dropping for over a century, as new forms of delivery have been introduced.

These trends create a fundamental instability in competitive distribution of network industries. More capacity is offered at lower prices, and with the equilibrium competitive price at near marginal cost, that is very low. As prices drop, many competitors fail and markets then consolidate.

12.2.5 The Vertical Integration of Distribution with Production

It can be cheaper to combine distribution with production, or of wholesaling with retailing, when there is a complementarity of the two functions in a chain. This can be expressed as $C(X + Y) < C(X) + C(Y)$. This means that the cost C to produce both X and Y is less than it costs to produce them separately. This is known as synergies or as economies of scope. However, the statistical evidence for economies of scope tends to be inconclusive. Sometimes they exist but often they do not.

What are the business strategy implications where economics of scope indeed exist? The answer is vertical expansion by producers into distribution, and vice versa. Where these synergies are modest or non-existent, the purpose of vertical integration is not efficiency but market power over distribution or production.

In media, there have been many instances of vertical expansion to gain synergies. Hollywood studios have extended their operations into TV networks. Telecom companies have moved into video and online content. Cable companies have entered both telecom service and content production. All of them have also expanded into the internet business. The benefits of vertical integration of production and distribution may be that integrated firms are closer to the end users. This creates a feedback loop that may strengthen the production process and lower transaction costs. Changes in consumer demand can then be dealt with faster. This can benefit companies

26 Monthly bill minus data and text charges, divided by voice minutes used.
27 Noam, Eli. "If Fiber is the Medium, What is the Message? Next-Generation Content for Next-Generation Networks." *Communications & Strategies,* Special Issue, (November 2008): 27.

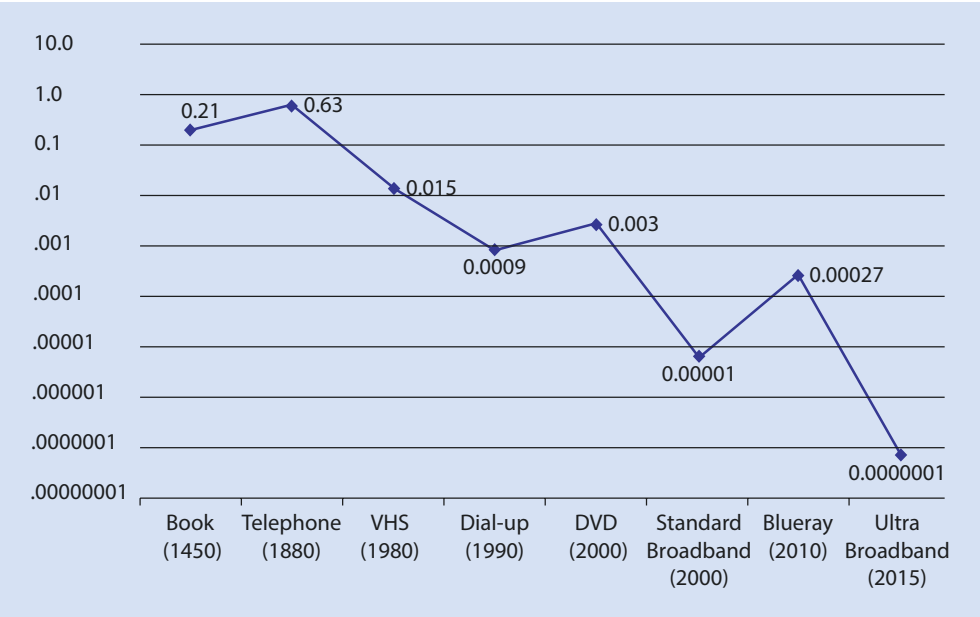


Fig. 12.6 Cost trends of moving information (1 Mb)

whose product lifecycles are very short.[28] Other further benefits to vertical integration are easier communication between parts of the supply chain and the sharing of information without the fear of leaking company secrets. With fewer layers in distribution they can get products out faster.

Companies have extended this argument to distribution across multiple platforms and distribution channels. By owning several such platforms, they could fine-tune the release of a media product. However, most coordination advantages of vertical integration can also be achieved by contracts among the two companies in a vertical chain rather than in-house vertical integration. This can mean coordination with other products too. The *Lord of the Rings* film trilogy had a synchronized release strategy. This affected not only the films but also the issuance of subsequent video games, toys, soundtracks, and other products related to the trilogy.[29]

But there are also drawbacks to vertical integration. One is the often-underestimated difficulty of integrating these very different operations and cultures. There are also costs owing to being a "captive" producer or distributor. Take for example Disney, a film producer integrated vertically with one of its distribution operations, the major TV network ABC. As mentioned before, Disney TV Productions should sell its programs to the highest bidder rather than being locked into offering them to its own intra-company sibling ABC. Likewise, the ABC network should aim to buy the program that fits its needs best, whether produced by Disney or not. Furthermore, synergies are not always positive, but can be negative. For example, at one time several traditionalist "pro-family" activist groups launched a boycott against Disney films, despite the company's strong family-friendly brand image, as a protest against ABC's allegedly pro-gay content and internal human resources policies.

Thus it is for efficiency reasons that some media companies have voluntarily broken up their vertical integration of production and distribution, and spun off one or the other. Examples are Viacom (for a while), Time Warner, NewsCorp., and Vivendi.

12.2.5.1 Case Discussion

Vertical Integration

Bertelsmann's distribution has often been vertically integrated with content production.

- Music: Bertelsmann's music labels (production) were tied to "media clubs" and the major music group BMG (distribution).
- TV: RTL, UFA, Fremantle, and CLT (production) tied to the broadcaster RTL, M6, and Antenna3 (distribution).
- Film: UFA provides both production and distribution.
- Books: Penguin Random House with numerous other publishers and imprints (production/distribution); RHPS, VVA, TBS, and GBS (distribution).

Beyond its own book distribution operations, Bertelsmann offers services to other book publishers. It also distributes the works of independent music labels and film producers.

- In contrast, Bertelsmann's role in the distribution of magazines, where its publishing house Gruner + Jahr is a major European presence, is limited.
- Bertelsmann's various media operations, Random House, RTL, Gruner + Jahr, and the Direct Group, deploy entirely separate distribution systems.

The questions are:
What are the synergy efficiencies for Bertelsmann's content units that are due to their distribution networks? What causes them?

What are the potential synergies between the various distribution units? (e.g. for music and books)?

28 Madhok, Anoop and Thomas Osegowitsch. "Vertical integration is dead, or is it?" *Business Horizon* 46, no. 2 (2003): 25–34.

29 Dalecki, Linden. "Hollywood Media Synergy as IMC." *Journal of Integrated Marketing Communications* 8, no. 1 (January 2008): 47–52.

12.3 Network Models

12.3.1 Distribution Architecture

There is a great conceptual similarity between physical and electronic distribution modes. Both have similar network architectures. They consist of:

- transport links (roads, tracks and air routes for physical transports; wire lines and wireless links for electronic services);
- nodes (switchyards, airports, ports, warehouses, etc. for physical distribution; broadcast transmitters, cable head ends, phone switches, data routers for electronic distribution);
- peripheral user interfaces (checkout counters, bus stops, phone handsets, TV sets, personal computers, etc.).

Distribution systems, whether physical or electronic, use similar major types of "architecture," also known as "topology"—that is, basic structural designs. The architecture of a network refers to its overarching construction, based on various nodes and connection links to one another. There are several basic models.

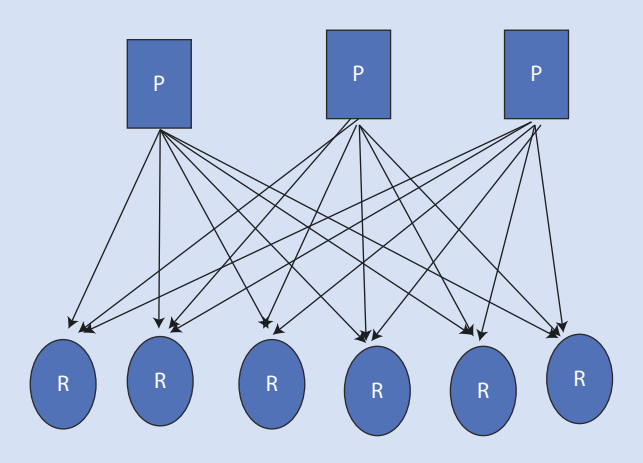
12.3.1.1 Distribution Architecture Model #1: The Non-sharing Network

One extreme is the non-sharing model. Every producer deals directly with every customer or every retailer. This structure suffers from the high cost of providing all these links and connections between every participant, and each of these links may well be underutilized.

If there are n users, the number of two-way links will be $(n - 1) + (n - 2) + \ldots (n - n)$, approximately $n^2/2$. For example, if there are 1000 users, the number of two-way links would be 499,500. A variant to this model is a two-tier model (◘ Fig. 12.7).[30] For example, everyone from Level 1 is directly connected with everyone else from Level 1. However, there are no connections among members from different levels. Several producers may have direct distribution relations to a set of retailers. The number of links will be $n_p \times n_r$. For example, if there are ten producers and 1000 retailers, there would be 10,000 distribution links.

12.3.1.2 Distribution Architecture Models #2: The Bus and the Ring

The other extreme is to have only one single distribution line that connects to everyone, running from one user to the next. Examples are a freight rail line that connects several towns or an Ethernet network that links the various computers and printers in an office. If there are 100 participants strung out along that line, there would be 99 links among them. This lowers the number of links, but it may also create congestion and vulnerability. If a single link fails, much of the entire system will go down. Forming a ring by connecting the two ends of the string reduces that danger somewhat, since the transmission could go in the opposite direction and still function. ◘ Figure 12.8 shows such a ring of a fiber network around the continent of Africa, with drops to various countries.[31]



◘ **Fig. 12.7** Distribution model #1 – Non-sharing model of producers to retailers

12.3.1.3 Distribution Model #3: The Tree and Branch

This topology contains one distributor and multiple consumers (◘ Fig. 12.9).[32] The flow of information or of products is one way; it starts with a wide pipe, which then splits into increasingly narrow pipes. This is the fundamental architecture of broadcast TV, cable TV, or newspaper distribution, and also of consumer electronics and other physical products. It is also the basic distribution mechanism for water, gas, and electricity.

The tree-and-branch architecture does not provide horizontal connections among users. Nor can a user connect to another producer except by joining another tree-and-branch system. And each producer must create its own distribution network. Thus this type of network is basically a one-way distribution medium.

12.3.1.4 Distribution Architecture Model #4: The Star

In a star distribution model, there is a "switching" node (S) (◘ Fig. 12.10). Instead of every producer having an individualized distribution relation with every consumer, there is an intermediary in the middle that deals with multiple producers and serves numerous consumers.[33]

30 Figure based on Ross, David Frederick. *Distribution, Planning and Control.* Norwell, MA: Kluwer Academic Publishers, 2004.

31 OAfrica. "Looking Back: Africa ONE (intended to be Africa's first fibre ring)." May 21, 2011. Last accessed June 26, 2017. ► http://www.oafrica.com/broadband/looking-back-africa-one-intended`-as-africas-first-fibre-ring/.

32 Graph based on Laubach, Mark. "Residential Area CATV Broadband Internet Technology." *The Internet Protocol Journal* 1, no. 3 (December 1998): 13-27.

33 Ross, David Frederick. *Distribution Planning and Control*. (Norwell: Kluwer Academic Publishers, 2004), 80.

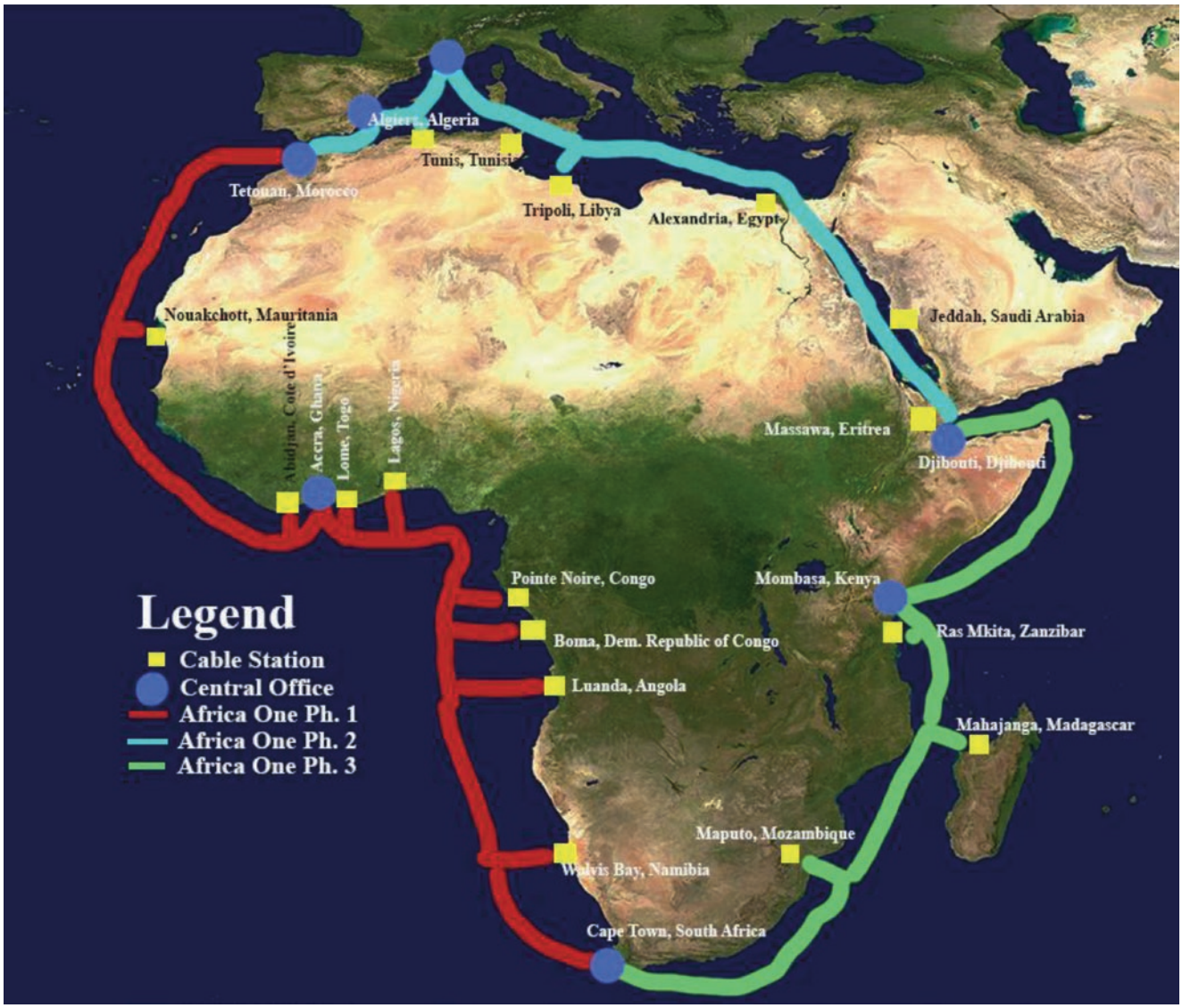


Fig. 12.8 Distribution model #2: The Bus or the Ring – Fiber network ring around Africa

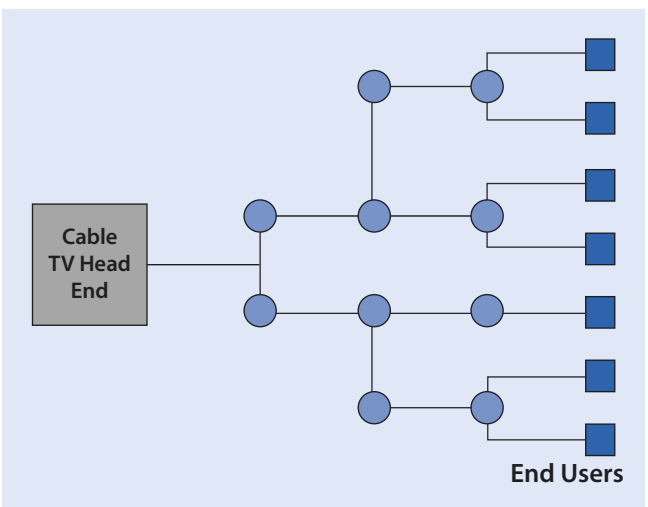


Fig. 12.9 Distribution model #3: tree and branch – Cable TV

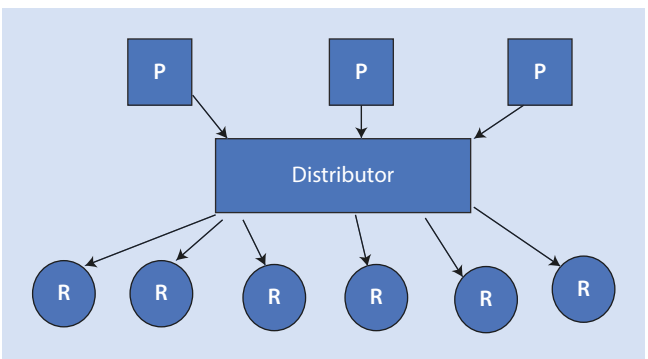


Fig. 12.10 Distribution model #4: Star distribution

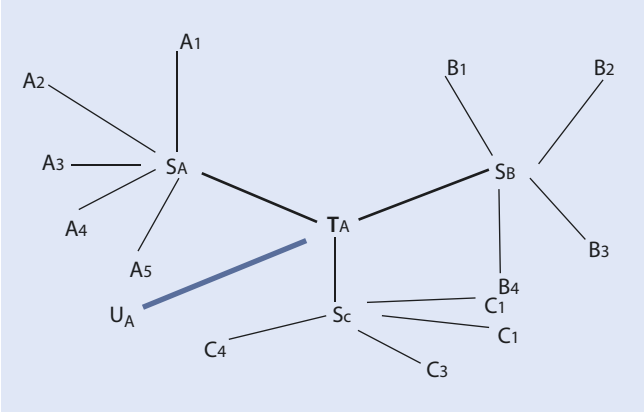


Fig. 12.11 Multistar distribution

In a star distribution, the number of links with n participants is n. Thus, if there are 100 participants, the number of links is 100, plus an intermediary node. This is a vastly smaller number than what is required for model #1 (everyone directly connected to everyone), where it would be 4550. An extra user is much cheaper and easier to accommodate: adding a 101st user would require, in Model #1, as many as 100 new links, but with Model #4 (the star) only one new link. Model #1's incremental cost for users is not only high, but also rising, whereas it is low and constant for the star architecture model. Average cost, too, is rising for Model #1 but is declining for the star, Model #4. Or, put differently, an added user generates a large and growing net benefit for the star topology and a negligible and quite possible negative net benefit for Model #1.

The star, too, has potential problems. It is not quite as vulnerable as the party line shared network, which goes down for many of its users every time a single link fails. But the star architecture is still dependent on the reliability of the central node. Take it out and nobody connects to anybody. A second fundamental problem is that the users of the star may be widely dispersed geographically and each link to the central node could be long and expensive. To deal with this problem, stars are typically arranged in a multistar hierarchy, a "star of stars." In Fig. 12.11, T_A is a node of links from sub-stars S_A, S_B, and so on. T_A may be linked to a higher level node, U_A, which links the T level of nodes.

Examples of a multistar are telecom networks. They are also common in transportation. For example, in the airline industry several major airports are the central "hubs" and the individual routes are "spokes" to other cities. Thus, if air travelers wanted to go from Palermo, Italy, to Montpellier, France, they would most likely fly first to Rome (a hub city), thence to Paris (another hub), and then to Montpellier. Hubs can be international, serving other countries' airports too. Examples are Dubai, Miami, and Copenhagen.[34] While most airlines rely on the hub-and-spoke architecture, others do not. Southwest Airlines (a very efficient airline) uses a point-to-point system, hauling people for relatively short distances of city-pairs with few connecting flights. In 2016, Southwest served 656 one-way, non-stop city pairs.

A hub and spoke system requires fewer links to connect the same number of points. It has a higher "load factor" because flows are concentrated in fewer links. On the other hand, it requires more switching (airport connections), which can be expensive and slow, and create vulnerable bottlenecks. If a snowstorm closes O'Hare airport in Chicago, dozens of other cities cannot be reached anymore.

A single-level star in transportation was, in its early pure design, the Fedex package distribution system. Every night planes from each city served by Fedex fly to Memphis, Tennessee, arriving close to each other in time, then unload their packages, which are then sorted in a central facility, and reloaded into the airplanes, which then fly back at dawn to their original departure cities. Hence a package would travel from Los Angeles to San Francisco via Memphis—a distance of 3500 miles instead of 350. The economic logic is that minimizing the distance traveled for a package was a secondary consideration. More important was to reduce the number of individual intercity flights and of sorting operations (i.e. of nodes). If there were 100 cities served by Fedex, its system required 100 flight routes and one node (Memphis), whereas a system of every-city-to-every city required 5049 flight routes (but no central node).

In a distribution system, the central node in a single stage star architecture is often called a wholesale distributor, and it would serve customers directly. For consumer products, examples would be an ecommerce site such as Amazon.com that offers products from all producers to all consumers. Rarely would there be exclusivity for any particular producer. In a two-stage architecture, there are two levels of nodes, those of wholesale distributors and those of retail distributors. (Usually the retailers have access to several wholesalers, which reduces the simplicity of the structure.)

12.3.1.5 Distribution Architecture Model # 5: The Mesh

A mesh network is a network topology in which each node relays or stores the product or data and co-operates in the distribution process (Fig. 12.12). The item moves ("hops") along from node to node until it reaches its destination.[35, 36] The best example of a mesh network is the internet itself, where information travels from one router to the next. In the physical world, mesh networks are less common. An example might be the informal system by which college stu-

34 O'Kelly, M.E. and H.J. Miller. "The hub network design problem: a review and synthesis." *Journal of Transport Geography*, 2 (1994): 31–40.

35 P2PFoundation. "Mesh Networks." Last accessed June 26, 2017. ► http://wiki.p2pfoundation.net/Mesh_Networks.

36 Kay, R." Mesh Networks." *Computerworld*. August 10, 2009. Last accessed June 26, 2017. ► http://www.computerworld.com/article/2550305/mobile-wireless/mesh-networks.html.

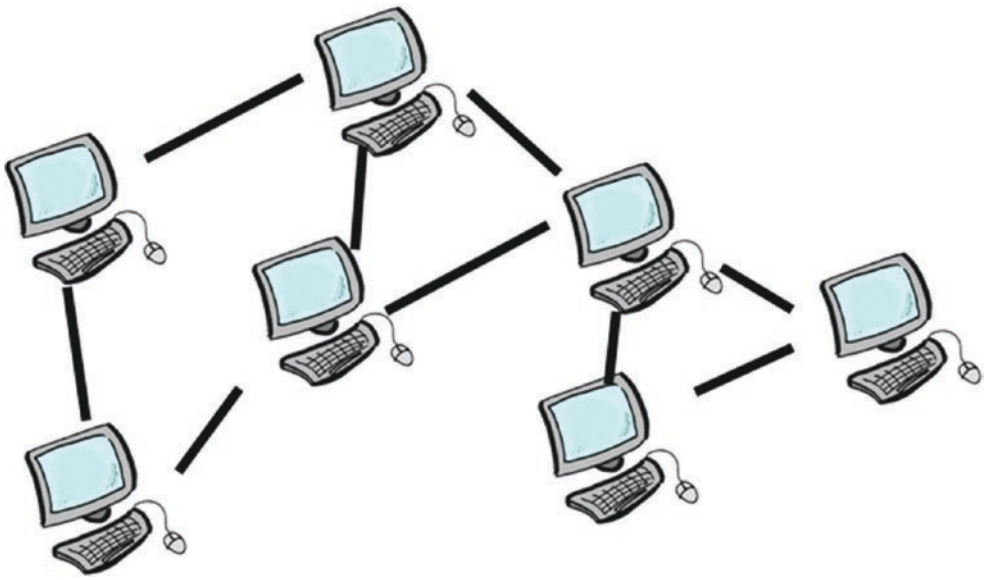


Fig. 12.12 Distribution model #5: Mesh network

dents buy and resell textbooks for their courses or hold them for friends and siblings for future use. Electronic mesh networks became possible as transmission and storage dropped in price and enabled content distribution without the classic intermediaries.[37]

When all goes well, peer-to-peer (P2P) systems scale well compared with traditional client–server (star) architectures. They utilize the uploading bandwidth of the clients (users) and are thus able to reduce the traffic load on the server (distributor) side. Users also contribute secondary storage, where the contents are cached to serve the later peers accessing the same contents. Applications include live streaming and video on demand (VOD).[38]

Mesh P2P distribution became popular because of its technological innovativeness, partly thanks to its community spirit and outlaw vibe. Owing to problems related to the technical robustness of the system, its vulnerabilities to hacking, and its frequent use for pirated (unlicensed) content that led to legal and technical counter-measures, usage again shifted away from P2P streaming toward more centralized distribution organized by service providers such as Netflix (video) or Spotify (audio).

12.3.2 Case Discussion

Distribution Network Architectures

- *Video: RTL – TV*. RTL receives video from numerous external content suppliers such as film studios, independent producers, film libraries, and network feeds, such as international sports events. It also creates its own content through internal sources such as editorial staff (e.g. news), in-house productions (e.g. TV shows), and films (its UFA production arm). RTL channels are beamed (uplinked) to satellites of various satellite operators, and from there are downlinked (broadcast) to cable head ends, TV stations, and to households directly. This kind of distribution architecture is a tree-and-branch structure.
- *Books: Penguin Random House.* A book moves from a printing plant to warehouses, from there to wholesalers, then to retailers, and to consumers. There is also a limited return distribution network for unsold books. This distribution architecture is a tree-and-branch structure.
- *Magazines: Gruner + Jahr*. The editorial staff and outside writers contribute articles. Advertisement copy is provided by advertising agencies. Printing and production is done by Be and Prinovis (a joint venture with the Springer publishing company), or by third-party printing plants. Subscribers receive it via the postal service. Retailers are reached by its own wholesaler in Germany and by independent wholesalers. This distribution architecture is a tree-and-branch structure.

37 Bauwens, M. "The Political Economy of Peer Production." *CTheory*. December 1, 2005. Last accessed June 26, 2017. ► http://www.ctheory.net/articles.aspx?id=499.

38 Shen, Z., J. Luo, R. Zimmermann and A. V. Vasilakos. "Peer-to-Peer Media Streaming: Insights and New Developments." *Proceedings of the IEEE* 99, no. 12 (December 2011): 2089–2109.

12.4 Analytical Tools for Distribution Management

Managers must understand the tool kit for analyzing distribution. These tools derive from multiple research disciplines. We will discuss them now.

12.4.1 Network Analysis Tools of Sociologists

Sociologists have developed social network analysis as the study of the structure of relationships.[39] Social network theorists believe that behavior is closely related to the ties that individuals have.[40] A social network is a type of map that illustrates how individuals (nodes) are linked to each other through relationships (links). Some nodes (people or organizations) are particularly central, or influential, with a high multiplier by connectivity to many others. "Social capital" refers to the value of one's relationships and networks, and how one can leverage these connections to accomplish a goal.[41] Measures known as "Eigenvector centrality" calculate such influence. This value is the sum of the centralities of the other players to which a player is connected. These centralities are measures of closeness and frequency of a relationship. A business application exists when financial institutions use such network analysis to chart the interactions of a customer and try to spot fraud when they encounter unexpected interactions. Law enforcement and anti-terrorist agencies do similar analyses. Social sites such as Facebook use it to recommend potential friends. Network operators, whether electronic or physical, can use it to optimize capacity structure of their networks. Another application is for marketers to identify "influentials" who have a multiplier effect, and to target them.

12.4.2 Network Analysis Tools of Lawyers: Essential Facilities

Lawyers focus on problems in distribution, such as bottlenecks and market power. With a bottleneck facility, one firm controls a link that is necessary to others, whether users or providers. In Fig. 12.13, there are two competitors for transmission between C and B. But there is only one way from B to A. That link is a bottleneck, and whoever controls it has market power.[42] If it is held by one of the two competitors for the service A to C, then the other competitor has serious problems.

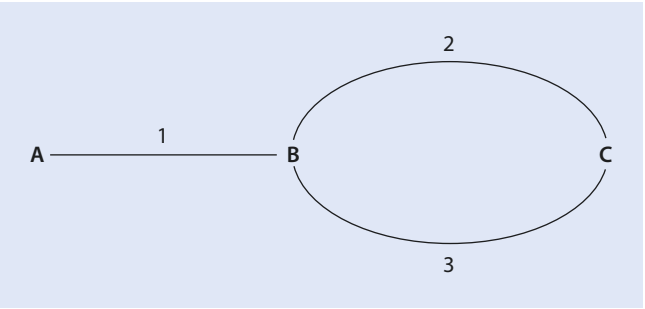


Fig. 12.13 Distribution bottlenecks

When there is a bottleneck link such as segment 1 and in an essential facility, it often becomes subject to regulation. An example is the regulation of the local telephone companies' "last mile" of the network in order to assure access to users, content providers, and rival operators. This kind of analysis of the access by others to distribution, and of its pricing, will help the management of a distribution company stay out of legal and regulatory trouble.

12.4.3 Network Analysis Tools of Urban Planners: Location Theory

Transmission systems are affected by geography, population, and economic cost of distribution and transportation. This is the focus of analysis by urban planners. One major tool is location theory. Its premise is that distribution and transportation technology define market areas. A firm's market area is the area over which a firm can underprice its competitors. The net price for the consumer is defined as the retail price charged by the retail store plus the transaction and travel costs incurred by consumers themselves. Now suppose that mobility cost becomes cheaper, for example by mobile phones reducing the "dead time" of travel. This would lead to larger market areas for a firm, because larger distance becomes a somewhat lower impediment for buyers.

How do cities develop, and why are some larger than others? One important factor is the location of businesses. A "central place" model of retailing (and of other economic activity) explains a hierarchical systems of urban patterns and provides a tool for market researchers to determine store locations (Fig. 12.14).[43] Every industry has a different location pattern, depending on its relative costs, economies of scale, and mobility cost.[44] For example, assume a region where three products are being sold: bookstores, computer

39 University of Twente. "Network Theory and Analysis." Last accessed June 26, 2017. ► https://www.utwente.nl/en/bms/communication-theories/sorted-by-cluster/Communication%20Processes/Network%20Theory%20and%20analysis_also_within_organizations-1/.

40 Glanville, Jennifer L. "Voluntary Associations and Social Network Structure: Why Organizational Location and Type Are Important." *Sociological Forum* 19, no. 3 (September 2004): 465–491.

41 Miller, Gray. "What Is Social Network Theory." *LoveToKnow*. December 5, 2008. Last accessed July 7, 2010. ► http://socialnetworking.lovetoknow.com/What_is_Social_Network_Theory.

42 Economides, Nicholas. "The Economics of Networks." *International Journal of Industrial Organization* 14, no. 2 1996): 23.

43 Based on image from O'Sullivan, Arthur. *Urban Economics,* 7th ed. (Boston: McGraw-Hill, 2009), 87.

44 O'Sullivan, Arthur. *Urban Economics,* 3rd. ed. New York: Irwin McGraw Hill, 1996.

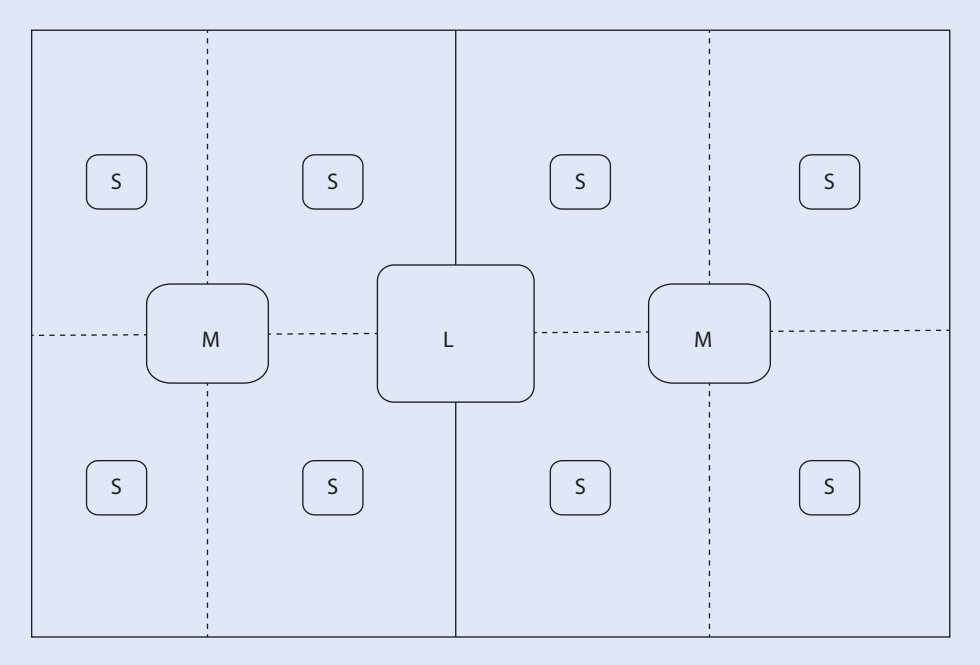


Fig. 12.14 Central place hierarchy

stores, and mobile phone stores. The initial distribution of population is uniform and the total population of the region is 80,000. For each product, per capita demand is the same throughout the region.

The three goods have different per capita demands and scale economies:[45]

- Computer stores: scale economies are large relative to per capita demand, because of the high cost of inventory. Every computer store has an optimal scale size based on requiring a population of 80,000, so a single computer store will serve the entire region.
- Bookstores: scale economies are moderate relative to per capita demand, which is also moderate in size. Every bookstore requires a population of 20,000, and there will be four bookstores in the region.
- Mobile phone stores: scale economies are small because inventory can be just a small number of models, while customer service requirements are high. Every phone store requires a population of 5000, so there will be 16 phone stores in the region.

A single big computer store will locate at the center of the region to minimize transportation costs of customers, and computer store employees will locate near the store to reduce commuting costs. The population density near the computer store will increase. There will be enough demand to support more than one phone store and music store. Thus location L (large city) grows further in population. The two other bookstores will split the rest of the region into two market areas. Two more density areas develop, drawing employment and additional phone stores, and so on, in medium-sized cities (M). The phone stores will also create market areas, though smaller and there will be yet a third tier of above-average population density (towns S).

Now suppose that the equilibrium number of phone stores decreases from 16 to 8 because the inventory requirements have risen while customer service has become automatized and online. Four S towns then become economically unsustainable for such small-scale retailing. The equilibrium number of cities would decrease from 11 to seven, while the role of central cities is raised and that of smaller towns is lowered. Similarly, suppose that phones and computers are complementary goods, so that the typical consumers purchase computers and a phone on the same shopping trip. Computer and phone stores will then pair up to facilitate one-stop shopping. This, too, will add to the advantage of the big city, and disadvantage the second and third tiers. Some of these might be early entrants into online activities and capture a national market, but many others might be negatively affected by the same trend. If a physical shopping presence is a foundation for online retailing, and assuming no difference in labor cost, L and M would increase, if anything, their advantage.

On the residential end of location, people choose their home according to a basic trade-off of living space versus travel time to work.[46] Generally, cheaper space comes with a longer commute. That personal equilibrium defines a cityscape with a dense core and a suburban ring around the city. Now suppose that mobile communications lower the cost of commuting time by enabling people to use the time productively, and allowing them to increasingly work from home. As a result, the space–time tradeoff would shift and people would move further out.

45 O'Sullivan, Arthur. *Urban Economics,* 3rd. ed. New York: Irwin McGraw Hill, 1996.

46 O'Sullivan, Arthur. *Urban Economics,* 3rd. ed. New York: Irwin McGraw Hill, 1996.

Thus, on the production side, the lower cost of transportation and communication will often lead to a greater clustering of activities at the center. But on the residential side, the opposite is the case—a greater outmigration over the long run. In this fashion, the economics of distribution (of goods and of people) shapes city shapes, where we work, and where we live.

12.4.4 Network Analysis Tools of Electrical Engineering

To electrical engineers, network analysis addresses, among others, the question of how much information (bits) can be squeezed into a pipe, and how networks must be configured. A major building block is Shannon's Law (1948). Claude Shannon was a celebrated electrical engineering theorist at Bell Labs and MIT, often described as the "father of information theory." Shannon's Law shows the theoretical capacity of a communications channel, in bits per second, to be a function of bandwidth of the channel (measured in "Hertz"), and the ratio of the power of the signal (measured in "Watts"), and the interfering "noise" that the signal must overcome. The relation of the latter two is called the signal-to-noise ratio.

$$\text{Capacity}(\text{bps}) = \text{bandwidth}(\text{Hz}) \log_2 \left(1 + \frac{\text{signal power}}{\text{"signal noise"}}\right)$$

For example, how many bits can be sent over a typical telephone line? Suppose it is a voice quality phone line with a bandwidth of 4 kHz, and the signal's strength is 1000 Watts (a lot) but the channel's "noise" (unwanted hiss and hum) is 1 Watt in strength?

The equation tells us

$$C = 4000\ \text{Hz} \times \log_2 \left[1 + \frac{1000\ \text{Watts}}{10\ \text{Watts}}\right]$$
$$= 4000 \cdot \log_2 (100) \approx 4000 \cdot 4.6 = 18,400\ \text{bps}$$

This translates into about 4.6 bits that could be transmitted per Hertz of bandwidth. (This, however, is the theoretical limit, under conditions of perfect engineering. The usual practical figure achieved by engineers is more around 3 bits per Hertz.)

Looking at the Shannon equation, we can make several observations:

- The stronger the signal power, and the lower the interference ("noise"), the more information can be put on a transmission link.
- Bandwidth is a substitute for signal power. One can get the same information transmitted with a less strong signal if one can use more bandwidth. This is especially important for mobile wireless applications, since lower power requirements mean a longer-lasting battery.

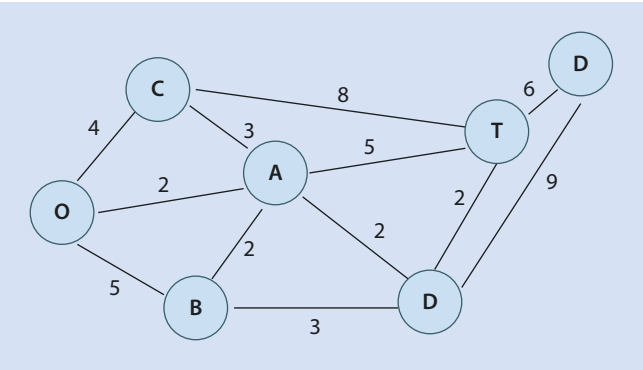


Fig. 12.15 OR model: newspaper distribution (schematic)

12.4.5 Network Analysis Tools of Statisticians: Operations Research

Operations research (OR) uses mathematics, statistics, and models to aid in the design of operations. OR derived from work on logistics in the military during World War II and afterwards. It includes techniques such as linear programming or queuing theory.

Examples of OR in media applications include:

- the optimal routing of distribution of newspapers to retailers;
- the design of a factory producing smartphones with an efficient flow of components;
- the construction of a telecommunications network with low congestion;
- the planning of the production schedule for a soap opera.

In this example of the distribution operations of a newspaper, the printing plant is located at O; other letters designate the locations of retailers (Fig. 12.15).[47] The numbers give the relative distances in miles between these nodes. One question to solve is what the shortest path is. Another question may be the minimum cost, if there are road tolls, for example. A third might be how to minimize time, if some roads experience congestion during rush hour.

12.4.5.1 Example: The Optimum Number of UPS Depots

The package delivery company UPS needs to design its local distribution system. Scale economies in production favor a small number of large stations. However, transportation costs favor a large number of small stations. Service quality (i.e. delivery time) is improved by many stations, which raises demand.

47 Based on graph from Hiller, Frederick S. and Gerald J. Lieberman. *Introduction to Operations Research* (New York: McGraw-Hill, 1995), 355.

Assume that UPS has three options: it can build a system of either one, four, or ten local depot stations. It expects 100,000 deliveries per year, distributed evenly throughout the city. The total operating cost increases with the number of stations, from $100,000 for one depot to $400,000 for ten depots. The average operating costs equals the total operating cost divided by the number of deliveries. The delivery time drops as the number of depots rises. As delivery speed increases, UPS can charge more for its service (same day versus next-day quality level). But it is more expensive to operate ten depots.

From Table 12.1, we can conclude that the four-depot option is optimal in terms of profit maximization. But suppose that new communications technology enables UPS to deploy its trucks in the field more efficiently, reducing operating time per delivery by half, without adding operating cost? What is the impact?

The average delivery time decreases with the number of depots. The delivery time drops from ten hours for one depot to 2.5 hours for ten depots. Suppose that a delivery charge can be $2 for a ten-hour delivery, and $5 for a 2.5-hour delivery.[48] UPS could then charge $4.50 for the one-station service (now at the five-hour quality), $5 for four-station service, and $6 for 1.25-hour service. The optimizing service level has now been brought down to one-depot only.

Given the above, how much would UPS be willing to pay for this mobility technology? The answer, from Table 12.2, is that UPS will pay up to the difference in profit. Without the mobility technology, it is $2.5 × 100,000. With mobility technology, it is $3.5 × 100,000. The difference, $100,000, is the maximum UPS would invest in mobility technology per year. And indeed, to gain such a technology, the UPS company became an early leader in developing GPS ground navigation devices. Not only was it one of the earliest civilian user of GPS technology, but it also designed and produced GPS equipment itself and sold it to others. Once a supply of such equipment was assured by other sources, UPS reverted to its core business and sold its GPS operations to Garmin in 2003.

Table 12.1 Delivery service speed based on number of depots (schematic)

	1 depot	4 depots	10 depots
Total operating cost ($) (100,000 deliveries)	100,000	200,000	400,000
Average operating cost per delivery ($)	1	2	4
Delivery time (hours)	10	5	2.5
Average revenue per delivery ($) (Price can rise with delivery speed)	2	4.5	5
Average profit per delivery ($)	1	2.5	1

Table 12.2 Delivery service speed based on number of depots with improved communication technology (schematic)

	1 depot	4 depots	10 depots
Total operating cost ($) (100,000 deliveries)	100,000	200,000	400,000
Average operating cost per delivery ($)	1	2	4
Delivery time (hours)	5	2.5	1.25
Average revenue per delivery ($)	4.5	5	6
Average profit per delivery ($)	3.5	2.5	2

12.4.6 Network Analysis Tools of Operations Research: Queuing Theory

The planning of capacity in a distribution system needs to consider congestion. Waiting lines (queues) are formed when users seek a service that has limited capacity. Waiting lines for service are formed in many operations of distribution and production:

- customers in a movie box office lane;
- calls to a cellphone service representative;
- phone orders to an online merchant;
- installation orders for cable TV;
- packets in a transmission channel;
- music artists' time in a recording studio.

In each case, reducing wait times will increase service quality but will also raise operating costs. Reducing service quality (and thus increasing waiting time) will lower operating costs but will lead to a loss of users who will go elsewhere.

Queuing models approach the behavior of "arrivals" as a probabilistic process. The firm will look at the load factor. The load (or traffic) factor r is the ratio of arrival rate λ to service rate μ. As the load factor rises, the wait increases at an accelerated rate.[49] This can be rephrased as a question about how much of a capacity (i.e. service level) a firm must provide optimally. Figure 12.16 shows how an increased service level (added capacity) raises the cost of providing it (the diagonal line). At the same time, the company's revenues from serving customers as the service quality level rises, rising from zero (at Point A). At capacity level B, costs and benefits are equal, and net gains (the lower curve) move from negative to zero and beyond to positive. After a certain

48 O'Sullivan, Arthur. *Urban Economics,* 3rd. ed. New York: Irwin McGraw Hill, 1996.

49 Lesso, William G. "Operations research." *Access Science*. March 5, 2001. Last accessed June 26, 2017. ► https://www.accessscience.com/content/operations-research/470410.

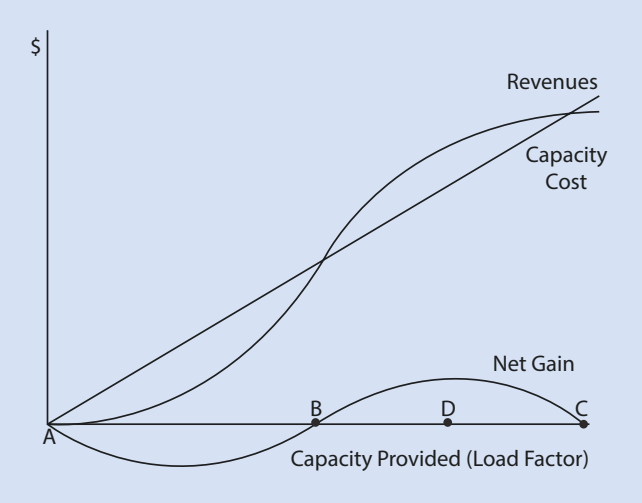


Fig. 12.16 Capacity cost, revenues, and net gain

point, however, the impact on additional business declines because customers are satisfied enough and the extra service level makes little difference to them. Eventually, at Point C, the added cost has eaten up all revenues. In-between B and C lies the optimal capacity D.

Example #1 Service Level

How many sales representation should a satellite TV company deploy in a sales booth in a shopping mall to sign up subscribers?

A satellite TV company is trying to sign up customers in a shopping mall. Customers will walk away whenever there are three customers ahead of them in line. Suppose that a service rep can serve ten customers per hour and that customers arrive at an average rate of seven per hour.[50] We then have then $\lambda = 7$, and $\mu = 10$. But customers do not arrive in a steady stream. Sometimes there will be a lot of people, and at other times no one at all shows up.

Typically, a Poisson probability distribution is used for the arrival rates. This is a probability distribution that characterizes discrete events occurring independently of one another in time. One can look up that probability for a λ or μ.

Is just one rep enough? Suppose the cost of one rep is $200. Another cost item is the lost business due to customers not willing to wait. Suppose the value of a customer signed up is $400. If the load factor is $r = 7/10$, the rep is busy 70% of the time. The probability that there will be no customers in the system is $P_0 = 1 - 7 = 30\%$ of the time. If a customer walks away whenever there are three customers ahead of them in the system, then the proportion of customers lost is:

$$1-\left(P_0+P_1+P_2+P_3\right)$$

Each of these probabilities is

$P_n = 1-\left(\frac{\lambda}{\mu}\right)\left(\frac{\lambda}{\mu}\right)^n$ – the probability associated with a given number of customers in the system.

In this case, the probability of having three people in the queue is 1–(.3 + .21 + .147 + .1029) = .240. That is, 24% of customers will be lost because the wait is too long.[51] Now let us see the effect of adding a second rep.

The new load factor is

$r = 7/2(10) = 35\%$; instead of 70%.

The probability for n customers to be in the system is: $P_0 = .4814$, and the other probabilities are

- $P_1 = .3369$
- $P_2 = .1179$
- $P_3 = .0413$

The lost business is $1 - (P_0 + P_1 + P_2 + P_3) = 0.0638$ which is a loss of 6.4%.

Thus the benefits of a second rep in terms of reduced loss of business is 24% – 6.4% = 17.6%. The cost of adding a second representative per day is $200. Knowing that the average sign up rate is 0.3 and the average customer value is $400, the expected value per customer handled is $400 × .3 = $120. The benefit is 17.6% of seven arriving customers/hr × 8 hrs is 7 × $120 × 8 × 17.6% = $1183, which is much higher than the cost of $200 in achieving it.

And what about adding a third service rep? This would reduce customer loss by 1%, for a benefit of $67.50 versus a cost of $200. So it will not be economical.

According to these numbers, the satellite TV firm should go ahead and add a second rep. Adding a third rep will not improve efficiency enough to justify the extra cost.

12.4.7 Network Analysis Tools of Operations Research: Quality of Service (QoS) Analysis

Quality of service (QoS) can be expressed in terms of the probability that a service will not be provided owing to oversaturation, a so-called "blocking probability." This is similar to the waiting time discussed before, except that now, when the system is at capacity, it simply cuts off (blocks) the additional traffic.

The lower the network capacity, the more blocking there will be. To measure the QoS, the "Erlang Traffic Model" is used. β is the probability that a call will be lost, and it denotes the desired quality grade of service. Generally, a blocking probability of $\beta = 0.01$ is considered satisfactory in tele-

50 Schroeder, Roger. *Operations Management*. New York: McGraw-Hill, 1981.

51 Example from Schroeder, Roger. *Operations Management: Contemporary Concepts Cases*. New York: McGraw-Hill, 1981.

com networks. n is the number of lines, and it is the variable resource that is deployed. When there are n available channels and a traffic load of a, the probability that a call is blocked—that it arrives when all n servers are busy—is given by the Erlang formula.[52]

$$B(n,a) = \frac{a^n / n!}{\sum_{i=0}^{n} a^n / i!} = \beta$$

By modifying the desired quality level β, one can calculate different numbers of lines required for a given amount of traffic.

There is a positive correlation between traffic quantity and the lines required to maintain a service quality. However, the percentage of extra lines required to maintain that quality grows slower than the growth of traffic, and this creates an advantage for size, that is, economies of scale.

Example

Consider planning a hotel switchboard connected to 780 internal phones. Each phone is being for used 1.8 minutes per hour of traffic/hour (1.8 minutes is equivalent to approximately 30 "milli-Erlangs" (mE) per hour, a unit of traffic management). To guarantee that there will always be an outside line, one would need 780 outside lines, which would be expensive. Can there be fewer outside lines? How many lines are needed to connect the switchboard to the outside network, so that a hotel guest will not experience a blocked call owing to insufficient outside lines, more than β = 2% of the time? We are trying to determine the number of lines n. a is the traffic load: number of phones times the traffic per hour, in this case 780 lines times 1.8 minutes (= 30 mE) = 23.4E. The computation becomes:

$$B(n,a) = \frac{\frac{a^n}{n!}}{\sum_{i=0}^{n} \frac{a^i}{i!}}$$

$$\beta = .02 = B(n,23.4) = \frac{\frac{23.4^n}{n!}}{\sum_{i=0}^{n} \frac{23.4^i}{i!}}$$

That equation is solved when n = 38. Thus to provide hotel guests with a service quality of less than 2% blocking, one needs 38 outside lines.

52 Sharkey, William W. "Representation of Technology and Production." In *Handbook of Telecommunications Economics*. Eds. Martin Cave, Sumit K. Majumdar, and Ingo Vogelsang. (New York: Elsevier, 2002), 180–226.

12.5 Network Management

These analytical tools and others are being used in network management, which is a set of actions to allow a network to operate efficiently and effectively. Underlying network management is the basic fact that the capacity of a distribution network is limited, and that to assure proper operations its use must be carefully deployed. This involves a scaling of the network with the matching of capacities of the various elements, the prioritization of certain types of traffic, quality control, cost consideration, pricing, and profit maximization.

A major issue is the architecture of the distribution network. Balancing the mix of the nodes and transport links—the distribution network architecture—is a management decision. An airline hierarchy has two or three tiers. A railroad hierarchy has three or four tiers. TV broadcasting has three. Cable TV content distribution has about six levels. If the cost of the transport links is high (relative to the cost of nodes), the manager will try to reduce them as much as possible. There will be fewer links, more nodes, and a greater hierarchy. For example, for rail networks track is very expensive to build and maintain, but switches are cheap relative to track. There would be a high level of hierarchy. Similarly, cable TV has expensive lines but relatively cheap neighborhood and curbside splitter nodes. Thus, where links are relatively expensive, the optimal distribution system will be multilayered and strongly hierarchical. In contrast, if the cost of transport links (per unit of traffic) is relatively cheap in comparison to the nodes, there will be fewer nodes and less of a hierarchy.

In electronic distribution, the trend of transmission has been to drop in price faster than for the switching node. In consequence, the architecture has been moving to longer electronic transport segments and to fewer and simpler nodes. The resulting network arrangement has been called the "dumb network": a transport network of powerful pipes, but with limited nodes (intelligence) to route, steer, and control traffic.

A second task of network management is to match capacity with needs, to even out the load, and to prevent periods of substantial slack in the system followed by periods of congestion. Responses by managers of distribution systems to even out traffic load include:

- adding capacity by new construction or leases;
- prioritizing certain types of traffic;
- rerouting;
- setting usage caps (rationing);
- lowering the QoS;
- raising prices;
- permitting intercustomer trading.

For example, as smartphone use spreads, the mobile network capacities reach bottleneck conditions, with providers

running out of bandwidth at certain times and locations. This slows down (and at times blocks) usage. Networks have therefore tried to reduce the traffic of the heaviest users. Studies show that 10% of users account for 90% of traffic. Mobile carriers instituted caps for data usage, both in order to price-differentiate between light and heavy users, and to reduce the latters' usage. The largest US telecom company, AT&T, started in 2012 to slow down the transmission speed of the top 5% of heaviest data users (consuming more than 1.5 GB) beyond a certain point. Similarly, ISPs such as AT&T or Comcast instituted a data cap on internet traffic. Comcast set a 250 GB monthly limit. When exceeded, the company quietly "throttled" that user's speed. AT&T's data cap for wireline ISP service was 150 GB per month in 2011. If exceeded three times, despite warning messages, the customer was billed $10 for each 50 GB over the limit. In 2016, internet users were capped at 1 TB per month. Beyond this incurs a $10 per 50 GB charge, up to $100 a month.

Such restrictions led to regulatory actions. The regulators in Washington ordered companies to stop this practice, and a legal battle ensued which the FCC lost in 2010. Data caps and throttling are legal in the USA and Japan but fought over. In the EU, throttling is illegal.

A third issue of network management is service quality differentiation. Generally, a distribution network will offer a better service grade for a higher payment. This is true for airlines, the postal service, or internet service. It is partly based on the higher cost of delivering the higher quality, and it is also one way to price-discriminate against users with a low price elasticity. Providers of internet and other data transmission services have been offering their customers different grades of quality of service (QoS). QoS is important to some types of users who require, and are willing to pay for, a guaranteed service grade with certain transmission speed and reliability parameters for delay (latency), jitter, dropped packets, error rate, and so on. To assure such service guarantees, the network providers would, for example, reserve capacity for such users. Other users would get a service quality level based on "best effort," which means they were served by the network resources left over after the needs of the guaranteed QoS customers have been satisfied. Unless the network was over-providing by having excess capacity, those customers got a lower service grade. Of course, they also paid less.

A still more sensitive issue is whether, within a given quality and price level, some types of uses or users would get priority over others. The debate over this issue, as applied to the internet, is part of the battle over net neutrality. In 2015 the US government adopted net neutrality rules that mandated ISPs to treat all internet traffic the same, regardless of its origination, destination, content, or volume. In 2017, under a new FCC chairman, these regulations were abolished again. Net neutrality rules and principles will continue to be subject to tough legal and political battles. However, time sensitive traffic such as live voice calls or multiplayer video gaming have different latency needs than emails, where a slight delay is not as irritating as it is for a voice call. On the other hand, email must be more reliable than video, where dropping a few bits is almost unnoticeable. One solution is to create "classes of data" that are given different treatment, such as prioritizing live and interactive human communication.

12.6 The Supply Chain: Logistics

We have analyzed the architecture of distribution. We now turn to a discussion of the several stages in a distribution chain.

These stages are:

- supply of inputs;
- production;
- wholesale distribution;
- retail distribution;
- user-to-user distribution.

Logistics deals with when, where, and how products and services reach producers, intermediaries, and consumers. Controlling the flow of inputs is known as inbound logistics, and that of outputs is outbound logistics.

There may also be a reverse logistics channel when consumers and retailers return products that are unsatisfactory or unsold.

Logistics operations may include some of these elements:[53]

- providing the physical pipeline for finished products to reach the end consumer;
- designing the pipelines for inputs to reach the company and to be stored;
- designing and creating a network of warehouses for finished products;
- managing orders;
- transportation routing, scheduling, and fleet management;
- reverse logistics (returned goods);
- ability for retailers to coordinate their inventory levels with supply flow.

12.6.1 Third Party Distribution

Because logistics are increasingly complex, time sensitive, and global, firms often rely on third-party logistics providers.[54] These are distribution companies with cost advantages owing to scale and expertise. For example, UPS and FedEx provide tracking technology to make sure goods are always on the move. This is hard to replicate in-house in a cost-effective way. Even large companies such as Sony use specialized providers.

53 Ross, David Frederick. *Distribution Planning and Control.* (Norwell: Kluwer Academic Publishers, 2004), 39.

54 Rao, Bharat et al. "Building a World-class Logistics, Distribution and Electronic Commerce Infrastructure." *Electronic Markets* 9, no. 3 (November 26, 2010): 174–180.

An example of advantages of scale in physical distribution is cross-docking. In a cross-dock, goods arrive from multiple vendors at an intermediate warehouse facility, and the shipment from inbound trailers to outbound trailers bound for the appropriate destination can be done quickly and easily. Such cross-docking requires sophisticated information systems and tracking techniques, using electronics such as radio-frequency identification, so that each individual good is directed to the right destination in a timely fashion. This process greatly reduces inventory-holding costs and reduces the time for each good in the supply chain. To enable this requires a fairly big volume.

The choice between independent (third party) distribution and vertically integrated (in-house) distribution depends on the market concentration and the size of organizations that exist for a particular production stage. If there are only a few large producers, the distribution will likely be in-house. Examples are music, Hollywood films in their Golden Era, network TV, and local newspapers.

Conversely, if there are many producers, then the distribution is more likely to be by third parties, such as the system prevailing for books, magazines, and in today's Hollywood with its independent producers.

12.6.2 Inventory Control in Distribution Logistics

Of particular importance in distribution logistics is inventory control—the activities to optimize the amount of each item held in stock. Inventory functions as a buffer to respond to variations and uncertainty in demand and production.[55] A production line for laptops, for example, requires thousands of parts, and if it runs out of a single component the entire line comes to a screeching halt. Minimizing inventory costs can save a company millions of dollars that accrue as products are sitting around, accumulating storage fees, gathering dust, and becoming obsolete. On the other hand, large inventories save the costs of frequent reorders (replenishment), lost sales, the risk of supply shortage and rising prices, and dependencies on suppliers.[56] The firm must also consider the impact on customer good will. Interactions with marketing are important to inventory control: a firm must forecast demand and be ready to accommodate promotional activities that affect the need for inventory. Conversely, a high inventory may call for promotional activities such as price reductions and clearance sales.

An example of inventory management is the action taken by the IT firm Hewlett-Packard (HP). In 2000, it experienced a serious flash memory component shortage owing to shipping problems from China. As a result, it failed to meet the demand for its printers and lost many millions of dollars in sales as well as damaging its reputation for reliability.[57] HP then developed a system it called procurement risk management.[58] HP also signed a contract with a distributor which guaranteed it would buy a minimum number of chips, at a fixed price.[59]

A number of analytical techniques exist to optimize the flow of necessary inputs. Operations researchers calculate the economically optimal order quantity (EOQ). This is the optimal ordering size for a reorder.[60] The elements are the unit cost (UC) charged by supplier. There are also the reorder cost (RC) and the holding cost (HC). The optimal size for reorders is determined by the following formula[61]:

$$Q_o = \sqrt{\frac{2 \times \mathrm{RC} \times D}{\mathrm{HC}}}$$

Q_0 = quantity to reorder
D = demand
RC= reorder cost
HC = holding cost of inputs

For example, a magazine printing company is concerned about its stock of paper, which is essential to its business. That paper costs $8 a roll and it needs 8000 meters of paper a week. It operates 50 weeks a year. Each replenishment costs $35 for administration and $55 for delivery, while holding costs are estimated at 25% of value held in a year. Assuming no shortages are acceptable, what is the optimal inventory policy for the printing company?

$D = 8000 \times 50 = 400{,}000$ meters a year
UC = $8 a unit
RC = 35 + 55 = $90 an order
HC = 0.25 × 8 = $2 a meter

$$Q_{\mathrm{o}} = Q_{\mathrm{o}} = \sqrt{\frac{2 \times \mathrm{RC} \times D}{\mathrm{HC}}} = \sqrt{\frac{2 \times 90 \times 400{,}000}{2}} = 6000$$

The number of annual orders then is 400,000/6000 = 66.67, and the optimal time between orders is

$$T_{\mathrm{o}} = {Q_{\mathrm{o}}}/{D} = {6000}/{400{,}000} = 0.015 \text{ years} = 5.475 \text{ days}$$

In other words, it is optimal to reorder and be supplied every 5.5 days, that is, about once a week. If the holding costs were lower, at $1 rather than $2, the optimal reorder period would

55 Waters, C.D.J. *Inventory Control and Management*. (New York: John Wiley & Sons, 1992), 7.
56 Silver, E. A. "Operations Research in Inventory Management: A review and critique." *Operations Research* 29, no. 4 (August 1981): 628–645.
57 Global Logistics & Supply Chain Strategies. "HP Invents New Framework for Managing Supply Chain Risk." December 2005. Last accessed June 26, 2017. ► http://www.supplychainbrain.com/content/research-analysis/supply-chain-innovation-awards/single-article-page/article/hp-invents-new-framework-for-managing-supply-chain-risk-1/.
58 Global Logistics & Supply Chain Strategies. "HP Invents New Framework for Managing Supply Chain Risk." December 2005. Last accessed June 26, 2017. ► http://www.supplychainbrain.com/content/research-analysis/supply-chain-innovation-awards/single-article-page/article/hp-invents-new-framework-for-managing-supply-chain-risk-1/.
59 Global Logistics & Supply Chain Strategies. "HP Invents New Framework for Managing Supply Chain Risk." December 2005. Last accessed June 26, 2017. ► http://www.supplychainbrain.com/content/research-analysis/supply-chain-innovation-awards/single-article-page/article/hp-invents-new-framework-for-managing-supply-chain-risk-1/.
60 Assume the lead time for orders is equal to zero.
61 Waters, C.D.J. *Inventory Control and Management*. (New York: John Wiley & Sons, 1992), 32, 40–41.

be longer, 7.75 days. The same methodology can be used for a book publisher's optimization problem on how many books to print and hold in stock, given the traditional batch aspect of printing.

12.6.2.1 Just in Time

Just in Time (JIT) is an inventory strategy to reduce inventory costs in production. Traditionally, a producer held a large inventory of parts to be on the safe side, to avoid running out of suppliers or parts. In contrast, JIT substitutes continuous flow delivery from suppliers further down the supply chain. This shifts the cost of maintaining an inventory onto these suppliers. In effect, it outsources the maintenance of inventory. This results in a somewhat higher price per unit for such supply (all other factors equal) but usually at a lower overall cost since fewer units need to be held in inventory. To have a well-functioning JIT system requires continued communication of producer and supplier in real time. It requires by both the ability to overcome an unexpected supply problem or change. The producer must have confidence in the quality of the suppliers' inputs since there is no time to return the items. The supplier, in turn, should not be surprised by sudden changes in the order quantities. All this requires the establishment of long-term relations among those adjacent to each other in the supply and distribution chain.

12.6.2.2 EDI

The process of logistics has been enormously helped by information technology. Electronic data interchange (EDI) is the exchange of electronic data and documents between computers according to a standardized format that can be understood by the other's computers. The standards and specifications of an EDI system are set by large companies, by industry associations, key suppliers, and the Data Interchange Standards Association. EDI can

- reduce inventory, which accounts for 5–10% of net tangible assets in the USA;
- speed up supply;
- smooth production runs;
- lower procurement prices;
- support JIT;
- Simplify import/export.

For example, General Electric moved 1400 of its suppliers to a Total Procurement Network, and claimed that this reduced cycle times up to 50%, procurement cost by 30%, and material costs by 20%. Despite these savings, it also improved relationships with suppliers.

Traditional EDI was based on closed networks set up and controlled by large companies with its suppliers and dealers, or by industry groups. It focused on highly repetitive B2B transactions. The various EDI systems were incompatible within an industry and across industries. Next, EDI specifications were set more broadly by industry associations and key companies for their suppliers/dealers. The main standards are EDIFACT in Europe, ANSI X.12 in North America, and GS1EDI more generally. Soon, EDI migrated to the internet, with low price EDI software packages available.

To summarize, the supply logistics chain, while largely invisible to consumers, is complicated and a lot is riding on it. If it does not function well, the firm might hit sudden production bottlenecks and miss delivery dates. This is especially true for mass production. Conversely, if the firm experiences uncertainties in its supply chain it will end up overstocking its inputs, and this will be reflected in its cost and prices. On outbound logistics, when a firm does not organize its logistics well it will end up disappointing its customers. When these customers engage in risk-minimization strategies, they will diversify their own suppliers and shift orders to them. Or in the case of consumers, some will be permanently lost.

The supply chain must be managed as one overall process rather than through dozens of independent functions and transaction systems.[62] Communication with the participants up and down the supply chain is key to generate confidence, meet targets, and deal with unanticipated events. There must be an active exchange of information to create demand forecasts, inventory levels, capacity utilization, production schedules, delivery dates, and so on. Such communication is also an opportunity for distributors to stay in touch with major customers.

12.6.2.3 Push Versus Pull Distribution

There are two major forms of production and distribution. In product push mode, production and distribution decisions are based on forecasts and strategies.[63] In a consumer pull supply chain, on the other hand, production and distribution are demand-driven and based on true customer orders rather than expectations. In a pure pull system, therefore, the firm produces only to-order and holds no inventory. The largest book retail chain in the USA, Barnes and Noble, operated with a classic push supply chain. It stocks the books it thinks will sell. In contrast, Amazon.com was a pure pull system, with no warehouses or inventory. The large book wholesaler Ingram, located nearby in Seattle, and the various publishers fulfilled Amazon's customer orders. It was they who kept the inventory. This, however, did not work well for either. During periods of peak demand, such as the Christmas shopping season, Amazon could not meet supply fast enough. In consequence, Amazon established several warehouses around the country to have a buffer for orders for the most popular titles. Amazon thus moved to a mixed model, push–pull. Similarly, Barnes and Noble had to get highly specialized titles from the publisher as special orders. Product push fits best for products that have a track record for long-term forecasts or where a major marketing campaign is planned.

62 Rigby, Darrell K. "Management Tools & Trends 2013." *Bain & Company*. May 8, 2013. Last accessed June 26, 2017. ► http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

63 Simchi-Levi, David and Edith Simchi-Levi. "The Effect Of E-Business on Supply Chain Strategy." *Massachusetts Institute of Technology*, Working Paper Series. January 4, 2003. Last accessed June 17, 2017. ► https://dspace.mit.edu/bitstream/handle/1721.1/102732/esd-wp-2003-01.04.pdf.

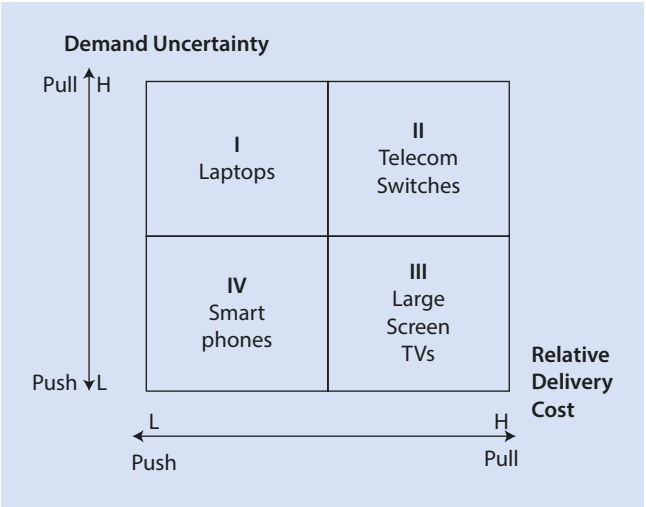


Fig. 12.17 Push and pull in IT industries

A mixed system exists for many media operations. Magazines and newspapers use both push and pull. Magazines ordered by subscription are pull, since the copies are produced and sent out only when customers subscribe. On the other hand, the consumer magazines sold in retail stores operate on a push model. Since so many of them will never be sold and are then returned by the retailer to the publisher for refund, printing and shipping them is risky, and this is reflected in their price relative to subscriptions.

A second factor besides the uncertainty of demand is the cost of delivery. Where that cost is high, neither the producers, nor wholesaler or retailer, is eager to make the investment of shipping the product ahead of demand. Figure 12.17 shows how two factors determine pull–push arrangements. The axes denote distribution cost and demand uncertainty. Where both demand uncertainty and distribution cost are high (Quadrant II), such as for building heavy equipment for mobile cellphone sites that can operate in arctic conditions, the pull model is favored.

Where both factors are low (Quadrant IV), for example for already bestselling smartphones such as the Apple iPhone, the push model is favored. In other cases, demand uncertainty is high and shipping is costly (Quadrant II). Another example is telecom central office switches. The approach needs to be to lower uncertainty by seeking contracts with an automatic replacement cycle. Alternatively, the company should use the pull model. Where the two factors move in opposite directions a mixed strategy will be used. For new laptops (high uncertainty, low delivery cost, Quadrant I), a marketing campaign will try to reduce uncertainty. For large-screen TV sets, where demand is relatively high but so is delivery cost, the company should improve its logistics system so as to speed up its delivery time.

The pull versus push decision is one that must be made at each stage of the supply chain. Rarely will it be uniform across the company's entire operations. Each company must decide where its boundary between pull and push lies, and for what types of activities it will wait for the customers and for which it will anticipate them. The boundary for the personal computer (PC) maker Dell is at the assembly stage. Dell waits for a customer order before it makes the computer (pull). But it already has the components in stock (push) or has a very fast, JIT access to them. For Amazon.com, the boundary for bestsellers is at the distribution center where it keeps books ready to be shipped. For other books Amazon has no stock but passes the order to the manufacturer/publisher. The closer the pull–push boundary is to the early parts of the supply chain, the longer will be the time from receiving a buyer's order until the buyer receives the product. Locating the boundary at the assembly stage, in the way that Dell does, will not work well for products with long assembly or transportation lead times, or where a customer's instant gratification is part of the product.[64]

The push part of a push–pull process is focused on cost minimization—to build a competitive product and encourage retailers to stock it. In contrast, the pull segment is focused on service levels—fast response.

E-commerce allows companies to shift toward a consumer pull, because demand can be more accurately observed and gauged, and the company can more rapidly build or procure, and squeeze a faster turnover of whatever stock it might have. The move from physical to electronic distribution and products makes a pull model easier, since there is no need for inventory. Examples are VOD for home video, streaming for recorded music, and print on demand (POD) or ebooks for books.

12.7 Wholesale Distribution

12.7.1 The Function of Wholesale Distribution

The wholesale stage of distribution is arguably the central element in the distribution chain. It is the link between production and retailing. In a network architecture, the classic wholesale function is the set of distribution links and nodes element between the producer (or several producers) and the retailers.

Typically, a wholesaler will distribute the goods and creations of multiple and competing producers to multiple and competing retailers. Conversely, both producers and retailers may also transact with competing wholesalers. But there are also various forms of exclusivity arrangements at each level.

Wholesalers fill numerous functions:[65]

- selling to retailers and promoting the product;
- maintaining an assortments of products, often from multiple producers;

64 Simchi-Levi, David and Edith Simchi-Levi. "The Effect Of E-Business on Supply Chain Strategy." *Massachusetts Institute of Technology*, Working Paper Series. January 4, 2003. Last accessed June 17, 2017. ► https://dspace.mit.edu/bitstream/handle/1721.1/102732/esd-wp-2003-01.04.pdf.

65 Ross, David Frederick. *Distribution Planning and Control*. (Norwell, MA: Kluwer Academic Publishers, 2004), 67.

- bulk breaking of large shipments from producers to smaller quantities;
- value-added processing;
- physical transportation and shipping;
- warehousing;
- provision of marketing information;
- order processing;
- logistics services;
- assumption of ownership and risk;
- managing the import transactions and paperwork;
- managing exports especially for smaller producers;
- aggregation of the flow of orders, and flow management;
- aggregation of the flow of payments;
- compensation of various parties;
- a role in the financing of production;
- a role in the financing of retailers.

Of course, not all wholesalers engage in all of these functions, and some of them may also be undertaken by the producers or retailers, or not at all. Different product lines have different practices. Unlike the retailing and production stages which tend to have well-defined core responsibilities, the wholesale stage is an aggregate of intermediary functions that varies greatly. Typically, too, wholesaling does not have the visibility of retailers and of brand name producers. (Media industries are an exception.) In consequence, the role of wholesaling is often underappreciated or even denigrated as one of an unproductive "middleman" that one must strive to cut out. Yet the very fact that this wholesale stage exists in almost every product line, industry, and country strongly suggests the presence of a value-added function that is economically logical and operationally essential.

There are several generic types of wholesale distributors:[66]

- Merchant wholesalers:
  - take title to good and resell it.
- Brokers
  - facilitators of transactions between producers and retailers;
  - assist in price, product, and delivery negotiations.
- Mail-order and B2B ecommerce wholesalers
  - sales of products to retailers from catalog and website, without taking possession of products.
- Agents
  - producers' sales representatives;
  - retailer's purchasing agents;
  - sellers on commission.
- Manufacturers' direct distribution to retailers
- Producers' co-operatives:
  - assemble products from co-op members, such as farmers or software writers, to sell.
- Rack jobbers:
  - responsible for delivery, product setup and display, item rotation, inventory management for retail establishments;
  - retain title to the inventory, billing retailer for goods sold;
  - examples: toys, paperback books.

We will now discuss wholesale distribution for several major media industries.

12.7.2 Film Wholesale Distributors

12.7.2.1 Film Distributors: General

One can say that the entire medium of film originated as a way to deal with the high cost of distributing the content of another medium, namely that of theater. The high costs of live theater distribution created incentives for technology for mass distribution of such content. Film provided the technology. Film distribution costs are about .005 cents per second per viewer, which is only 1% of the distribution costs of live commercial theater, which has to distribute the content every night to a modest-size audience using live actors, ushers, lighting technicians, and possibly musicians. Thus film emerged. Soon, the entire industry revolved around a handful of studios which produced, exhibited (i.e. retailed), and wholesale-distributed to retailers.

On the business end, what is it that film distributors do? Their functions are numerous:

- promotion and advertising of films;
- physical delivery of a film to theaters;
- often, exhibition in own theaters;
- negotiations with domestic and foreign outlets such as film theaters, TV networks, and online video providers;
- delivery of film to TV and cable networks;
- storage of film on website for downloading and streaming;
- transmission of film to third-party websites for downloading and streaming;
- production of home video and delivery to video stores;
- collection of rentals and license fee payments from the various retail channels;
- accounting for revenues and distribution of payments to the various participants;
- licensing of related merchandise;
- protection of the copyrights.

The major film distributors also frequently produce their own films and subsequently distribute them. They often provide financing to independent productions. As a condition for assuming part of the financial risk they have a major voice in shaping these films in terms of content and talent. A distribution agreement between a producer and a distribution can take three major forms:[67]

66 Ross, David Frederick. *Distribution Planning and Control*. (Norwell, MA: Kluwer Academic Publishers, 2004), 67.

67 Tyson, Jeff. "How Movie Distribution Works." *How Stuff Works*. September 18, 2000. Last accessed June 26, 2017. ► http://entertainment.howstuffworks.com/movie-distribution.htm.

Table 12.3 Market shares of film distributors (USA, 1995–2016)

	Distributor	Movies	Total box office (mil)	Tickets (mil)	Box office/film (mil)	Tickets/film (mil)	Share (%)
1	Walt Disney	532	$30,398	4657	$57.14	8.75	15.22
2	Warner Brothers (Time Warner/AT&T)	678	$29,992	4517	$44.24	6.66	15.02
3	Sony Pictures	643	$24,708	3814	$38.43	5.93	12.37
4	20th Century Fox (Fox)[a]	470	$23,197	3505	$49.36	7.46	11.62
5	Universal (Comcast)	436	$22,719	3421	$52.11	7.85	11.38
6	Paramount Pictures (Viacom)	444	$22,323	3441	$50.28	7.75	11.18
7	Lionsgate	344	$7489	987	$21.77	2.87	3.75
8	New Line (Time Warner 2001)	205	$6193	1116	$30.21	5.44	3.10
9	Dreamworks SKG (Viacom 2006)	78	$4279	760	$54.86	9.74	2.14
10	Miramax (Disney 1993, Al Jazeera 2016)	383	$3841	715	$10.03	1.87	1.92
11	MGM (Sony 2004)	229	$3510	642	$15.33	2.80	1.76
12	Fox Searchlight (Fox)	198	$2311	333	$11.67	1.68	1.16
13	Weinstein Co.	171	$2111	269	$12.35	1.57	1.06

Chart compiled using information from Box Office Mojo. "Studio Market Share." 2016. Last accessed June 27, 2017. ► http://www.boxofficemojo.com/studio/?view=parent&view2=yearly&yr=2015&p=.htm
[a]Acquisition by Disney pending 2018.

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- Profit or revenue sharing. The distributor receives a share of the economic benefits, that is participates in the risk. Usually, the distributor's expenses are recovered first.
- Leasing. The distributor agrees to pay a fixed amount for the rights to distribute the film.
- Purchase. The distributor acquires all rights in the film.

The first option is most prevalent. In return for its activities in support of the film, a distributor collects money at several stages. A distributor charges a film's budget and revenues on several levels, as discussed in ► Chap. 13 Accounting in Media and Information Firms.

- Distribution costs for the actual out-of-pocket expenses. These include the expenses for copies, dubbing, advertising, taxes, customs, freight and transport, and union residuals.
- Distribution fees. This is a service fee for providing managerial overhead and toward the studio's profit. It generally amounts to either 15% of the production budget,[68] or a percentage of adjusted gross receipts, which are the various revenue streams after deduction of sales taxes and similar taxes. Of adjusted gross box office receipts, the major studio distributors charge a fee of about 30% in North America, and slightly higher rates for international distribution and for foreign films in the US.[69]

Who are those major distributors? After an early tumultuous stage in the early twentieth century, a handful of film companies emerged that still dominate the Hollywood distribution (Table 12.3): Universal, Paramount, Columbia/United Artists (now Sony), Warner Brothers, and 20th Century Fox. They were joined in the 1930s by Disney. RKO and MGM fell by the wayside. This has left six firms for over 80 years now.

In the USA, vertical integration of production/distribution with exhibition was an issue of contention particularly in the 1930s and 1940s. Basically, the major studios/distributors did most of the exhibition in their own theaters. The producers and wholesalers were also the retailers. Independent theaters and film producers complained bitterly about the unfair competition of being excluded from top theaters, or being denied popular films for showing. The US government agreed and brought an anti-trust action that led a decision by the US Supreme Court in *U.S. v. Paramount (1948)* that required the studios to sell their movie theaters.[70] Similar controversies surrounded the vertical integration of film studios and TV networks. For a long time, this was outlawed in the USA through anti-trust law interpretations and various regulations such as the financial interest and syndication rules (1970–1993), but these restrictions were gradually

68 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
69 Blake, A. Brandon. "Striking a Deal in the Global Market." *Blake & Wang*. 2001. Last accessed June 27, 2017. ► http://www.blakewang.com/international_lawyer.htm.
70 Several other countries also took a look at competitive practices for film distribution. For example, in 1999, the Italian Anti-Trust Authority investigated allegations that major film distributors in Hollywood and throughout Italy violated the Italian anti-trust law.

dropped and today five of the six Hollywood majors are vertically integrated with TV networks, with Sony being the exception.

Before a film opens, the distributors must create an audience for it by marketing through advertising and other promotion. For a Hollywood movie, this averages about $40 million per film just on advertising.[71] Because of the financial and organizational effort, the distributors must be selective. Many filmmakers say that making a movie, hard as it is, is not nearly as difficult as getting it distributed.

Within the USA, the major distributors also handle films produced by independent and foreign filmmakers. Distribution is a major problem for independent film productions, which has grown over the years. In 2015 there were 4106 feature length submissions to the Sundance film festival, in Park City, Utah.[72] To serve independent filmmakers there are also independent distribution companies that concentrate on niche or low budget films. But they, too, are choosy. Independent film producers can also self-distribute their movies, but that is not easy in financial or logistic terms.[73] Alternative arrangements include independent sales agents, ("producers' reps"), who function mostly on a commission basis, with the rep getting 5–10% of a film's net proceeds.

Theatrical distribution of a major Hollywood film is expensive and requires much planning. One decision is to pick the opening date. It needs to fit the season and avoid clashing with competing releases that vie for the same target audience or with major sports events championship events. (On the other hand, a weekend with a big sports event might fit the release of films that appeal to viewers who are uninterested in sports and seek an escape.) Advertising costs also vary. In some countries where political campaigns are waged on commercial TV, in the weeks preceding an election the spike in demand for TV spots for political advertisements raises the price of TV time and thus the cost of film marketing.

Distributors must also stagger their films according to their ratings. If all their films on a weekend had an R rating, they would lose family attendance. Though kids aged 12 to 20 make up only 16% of the general population, they account for 27% of the movie audience. Distribution companies therefore often require filmmakers and producers to earn a rating less restrictive than R or NC-17. This can create tension with the creatives, who often gain peer and critical respect through their work on edgy films.

Next, the film distributors must line up theaters for a national release. In the USA, this takes about 1500 to 3500 theaters (and a proportionally similar number in other countries). Films are then promoted by a national advertising campaigns on TV, internet, and print media. The attention of critics and word of mouth are at their peak.

A second major way to distribute films is through the rental or sale of physical or electronic copies. The Hollywood studios initially totally underestimated the vast revenue potential of home video and fought it. Later, such videos became a major source of profits. A film's home video version is usually released four to six months after the film's end of the theatrical run,[74] though that window has been shortening. The studios distributors spend relatively little on the marketing of most videos and the stars rarely publicize them. Most of the public awareness of such a release is the afterglow of the film's original marketing push. And because that buzz depreciates over time there is an incentive to get movies into home video and VOD distribution relatively quickly.

Retailers such as Wal-Mart and Best Buy will stock and promote only a handful of new DVDs, focusing on blockbusters. To differentiate DVDs from the theatrical or TV version, the studio distributors usually include additional material such as deleted scenes, commentaries by the director and stars, and various public relations (PR) stuffing. Online, there are fewer such extras. Amazon Prime Video offers some only for an extra payment (rent or buy).

Adding supplementary materials can also be done to older films, and they can then be promoted as "special editions." Distributors also bundle TV series by releasing an entire season of episodes.

To export a film abroad, the distributors ship the prints or hard drives after dubbing or subtitling them with other languages, plus some editing to conform with local rules on content. For the Disney film *Gone in 60 Seconds*, for example, the cost of foreign prints, shipping, translations, and customs clearance for Disney's distribution arm Buena Vista was $12.7 million.[75]

The actual physical shipment is often subcontracted to third-party providers.

12.7.2.2 Digital Film Distribution

For over a century, the exhibition technology of film retail was fairly static: a strip of celluloid, with sprockets for moving the strip, and a strong light projecting through it and focused by a lens. What was later added was sound and color. One reason was that any change had to be adopted by tens of thousands of theaters, which was costly, unwieldy, and slow.

71 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

72 Carr, David. "New York 'Little' Films Grow Big." *The New York Times*, May 12, 2005. Last accessed June 17, 2017. ► http://www.nytimes.com/2005/05/12/movies/new-york-little-films-grow-big.html.

73 Marich, Robert. *Marketing to Moviegoers: Independent Distributors*. Burlington, MA: Elsevier Focal Press, 2005.

74 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

75 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

This changed with twenty-first-century electronics. The storage medium shifted from chemical and mechanical to electronic and computer-rendered. "Films" became hard drives. "Projectors" became electronic display machines that can operate at several frame rates and aspect ratios, and can even be controlled remotely. Traditional 35 mm film projectors have not entirely disappeared, since theaters often keep one or two for occasional airings of classic and independent movies. In 2008, the feature film processed for film prints was 13 billion feet worldwide. Just four years later, this had come down to 3.5 billion. The major photo film manufacturers collapsed: Eastman Kodak went bankrupt in 2012 and closed operations. Its major competitor, Fujifilm, announced it would stop making film for movies. In 2012, 20th Century Fox announced that it would release its movies in the future only in a "digital format." Technicolor closed its film lab in Glendale, California, and its Pinewood film lab in Britain.

Shipping a hard drive is a more efficient way to more content than film. But it is not cheap, either, up to $2000 owing to security and insurance. Most cinemas use a system called Digital Cinema Package (DCP), which is a USB pen (with a digital version of the film; the files are usually JPEG2000 and are either 2K or 4K in resolution) that is shipped inside a case. After receiving the DCP, the theaters then upload the data via a CRU port onto their main server. To create accountability each pen has a certain number of licenses on it. A DCP is a file that requires activation from a license. The cinema signs for the DCP, and then the projectionist is given the license activation code to allow the content to be played. The key to open the files is sent in an encrypted mail to the theaters. This is a coded file made specifically for any specific theater, telling their computer which screen it can play the film in and also the specific time period within which it can be played.[76] In all, almost all of 40,000 screens in the USA have converted to digital.[77, 78]

Yet this is not the end of the story for transitioning from a physical distribution chain to an electronic one. The next step is delivering the film to the theater electronically. Theaters can install satellite antennas to receive movies. This lowers the cost of delivering a film to less than $100. Full electronic distribution via streaming or downloading—from the distributor to the projector or screen—makes distributors nervous owing to the potential for piracy. But security can be provided through effective encryption. It also makes theater chains nervous: once direct electronic distribution is available to the theater, why not leapfrog the theater and deliver directly to the home? This makes business sense where a premium price can be charged. In 2014, Netflix and Sony enabled viewers to watch certain movies on-demand with 4K Ultra-HD televisions at the same time as theatrical exhibition. Oscar-winning director Christopher Nolan observed: "the vast majority of theaters will be showing something that frankly isn't much better than what you can get in your house."

One must distinguish digital production from digital storage and digital distribution. The three are related but independent of each other. On the production side, the trend toward digitalization has been highly controversial. Famous directors (Clint Eastwood, Christopher Nolan, Martin Scorsese, Steven Spielberg, and Quentin Tarantino) rhapsodized about celluloid's texture, visual effects, even smell. Yet the discussion compared digital with pristine celluloid film, which rarely exists in the real world of theater exhibition.[79]

In 2014, Paramount became the first major studio to stop releasing movies on film in the USA altogether. Paramount kept a low-profile about its decision because studios did not want to attract negative publicity for dropping film, which retains cachet among many filmmakers.[80]

While celluloid purists have a point, digital technology also facilitates new ways of doing cinema. Digital film is thus more than a substitute for film. It opens for filmmakers new avenues and possibilities: 3D films, films with a high-frame rate, and much greater opportunities for editing and special effects. They can use new production techniques and new distribution platforms. This will actually disadvantage film theaters. The technical limitations of theatrical exhibition include less potential interactivity and social connectivity.

At the same time, digital technology makes it easier to alter the filmmaker's product. Subsequent changes by the distributor, or network, or a government agency are possible, including many years later, with pressures for edits to conform to the cultural or political spirit of the day or to audience fashions.

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76 StackExchange. "What Format Do Movie Theaters Now Use?" August 31, 2015. Last accessed June 27, 2017. ► https://movies.stackexchange.com/questions/21754/what-format-do-movie-theaters-now-use.

77 Statista. "Number of movie screens in the United States from 2008 to 2016, by format." 2017. Last accessed June 27, 2017. ► https://www.statista.com/statistics/255355/number-of-cinema-screens-in-the-us-by-format/.

78 White, Ian. "Movies via Satellite: Theaters Look to the Skies for the next Generation of Content Delivery." *Digital Trends*. March 8, 2013. Last accessed June 27, 2017. ► https://www.digitaltrends.com/home-theater/movies-via-satellite/.

79 It was therefore ironic that the film *The Wolf of Wall Street* became the first major studio film distributed all-digitally in the USA, given that its director was Martin Scorsese, who was an untiring advocate for celluloid film.

80 Verrier, Richard. "End of Film: Paramount First Studio to Stop Distributing Film Prints." *Los Angeles Times*. January 17, 2014. Last accessed June 27, 2017. ► http://articles.latimes.com/2014/jan/17/entertainment/la-et-ct-paramount-digital-20140117.

Case Discussion

Film Distribution

Bertelsmann's films division UFA has several subsidiary film and TV production companies that produce movies that are distributed via cinemas, TV, DVD, online, pay-TV, and VOD. In 2008 it established UFA Cinema as its distribution arm. UFA Cinema aims to act as a producer-distributor for about eight films a year. In 2013, it had a retail market share of about 4% in Germany. It is also a distributor to the German home entertainment market, for international TV productions by other producers. In contrast, the Hollywood distributors were much larger: UPI (Universal and Paramount) 21%, Warner Bros. 10%, Disney 11%, Sony 10%, Fox 9%. Two German distributors were Constantin (8%) and Tobis (4%).

For its own films, in addition to using its own distribution arm, UFA cooperates with domestic and international movie distributors. It does not work exclusively with a single distributor but rather finds suitable distributors for each production. An example for the distribution inside Germany of an UFA film is *Jesus liebt mich* (2012), distributed by Warner Bros. Examples for a UFA film distributed by others outside Germany is *Hanni & Nanni* (2010) by UPI.

12.7.3 Book Distributors

12.7.3.1 Book Distributors: General

The number of new book titles is staggering: in the USA alone over 305,000 in 2013, though this number is slightly lower than for 2012. The major growth was in self-published books, where more than 700,000 books were issued in the USA in 2015,[81] an increase of 375% in five years.[82] Together, the number of new books published each year in the USA has grown by more than 600,000 since 2007, to well over 1 million annually. At the same time, more than 13 million previously published books are still available through many sources.

On the other hand, book sales peaked in 2007 and have either fallen or been flat in subsequent years, according to the Association of American Publishers.

There are about 3000 listed publishers in the USA. But what is a publisher? By another definition there are over 30,000 entities issuing books. Few books succeed in terms of circulation. Of the numerous titles, in a recent multiyear period, about

- 10 titles sold over 1 million copies;
- 67,000 books sold 1–5 thousand copies;
- 203,000 sold 100–1 thousand copies;
- 948,000 titles sold less than 100 copies.[83]

All of these thousands of publishers, tens of thousands of bookstores and other outlets, millions of titles, and hundreds of millions of customers are linked by a very narrow distribution systems. In the USA the major book wholesalers/distributors are few in number, and dominated by Ingram and by Baker & Taylor. In the UK, they are Gardners and Bertram. A wholesaler serves publishers who want to outsource warehousing and logistics. Publishers use wholesale distributors for several reasons, in particular the cost and effort of reaching thousands of retail stores. Several major publishers have distribution operations themselves, which may also serve other publishers. Such large operations include Bertelsmann's Random House Publisher Services in the USA and, with Pearson, TBS/GBS in the UK, and Hachette Publishing's distribution arm. Conversely, several major large publishers have reduced their wholesale distribution operations. HarperCollins (owned by News Corp.) shifted its front list distribution to R.R. Donnelley, the largest US printing company. There are also small specialized distributors. Continental Sales Inc. mostly distributes foreign publishers of English-language books. Greenleaf Book Group, IPG, Small Press, and Book Masters serve micropublishers.[84]

Distribution is not just a delivery operation for packages. That is only the beginning. It means holding an inventory, which must be optimized. For example, publishers require a coordinated arrival of new books at multiple retailers to link in with promotional activities. And retailers, similarly, need to be assured of a rapid supply of a book when it gets promoted on TV shows and in advertisements. There are also large seasonal fluctuations in book sales and hence distribution. Late summer is the peak season for textbooks. It accounts for 60% of McGraw-Hill's revenues.[85] The Christmas season is big for books suitable for gifts. Summer is the time for the sale of light reading.

With IT systems, the management of book wholesale inventory management has become more integrated with retailing. Computerized inventory control means retail stores might find a copy in another store of its chain; or a publisher might go to one chain and ask them to return books which they can then ship to another.[86] Distributors can also become retailers. With POD, a distributor can offer books directly to readers. That is, of course, a delicate matter, since it means competing with one's own retailer customers.

81 Bowker. "Self-Publishing in the United States, 2010–2015." March 24, 2016. Last accessed April 5, 2017. ► http://media.bowker.com/documents/bowker-selfpublishing-report2015.pdf.

82 Piersanti, Steven. "The 10 Awful Truths about Book Publishing." *Berrett-Koehler Publishers*. September 26, 2016. Last accessed February 20, 2017. ► https://www.bkconnection.com/the-10-awful-truths-about-book-publishing.

83 Donadio, Rachel. "Backlist to the Future." *The New York Times*, July 30, 2006.

84 Rosen, Judith. "Distribution in a Digital Age." *Publishers Weekly*. April 13, 2012. Last Accessed October 18, 2012. ► https://www.publishersweekly.com/pw/by-topic/industry-news/manufacturing/article/51512-distribution-in-a-digital-age.html.

85 Maloney, David. "By the Book Distribution." *Modern Materials Handling* 58, no. 4 (April 2003): 33.

86 Fiscus, James. "Changes in book distribution drive up prices, reduce sales." *Science Fiction Chronicle* 23, no. 2 (February 2002): 32–35.

12.7.3.2 Case Discussion

Book Publishing Wholesale Distribution

Bertelsmann and Pearson established in 2013 the world's largest consumer-oriented ("trade book") publishing company, Penguin Random House. The joint venture is based in New York and is 53% owned by Bertelsmann, 47% by Pearson. In its main three markets (USA, UK, Germany) Bertelsmann relies on its own distribution operations through vertical integration. Bertelsmann's book distribution in Germany is often handled by its own distribution arm VVA. In the UK, Penguin Random House owns TBS and GBS, among the UK's largest book distributors. In the USA, bookstores and libraries can obtain Random House books through independent distributors such as Ingram and Baker & Taylor. Taking a further step, Bertelsmann also owns Random House Publisher Services (RHPS), which distributes Random House books and also those of several other publishers. RHPS operates huge warehouses in Maryland and Indiana. The Maryland operation picks, packs, and ships an average of a million books a day, including many international shipments.

Random House considers distribution one of its core competencies. It was named Amazon.com's Distributor of the Year in 2009. The company used to distribute only its own new and backlist books (8000 new titles a year) issued by its nearly 100 imprints in North America. Most of those books were shipped as bulk ("full pallet") orders. It then instituted changes in its business and operational model of book distribution: in the past, its customers did not make small orders because they cost the distributor a lot more than larger orders and the price was therefore higher. RHPS had to bring down its cost of servicing small orders, and this required the building of an advanced picking and handling process.

By creating automated sorting technologies, RHPS was able to economically send much smaller quantities than before. Full pallets now comprise fewer than 10% of the units shipped. About 60% of the units are full cartons and 30% are individual titles picked to a mixed-book carton ("loose picks"). (There are 12 books in a carton, and 720 books in a pallet.) To do all this required major investment. In 2009 RHPS built an automated sorting technology using a single-tray tilt-tray sorter, with

- a 712-foot-long sorter;
- 250 double-level chutes for a total of 500 simultaneous potential sort/pack-out destinations;
- Overhead scanning of UPC bar codes.

Such a system can also provide third-party logistics and a direct-to-consumer service. RHPS thus added a successful third-party distribution business. It ships titles for several dozen smaller publishers to thousands of retailers, other distributors, wholesalers, and libraries, as well as direct-to-consumer online orders. For these publishers, RHPS provides warehousing, customer service, and back office support functions.

Bookstores had been increasingly returning books, and had to be refunded. These returns also had to be processed and returned to inventory, an expensive and slow transaction. RHPS strategy was to reduce these returns by speeding up its supply chain. Its aim was to encourage large customers to become driven by demand-pull. They should carry less inventory and order daily, based on the titles that were selling instead of ordering once a week or once a month in large quantities and then returning unsold titles. That way, fewer unsold books would be returned.

We conclude that Bertelsmann has been successful and innovative in the wholesale distribution of physical books. Online distribution activities for print and digital books will be discussed further below.

12.7.4 Newspaper Wholesale Distribution

Distribution accounts for 20% of a newspaper company's total cost. The architecture of newspaper distribution is hierarchical. For a physical product, it must be particularly rapid. A subscriber wants to get the morning paper at breakfast before leaving for work. The physical distribution architecture starts with the printing facility's loading dock. Transportation is carried out by trucks of the newspaper or third-party delivery service. They are then delivered to a newspaper's regional distribution centers, where the bundles are reloaded and trucked to retailers,[87] and to other delivery services that reach readers.

In the USA the market distribution for newspapers is largely local. Only a few newspapers are distributed nationally—*USA Today*, the *Wall Street Journal*, and the *New York Times*. Most daily newspapers use independent regional distributors which pay a wholesale price for a large quantity of papers and resell them to retail outlets. Some papers pay contract distributors a set fee in exchange for delivery and retail, or hire salaried distributors. In Japan, more than 95% of distributed newspapers are home delivery subscriptions,[88] conducted by approximately 17,500 delivery and sales agents. (These *hanbaiten* are allowed to insert advertising sheets, so-called *chirashi*, into the papers they distribute, as an additional revenue source.) They employ more than 340,000 individuals (most of them part time), and typically service exclusively one newspaper. Given their size they are a powerful constituency, and newspapers cannot easily shift toward digital distribution without triggering a major backlash from the distributors.

12.7.5 Magazine Wholesale Distribution

Magazine publishers usually enter into multiyear contracts with third party distributors for national, regional, or market-by-market newsstand distribution services. After leaving the

87 Rehn, Jonas. "Information Flow and Physical Distribution Planning in Newspaper Delivery." *Royal Institute of Technology*. October 2001. Last accessed June 27, 2017. ► https://www.nada.kth.se/utbildning/forsk.utb/avhandlingar/lic/011207abs.pdf.

88 Pressnet. "Percentage of Home Delivery." Last accessed June 27, 2017. ► http://www.pressnet.or.jp/english/data/circulation/circulation03.php.

printing plant, the magazine products are moved to national and regional wholesalers, who then distribute to retailers of various sizes. But single copy sales have greatly declined in recent decades. Most magazines, especially those that are not consumer oriented, are sent instead by mail to subscribers, with the postal service as the distribution system for the publishers.

Curtis is the largest national magazine distributor in the USA, with $1.5 billion in revenues and a 32% share of national distribution for single-copy magazine sales.[89] The second largest, Source Interlink, accounts for 30% of the single-copy distribution market. Source Interlink has also acquired magazines itself. Together, the top two distributors control almost two thirds of national distribution. There are only two or three other national magazine distributors in the USA.

Regional wholesale magazine distributors operate in their geographical markets. But within those regional markets, concentration is high.[90] Another type of distributor is the magazine's printer. Some offer their customers logistics services. The big printing company R.R. Donnelley, for example, distributes magazines to news-stands with its own distribution fleet or in cooperation with logistics services such as UPS and FedEx.[91]

In the UK, similarly, a tiny number of firms dominated magazine distributors in 2015: Frontline (with 29% market share), Market Force (30%), COMAG (25%), and Seymour (14%).[92]

12.7.5.1 Case Discussion

Magazine Distribution

Bertelsmann's subsidiary for magazine publishing is Gruner + Jahr. Its titles include approximately 285 magazines and newspapers in 22 countries. Publications include *Stern*, *Geo*, *Brigitte*, *Capital*, *YPS*, and *Auto Motor und Sport*. The main German competitors (Axel Springer, Hubert Burda, and Heinrich Bauer) have had double-digit increases in global revenue since 2008, owing to international expansion, while Bertelsmann's Gruner + Jahr has declined markedly,[93] losing its #1 position in the German market. Until 2005, Gruner + Jahr had a fairly good-sized presence in the USA. In that year, it sold its US women's magazines (*Family Circle*, *Parents*, and *Child and Fitness*) to Meredith, concluding that it could not establish a solid presence.[94]

German magazine publishers are often the national distributors for their titles. There are also 76 independent magazine and newspaper wholesalers in Germany with 92 sales regions. Wholesalers have the exclusive distribution rights for their region. They supply approximately 119,700 retailers with over 4000 titles.

Gruner + Jahr's own distribution subsidiary is Deutscher Pressevertrieb (DPV), established in 2006. DPV also distributes for other publishers: it distributed 7% of Germany's single-copy magazines in 2012. The main distribution competitors are operations by the other top magazine publishers Springer (13%), Hubert Burda (16%), and Bauer (19%).[95] DPV services include distribution control, direct/retail marketing for print and digital, logistics, import and export of media brands, as well as worldwide export of German and international newspapers and magazines.

The overall magazine market in Germany has been steadily decreasing, at about 1–2% per year.[96] Gruner + Jahr worldwide revenues decreased by 20% from $3 billion in 2008 to $2.5 billion in 2012. Subscriptions are the most important distribution channel, but subscription price discount over retail sellers cannot, under German law, be higher than 15% of newsstand price.[97] This is a protectionist measure to help small retailers and newsstands.

Gruner + Jahr also directly distributes online magazines and newspapers either from their respective websites or from the company's online magazine website Pubbles.[98] Publishers sell the e-magazines by subscriptions or per-issue.

Thus Bertelsmann's magazine publishing has a decent access to distribution channels. In Germany, it is vertically integrated with its own distribution DPV. And globally, Bertelsmann runs an e-magazine platform. Access to distribution is not the cause for Bertelsmann's decline in magazine publishing on its home turf or in the USA.

89 Curtis. "Overview." Last accessed April 11, 2011. ► http://www.curtiscirc.com/1_about/index.html.
90 Harrisburg News Company. "Services: Book Distribution." Last accessed June 27, 2017. ► http://harrisburgnewsco.com/distribution-services/book.asp.
91 Quad Graphics. "Postal Consultation." Last accessed June 27, 2017. ► https://www.qg.com/capabilities/logistics-services/postal-consultation.
92 Based on company website.
93 Media Tribune. "Die Konkurrenz läuft Gruner + Jahr davon." September 5, 2012. Last accessed June 27, 2017. ► http://www.mediatribune.de/nachrichten/die-konkurrenz-laeuft-gruner-jahr-davon.
94 Seelye, Katherine Q. "Gruner & Jahr Said to Sell 2 Business Magazines." *New York Times*. June 21, 2005. Last accessed June 27, 2017. ► http://www.nytimes.com/2005/06/21/business/worldbusiness/21iht-mag.html.
95 Media Tribune. "Die Konkurrenz läuft Gruner + Jahr davon." September 5, 2012. Last accessed June 27, 2017. ► http://www.mediatribune.de/nachrichten/die-konkurrenz-laeuft-gruner-jahr-davon.
96 Seelye, Katherine Q. "Gruner & Jahr Said to Sell 2 Business Magazines." *New York Times*. June 21, 2005. Last accessed June 27, 2017. ► http://www.nytimes.com/2005/06/21/business/worldbusiness/21iht-mag.html.
97 DPV. "Distribution of Press in Germany." Last accessed September 4, 2012. ► http://www.dpv.de/en/faqs-links/distribution-of-press-in-germany/subscriptions/http://www.dpv.de/en/faqs-links/distribution-of-press-in-germany/subscriptions/.
98 Haupt, Johannes. "Pubbles: Onlinekiosk von Bertelsmann ist da." *Lesen*. June 10, 2010. Last accessed June 27, 2017. ► http://www.lesen.net/ebooks/pubbles-onlinekiosk-von-bertelsmann-ist-da-4132.

Table 12.4 Global and regional market shares of the music group majors (2013)

	Sony	Vivendi (UMG)	Warner Music	Others	Industry Concentration (HHI Index)
North America	23.6	34.9	17.6	23.9	2085
Europe	22.2	38.4	17.3	22.1	2267
Asia (excluding Japan)	18.5	22.8	13.4	45.3	1042
Japan	21.3	17.4	10	23.3	1162
Latin America	30	23.7	8.9	37.4	1541
Australasia	24.4	31.6	17.8	26.2	1911
Africa	24.2	36	7.9	31.9	1944
World	22.9	32.2	16.1	28.8	1820

12.7.6 Music Distributors

12.7.6.1 Music Distribution: General

There are two levels of intermediaries between the music artists and the user. The first is the label, which is the creation/production level. Labels are often part of a music group that functions as the distributor, the second level. The three major music groups (Universal, Sony, and Warner) are all distributors, but smaller independent distributors also exist, such as Alliance, Passport, Independent National Distribution, and The Orchard. The distributors (the wholesale stage) market and ship worldwide to retailers. They also promote the music by sending it to DJs, clubs, television and radio stations, and special events.

At the lower end of music distribution—as in several other industries—there is a type of wholesalers known as "rack jobbers," a hybrid between operator and retailer. These companies set up and maintain racks in department stores. They purchase goods, such as CDs and DVDs, directly from the music producers at a discount and then sell them to—and sometimes in—the department stores.[99] In the latter case, the rack jobber does not sell the products to the store owner but displays and sells its products through the department store, in a kind of contingency arrangement. Unsold products are returned to the rack jobber without any loss for the store owner. In return for shelf space, the rack jobber either pays a leasing/rental fee to the store owner and/or gives up a percentage of the sales to the store owner. The pricing depends on whether the rack jobber hires its own staff/salespeople.[100]

Most music distribution, however, goes through the major three music groups. Labels and distributors used to be separate entities. But in the 1980s, the largely independent system of distribution became a problem for the major labels because their nationwide promotions required full co-ordination of record release, tours, and radio airplay. They therefore integrated vertically into national and international distribution. Today, the major music groups own many specialized labels around the world. Labels come and go,[101] and market shares fluctuate with the popularity of star performers. The global and regional market shares of other music companies is small. The major distributors are the core of the global music business (Table 12.4).

The three major music group firms are vertically integrated into "music publishing" (copyright ownership and licensing), as well as production and distribution. They are (or were in the past) also integrated into other media activities such as film and TV, consumer electronics, and print, to enable cross promotion. Sony and Universal (UMG, owned by Vivendi) are integrated into various other media operations. This was also true in the past for CBS, RCA, Warner, and Bertelsmann.

99 Hull, Geoffrey P. *The Recording Industry,* 2nd ed. (New York: Routledge, 2004), 186–188.
1. Based on market shares before sale of BMG (Germany) *music* labels to Sony in 2008, and sale of EMI on market shares before sale of BMG (Germany) *music* labels t to Warner (1/3) in 2013. Warner Music Group is independent of Time Warner.
2. Japanese HHI is calculated using Avex (14.7%), King (7.4%) and J-Stormtorm (14.7%), King (7.4%)

100 CareersinMusic. "Become a Rack Jobber." Last Accessed February 21, 2017. ► https://www.careersinmusic.com/rack-jobber/; Business Dictionary. "Rack Jobbers." Last Accessed February 21, 2017. ► http://www.businessdictionary.com/definition/rack-jobbers.html; Dannenfeldt, Diane. "How Music Distributors Work." *How Stuff Works*. July 17, 2008. February 21, 2017. ► http://entertainment.howstuffworks.com/music-distributor1.htm.

101 Vivendi's Universal Music Group: Labels include MCA, A&M, Mercury, Island, Polygram, Polydor, London, Wing, Deutsche Grammophon, Verve, Geffen, Motown, Def Jam, Decca, and BMG Music Publishing. Sony Music Group was created out of CBS Records, RCA and the Bertelsmann Music Group (BMG). Its labels include CBS Records' Columbia and Epic, and RCA records' Ricordia, Ariola. Warner Music Group has the music labels WEA, Warner, Atlantic, Reprise, Elektra, Asylum, Atco, and Maverick. In 2003, Warner Music was sold to investor consortium including Edgar Bronfmann, and taken public in 2005. It is now owned by Access Industries. (Len Blavatnik). The percentage of "other" companies is remarkably small for most of the world's regions, typically around 25%. The exceptions are Japan and the rest of Asia. However, the music style or artists are much less global than the above share of business would suggest. Music distribution is much less diversified internationally than music content.

12.7.6.2 Case Discussion

Music Distribution

Bertelsmann Music Group (BMG) used to be one of the world's five major music companies. BMG's global market share was 21.5%. Labels included RCA, Arista, J Records, Jive, and Zumba. Artists included Christina Aguilera, Britney Spears, Justin Timberlake, and Elvis Costello. In 2005, BMG merged with Sony's music group to form Sony BMG Music Entertainment, the world's largest music firm. But in 2012 Bertelsmann sold its 50% share of the joint venture to Sony.

Bertelsmann also sold its music publishing (rights licensing) business to Universal. Subsequently, however, Bertelsmann built up a new music rights management operation, with the private equity firm KKR. It held the rights to over 1 million songs, and it markets them to record labels, film studios, and TV networks. Bertelsmann was thus on track to become one of the biggest music rights companies in the world.

12.7.7 Consumer Electronics Distribution

Consumer electronic distribution costs (not revenue shares) vary depending on a variety of factors. For example, the 30 GB iPod had an estimated distribution cost of 10% of its retail price.[102] A notebook computer is estimated to have only a 5% distribution cost because it is a much more expensive machine than an iPod.[103]

Manufacturers take their products to ports for shipment to export markets. This initial part of the supply chain is its most inefficient part.[104] Once imported to their destination country, typically by container ships, consumer electronics shipments are put in large warehouses. These are run by a variety of operators: the manufacturing company itself, specialized wholesalers, general logistics providers, or the large retail chains. Compact high value consumer electronics are often air freighted from Asia to the USA and Europe, especially for new releases. The electronics industry accounts for around 40% of the value of the entire international air cargo industry.

12.7.8 The Compensation of Wholesale Distributors

12.7.8.1 Film

When consumers pay for watching a film, the retailer—movie theater, video rental store, VOD platform, and so on—keeps a share, and passes another share, or a fixed payment, to the distributor. The distributor, in turn, passes part of that money to the producer and to the investors in the film, and to other claimants for payment.

The retailer's share in this pot will be discussed later in greater detail.

Box-office grosses are split between exhibitors and distributors by various arrangements. Retailers pay distributors for "rentals" in several ways:

- Flat rental: a fixed percentage of box office revenues for the "rental" of film (typically 50:50).
- Sliding scale: after a house "nut," the split in first week is often 80:10 in favor of distribution, and then declines to 70:30, 50:50, and so on.
- Minimum gross percentage. ("floors" for the distributor's share).
- "Four wall": distributor pays for the use of the theater. The rest goes to the distributor.

For video store distribution, originally the distributor got about $60 as a flat fee from the movie rental store, allowing unlimited rentals for the life of the video.[105] The giant Blockbuster chain (subsequently bankrupt) replaced that with revenue-sharing, where the film's distributor got 40% of the rental fees from Blockbuster.

Of the "rentals" to the distributors, the distributor keeps a large share, and the rest goes to the producer, to investors, and to those stars and directors who have a profit or revenue participation. As mentioned, the distributor gets to keep the distribution fee that is charged against the film. It is a service fee for providing managerial overhead. It also includes the distributor's profit. The major distributors charge about 15% of total budget cost in the USA, or about 30% of adjusted gross receipts, such as box office. Rates are slightly higher for Europe and other countries. Smaller distributors are likely to charge less, about 20% for independent distributors without national branch-office networks and for specialized films shown only in selected locations.[106]

102 Dedrick, Jason, Kenneth Kraemer and Greg Linden. "Who Profits From Innovation in Global Value Chains?: A Study of the iPod and Notebook PC's." *UC Irvine*. June 22, 2009. Last accessed June 27, 2017. ► http://web.mit.edu/is08/pdf/Dedrick_Kraemer_Linden.pdf.

103 In China, 30% of the cost of a product in 2005 was attributable to the domestic supply chain, compared with 10% in America and Europe. Dedrick, Jason, Kenneth Kraemer and Greg Linden. "Who Profits From Innovation in Global Value Chains?: A Study of the iPod and Notebook PC's." *UC Irvine*. June 22, 2009. Last accessed June 27, 2017. ► http://web.mit.edu/is08/pdf/Dedrick_Kraemer_Linden.pdf.

104 Weaser, Mark. "New Logistics Systems Will Increase Efficiency, Boost Profits in China." *Supply Chain Brain*. September 1, 2005. Last accessed June 17, 2017. ► http://www.supplychain-brain.com/content/logisticstransportation/transportation-distribution/single-article-page/article/new-logistics-systems-will-increase-efficiency-boost-profits-in-china/.

105 Epstein, Edward. "Hollywood's New Zombie: The last days of Blockbuster." *Slate*. January 9, 2006. Last accessed June 17, 2017. ► http://www.slate.com/articles/arts/the_hollywood_economist/2006/01/hollywoods_new_zombie.html.

106 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

The distributor also gets to "recover" from the film—that is to keep—direct expenses for advertising, print of copies, other marketing expenses,[107] and interest for the money spend along the way. These are called the distribution costs. They tend to have a healthy profit margin built in. Furthermore, advertising billings are subject to a 10% overhead. Interest on financing loaned by the distributor to the producer for production costs also get recovered first.

12.7.8.2 Book Distributor Compensation

In theory, the discount wholesale price given by publishers to wholesaler and bookstores is often 50% of suggested retail price. In practice, most books are discounted by publishers; and the distribution chain gets 52–58% of suggested retail price. But with bookstore chains offering their own discounts off the suggested retail price, this tends to bring it back to a 50:50 split at a lower price.[108] Wholesale discounts by publishers of the suggested resale price can vary considerably, and relate to size of the orders, total invoice value, and number of copies. A large book retail chain will seek at least 45–56% on paperback trade titles. Smaller publishers may offer only 33–35%, given their expenses and the small print run. For school titles the discounts are 20–25%, and for school books they are usually around 17½%.[109] A large book chain will seek at least 45–56% on paperback trade titles. Publishers penalize booksellers who order single copies of titles, supplying them at a discount of only 20–25%.

12

12.7.9 Wholesale Distribution: Trends

12.7.9.1 Trend 1: Retail and Wholesale Functions Are Merging as Large Retail Chains Emerge

The large retail chains deal directly with manufacturers/producers, and this reduces the role of wholesalers. What seems to be emerging is a replacement of the three-stage system with a two-stage one. The vertical convergence of retailer/wholesaler, together with the horizontal concentration in the retail level, leads to very powerful distribution intermediaries between producer and consumer.

12.7.9.2 Trend 2: Increasing Market Concentration in Wholesale Distribution

Wholesale distribution was always concentrated for film, music, books, and magazines. Online media distribution adds still further to this market concentration, with

- enormous economies of scale;
- the ease to port distribution platforms and models across countries and across products (e.g. Amazon).

12.7.9.3 Trend 3: Do Distributors Take Over Production?

Distributors of content have often extended into and dominated production, in film, music, or TV. The next chapter of such expansion might be written right now. Netflix, Google (YouTube), Amazon, Verizon, AT&T, and Apple have entered the content production business. Already, Amazon and Apple have achieved a scale and importance in distribution that puts them into a position to dictate a pricing structure to book and music publishers.

A concluding observation: the share that wholesalers keep of what consumers pay for the product. It is, on average, 18.3%, after subtracting their own payments to producers and creators (see the appendix to this chapter). It is much higher for film (40.8%) and lower for books (6.3%); magazines (3.8%); newspapers (2.2%), and online media (5.5%). It is higher, by 57%, for physical content media than for electronic content media (23.1% versus 14.7%). It is larger where

- a major marketing activity is required (such as film);
- the distributor has a financial stake or an active role in the shaping of the media product (film, music) or must buy it from producer (film);
- a large inventory must be kept (consumer electronics);
- the product's potential for success is low (music).

12.8 Retail Distribution: Physical Distribution

12.8.1 Film

Retailing is the resale of a product or service to the enduser, typically consumers. It can be done by small and specialized companies catering to a narrow or local customer base, or by large and global companies with outlets in many cities and a wide assortment of products. It also includes e-tailers who operate online.

12.8.1.1 Film Retail Distribution of Film—Channel #1: Theaters

The rise of film theaters was a phenomenal cultural change. By 1929, 35 years after the first film was made, and just three years after the first talking movie was released, over two-thirds of the US population was going to movie theaters at least once a week, and often more than six times.

At each film theater company, "circuit" buyers analyze the prospects of a film, based on previews and factors such as ratings. In Hollywood's heyday, the studios could require blind bidding (booking films sight unseen) and block booking (buyers must book films in groups, giving poor films a market). These practices are often legally prohibited.

Hollywood used to dominate theater ownership. In 1945, five major studios owned 17% of all US theaters and 45% of all theater revenues. In 92 big cities, more than 70% of the first-run theaters were affiliated with a studio. In 1948, government forced the divestiture of movie theaters from studios. In 1990s, studios were allowed to purchase theaters once again, but their attempts to do so were unsuccessful.

107 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

108 Alexander, Alison, James Owers, and Rodney A. Carveth. *Media Economics: Theory and Practice.* Mahwah, NJ: Lawrence Erlbaum Associates, Publishers, 2004.

109 Zell, Hans. *Book Marketing and Promotion: A handbook of Good Practice.* (Oxford: INASP, 2001), 51–55.

Table 12.5 Film theater companies (North America, by screens)

AMC	7852
Regal	7295
Cinemark	4499
Cineplex	2892
Marcus	681
Harkins	446
Southern Theatres	445
B & B Theatres	409
National Amusements	409

In 2017, there were 40,246 movie screens in the USA.[110] The number of tickets sold in 2000 was about 1.39 billion, declining to 1.27 billion in 2014 and 1.2 billion in 2015.[111] Table 12.5 shows the major film theater companies in 2015.[112]

No circuit of theaters, even AMC and Regal Cinemas with their 7000-plus screens at hundreds of locations, do not fully cover the USA, and the distributors therefore must cobble together their theaters for a nationwide release.

There was a big investment push into film theaters. In 1980s, multiplex and then megaplex theaters opened in the USA. Such theaters then emerged also in Europe and Japan. Economies of scale, improved sound, stadium-style seating, parking and shopping opportunities are the reasons for the rise of such theaters. In 2016, there was approximately one screen per 8000 people, or 12 screens per 100,000.[113] (In some countries, such as France, the number was twice as high, but almost everywhere else it was much lower.) For example, there were two competing megaplex theaters with a total of 52 screens in Ontario, California, right next to each other. In each geographical zone, which each contain 100–400,000 people, a theater gets an exclusive license to show a film.[114] But the rise of "clearance zones" had fallen from 15 miles in the 1960s to 2–3 miles in 2002. Why this theater glut? Shopping-mall operators encouraged theaters as "anchor" tenants to generate evening traffic. Wall Street financiers liked the theater business because of its huge free cash flow.

Many multiplexes have 10–20 screens with theaters of relatively small seating capacity. This development was accelerated by the Americans with the Disabilities Act of 1990, which requires that theaters with more than 300 seats provide full wheelchair access. As a result, theater owners, when renovating, reduce the size of auditoriums to less than this number. Not uncommonly, one projectionist services up to eight screens, which lowers costs.[115] In consequence, movie screens in the USA more than doubled over two decades—from 16,000 in 1980 to over 35,000 in 2000 and 40,000 in 2014. But only 50% more tickets were sold in 2000 than in 1980, and thereafter the numbers were declining. There were not enough attractive movies to fill theaters, and fewer films are being made by Hollywood. Films could be early watched on cable TV and satellite, and later online as VOD.

As a result, capacity utilization of film theaters dropped, while they carried high debt and costly leases with mall owners. Under severe economic pressure, several major chains consolidated or declared bankruptcy to reorganize their debt and renegotiate onerous leases. By the late 1990s, four of the top six theater chains had filed for bankruptcy. The average price of a screen film theater, as measured per screen, collapsed sharply from $700,000 in 1998 to $135,000 in 2001. As a result of consolidation, the market share in terms of box-office revenue of the top three chains rose from 29% in 1997 to 40% in 2001,[116] and 47.7% in 2015. In terms of total screens, the market share of the top three chains soared from 24% in 1997 to 31% in 2001 and 48.9% in 2015. The major theater chains screen the films, and rental deals get negotiated. Such large chains such as AMC or Regal use their own buyers to book films while small chains and independent theaters use third-party buyers.

Theaters typically share revenues with the films' distributors. The fees paid by theaters to the distributors are called rentals. Box office ticket revenue is split between the distributor and exhibitor on a formula basis.[117] The percentage of ticket sales given to studios as a rental fee typically declines after the first week.

For films by the Hollywood majors, the theaters get to keep about 54% of ticket prices, while for independently distributed films they keep around 60%. Arthouse theaters keep 60–65% of ticket prices for rentals, given the high cost of marketing relative to the audience size. Usually, the theater takes the entire box office revenues up to an agreed upon amount (the "house nut"), and the distributors gets a percentage of all revenues beyond it. That rate may rise in the theaters' favor the longer the film has been out. Thus a playdate that grosses $5000 in box office in a week with a $1000 house nut and a 70/30 split means $2800 (70% of $4000) for the distributor and $2200 ($1000+ 30% of $4000) for the exhibitor. If the split changes to 40/60 in the next week, then the exhibitor will receive $3400 and the distributor $1600 for the $5000 gross. Because the time a film will be shown in a theater depends on demand and is not determined in advance, some contracts guarantee a floor for distributors, similar to the theater's house nut.

110 Statista. "Number of cinema screens in the United States from 2008 to 2014, by format." 2015. Last accessed June 11, 2015. ► http://www.statista.com/statistics/255355/number-of-cinema-screens-in-the-us-by-format/.

111 The numbers. "Domestic Movie Theatrical Market Summary 1995 to 2015." Last accessed June 15, 2016. ► http://www.the-numbers.com/market/.

112 National Association of Theater Owners. "Top 10 U.S. & Canadian Circuits." Last accessed June 27, 2017. ► http://www.natoonline.org/data/top-10-circuits/.

113 How many screens can a city support? In 2000, San Francisco was the leader in the US among large cities, with over 20 screens per 100,000 population, four times the New York figure.

114 Epstein, Edward. *The Big Picture: The new Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

115 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

116 Alderston, Derek, Jeffrey Karish and Roy Price. "Revenge of the Multiplex." *The McKinsey Quarterly*. (Autumn 2002): 6. (Adjusted for 2015 data).

117 Alpert, Frank and Jon Silver. "Digital dawn: A revolution in movie distribution?" *Business Horizons* 46, no. 5 (2003): 57–66.

Because this can get complicated and contentious, a simpler model aggregates all revenues and then splits them according to a fixed percent. In the USA, that portion for theaters was 40–50% of revenues but has gone up. (Often, however, theater owners withhold payments claiming a grievance, and then demand to renegotiate the deal.) In contrast, in Australia, the top two theater chains get 70–75% of revenues, based on their dominant market power. In the UK, it is about 60%.[118] In Japan, two theater chains, Tojo and Shokeda, control about 90% of the theaters suitable for international films and require a very high share of the box office revenues. As a result, the Hollywood distributor UIP began to build its own theaters in Japan.[119]

To police this revenue sharing system, film distributors use box office reporting firms such as Rentrak or online services such as Boxofficemojo.com to collect box office revenue figures. Most theaters have computerized box office figures, and those of non-reporting theaters are then extrapolated. To avoid undercounting by theaters, film distributors also send auditors to do spot checks of ticket sales at theaters.

The key goal for theater operators is to reduce the overcapacity of seats (the occupancy rate is often lower than ten over the year) by selecting attractive films, all while serving peak loads. Their own management tools are few in number—their prices are set when it comes to individual films, and the marketing and promotion is conducted by the distribution company.

In selecting films for exhibition, the theater chain must make some choices. Are the films likely to be popular? Do the actors starring in them have a following? What are the competing films offered at the same time? Who are the target demographics for the film and its promotion? How do these demographics relate to those of the theater's market area? Is the film likely to open strong and then fizzle, or have "legs"? Does the film itself have a brand image, such as a sequel? What is the season in which the film will be released? What is the nature of the long-term relationship with the distributor which the theater wishes to maintain?

Many films open to poor sales and never recover. But it is during that first week or two that the share of the theater is low. They will make money when the film has legs. Films targeting adolescents such as horror and comedy tend to do well right away, on a single weekend, and then drop. A rule of thumb is that a week-to-week box office drop of 40% or more means that audience interest is nearly gone. In contrast, films that target a more mature and educated audience tend to build over a longer time. Family films also build more slowly because parents who take their kids to a film need time to get organized.

12.8.1.2 Film Retail Distribution Channel #2: Home Video

While the home video business has been squeezed by online distribution, it is still sizeable. It benefited from the consumer's desire to liberate herself from a set schedule of movie theaters. Large video chains supplanted the numerous mom-and-pop rental stores. But they overexpanded and got clobbered when DVD technology enabled more convenient mail order rentals from Netflix. At the other end of the spectrum, large general retailers became heavily involved in the cheap sale of popular videos. They often use DVD sales as loss leaders to build traffic for their store.[120]

A different approach to home video rental is the use of vending machines. In the USA, Redbox rents out movies for $2. It has only 70–200 titles at any time, but it substitutes a low price and convenience for lack of choice. Redbox is available at more than 34,000 locations in the USA. Its rental peaked at 776 million in 2013, and then declined.[121] But it accounts for 52% of the physical video rental market, and 12.5% of overall users in 2017. Redbox faced obstacles from the major studios about the timings for their new films. The studios tried to delay the time when Redbox can rent out new films from 28 days after the theatrical release to 56 days.[122]

12.8.1.3 Film Retail Distribution Channel #3: TV and Cable

The principal licensees of Hollywood movies, whether in the USA or in other countries, are pay-television channels. The main US firms are HBO (Time Warner), Showtime (Viacom), and Starz (Liberty Media). Companies in other countries include News Corp. (Sky), Vivendi (Canal Plus), Sony, and Naspers (South Africa). As an example, for the film *Gone in 60 Seconds,* HBO (Warner) paid its media rival Disney $18.7 million to show the film for two years.

The distribution window for the national broadcast TV networks opens about two years after the theatrical release. Owing to the high cost of the Hollywood films in the early years of a release sequence, the networks favor their own made-for-TV movies. In 2003, the four major networks together bought only 20 new studio films. They each paid about $20–$45 million per movie, for three showings over a three-year period. This added to licensing payments of $750 million, about $200 million from each network. Globally, the six major Hollywood distributors earned $1.8 billion from sales to broadcast stations and networks. There was also a licensing of older films from the studio libraries, which generated $426 million of revenue.[123]

The distribution of video by online video-on-demand platforms is discussed further below.

118 Alderston, Derek, Jeffrey Karish and Roy Price. "Revenge of the Multiplex." *The McKinsey Quarterly*. (Autumn 2002): 6. (Adjusted for 2015 data).

119 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

120 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005; Waterman, David. "The Economics of Media Programming." In *Handbook of Media Management and Economics*. Eds. Alan B. Albarran, Sylvia M. Chan-Olmsted, and Michael O. Wirth. New York: Lawrence Erlbaum Associates, 2006.

121 Statista. "Number of items rented out at Redbox kiosks from 2010 to 2014 (in millions)." 2015. Last accessed June 15, 2016. ► http://www.statista.com/statistics/296377/redbox-number-kiosk-rentals/.

122 Gruenwedel, Erik. "The Vanishing Video Store Rental." *Home Media Magazine*. April 3, 2012. Last accessed June 28, 2017. ► http://www.homemediamagazine.com/research/vanishing-video-store-rental-26860.

123 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

Case Discussion

TV and Cable Retail Distribution

Bertelsmann's RTL is Germany's largest private TV broadcaster in terms of audience. It started broadcasting to Germany in 1984 from its original home base in Luxembourg (the L in RTL). When private broadcasting was introduced in Germany in the 1980s, RTL was among the first to be licensed and obtain frequencies. It soon started broadcasting from Cologne, Germany. The content gradually moved from low-priced US TV series and quiz shows to its own low-budget reality TV and major sports coverage, TV series, and film rights to major studios' libraries.

Bertelsmann's TV networks in Germany, its home base, are

- RTL Television;
- VOX;
- RTL II;
- n-tv;
- Super RTL.

In 2016 RTL's overall audience share in Germany was 12.6% (9.7% RTL, 1.8% for Super RTL, and 1.1% for n-TV).[124] In 2013, RTL announced its move out of terrestrial broadcast. Already, its over-the-air coverage in Germany was spotty. RTL's move was seen by some as the beginning of the end of terrestrial broadcast in Germany. The reason for the discontinuation was that for the company broadcasting a channel was much more expensive than cable/satellite distribution, while 96% of its viewers received its programs via cable/satellite. (Fewer than 10% of households in Germany use terrestrial broadcast technology as their primary way to receive TV programs.) The actual technical distribution system of terrestrial broadcast TV in Germany is operated by several companies.[125]

Bertelsmann's RTL Group also broadcasts in France. It owns the major French broadcast stations M6 and W9, and a joint-venture pay-TV (TF6) that is distributed terrestrially. RTL9 is a terrestrial broadcast service transmitted from Luxembourg, which can be received also in the north-east of France.[126]

RTL is also a major broadcaster in Belgium, Luxembourg, and the Netherlands. Luxembourg has no public TV stations and has always been more liberal in giving out broadcast licenses. Its station Radio Luxembourg, with its strong signal, was a major pop music station in the 1960s and 1970s for British teens seeking an alternative to the stodginess of the BBC, which until the 1980s held the radio monopoly for the UK. RTL also broadcasts terrestrially in Spain, Hungary, and Croatia. Bertelsmann's RTL video channels are also distributed to viewers over satellite and cable TV in many European countries.

RTL's channels are free and advertising supported. But the users' subscription to the cable and satellite platforms is not free. In many countries, TV viewing also requires the payment by viewers of a special viewing license fee set by governments. In Germany, for example, viewers pay a monthly government mandated TV fee (GEZ) of about $20 per household.[127] Part of that then gets passed on to public TV broadcasters and to cable providers, but not to RTL.

RTL pays cable operators a fee for the distribution of channels. This fee is negotiated. The two-sided financing model of cable operators stems from the 1980s when the state-owned Deutsche Bundespost held a cable monopoly. This is in contrast to the situation in the USA, where the channel providers receive payment from the infrastructure network providers. In Germany, in contrast, the content provider (RTL) pays the cable operator.[128]

12.8.2 Book Retailing

12.8.2.1 Book Retail Distribution Channel #1: Stores

In recent years the main innovations in the book industry were those of retail distribution. Innovations were retail chains and megastores, online retailers and online delivery (Table 12.6). Traditionally, book retailing was based on thousands of small retailers (bookstores), a few large wholesalers (in the USA, four majors), several direct-to-consumer operators (book clubs and mail order publishers), and some direct distribution or large or regular endusers, such as school systems and university libraries.

Large bookstore chains began to emerge in the 1960s. Barnes & Noble has over 1000 stores in the USA, including 400 superstores. What are the advantages of book chains and

Table 12.6 US booksellers (2014)

	Type	Market share[a] (%)
Amazon	Internet	29
Barnes & Noble	Book chain	20
Apple	Retail chain	10
Wal-Mart/Sam's Club	Retail chain	5.5
Costco	Warehouse club	4.5
Books a Million	Book chain	2

[a]Forbes. "What's Driving Sam's Club's Growth?" February 5, 2014. Last accessed June 28, 2017. ▸ http://forbes.com/sites/great-speculations/2014/02/05/whats-driving-sams-clubs-growth

124 Statista. "Market Share of television channels in Germany in 2016." 2017. Last accessed June 28, 2017. ▸ https://www-statista-com.ezproxy.cul.columbia.edu/statistics/380528/tv-channels-audience-market-share-germany/.

125 The key company is Media Broadcast GmbH (▸ http://www.media-broadcast.com/fernsehen/sendernetze/dvb-t.html), the distribution services for TV stations. It formerly belonged to the German telecom incumbent operator Deutsche Telekom and was then sold to the French TV organization TDF Group. TDF Group itself is owned by private equity firms AXA Capital, Charterhouse (UK), TPG (USA), and FSI (Sovereign Fund of the French government). Media Broadcast GmbH, in turn, does not own the radio towers used for transmission but rents capacity or antenna space on towers belonging to either the Deutsche Funkturm GmbH or to the public TV stations. Deutsche Funkturm GmbH, in turn, belongs to the telecom giant Deutsche Telekom and owns and operates 500 towers in Germany. Media Broadcast GmbH offers distribution from the studio to the end customer. A mixture of landlines, satellite uplinks, and directional microwave antennas is used to get the signal to the TV towers. The company, with about half a billion Euros in revenues, has often been criticized for being a quasi-monopoly. However, there are no regulated prices and Media Broadcast can set them under the constraints of following certain rules of transparency.

126 Other smaller RTL channels (M6 Music, Paris Première, Fun TV) are not distributed terrestrially. Similar to Germany, terrestrial TV in France is distributed over third-party provider facilities, mainly the TDF Group that also owns the main German distribution service.

127 Digital Femshen. "Kabel-Streit: Bundeskartellamt gegen Vorgehen von ARD un ZDF." June 12, 2012. Last accessed June 28, 2017. ▸ http://www.digitalfernsehen.de/Kabel-Streit-Bundeskartellamt-gegen-Vorgehen-von-ARD-und-ZDF.87853.0.html.

128 Rapid TV News. "Kabel Deutschland pays RTL for HD channels." June 28, 2012. Last accessed June 28, 2017. ▸ http://www.rapidtvnews.com/2012062822753/kabel-deutschland-pays-rtl-for-hd-channels.html#axzz4ZWz6sOqM.

megastores? They have a central buying system, record of sales history of books, large selection, bigger advertising budgets, sales history, and inventory control. They also offer amenities such as coffee bars for longer store visits, and visits by authors.

Critics of superstores believe that all they carry are popular titles. However, there are 50,000–200,000 titles in superstores compared with 20,000 in a small store. Another fear is that superstores deter book buyers, when in fact they made shopping and browsing more attractive due to lower prices, a greater selection, more convenience, and stronger promotion. Other critics believe that these stores have shifted the public reading taste downmarket to bestsellers and potboilers. Some of this may have happened. But one should not overromanticize the quality choices of past generations of book buyers. Subsequently, online publishing and distribution have shifted choice in the opposite direction, to more specialization and more titles, including more high-quality book content.

Sales of art, literature, and poetry books actually grew 10% from 1993 to 1996 when megastores emerged, compared with a growth of 4% for popular fiction. The extra 70,000 titles stocked by a superstore are usually those in light demand, so the typical copy in retail inventory is less likely to find a buyer within a given period of time. It is then more likely to be returned for credit, so the chains' return rate rates are therefore higher than those of independent bookstores.[129] To counteract this, the chains instituted systems in which books from one store can be rapidly moved to another when needed. This reduced their overall inventory needs.

The competition problem in book retailing is that the chains obtain substantial discounts from publishers, which negatively affects the survival of small bookstores. While higher retail prices are not consumer-friendly, they keep more bookstores in business and encourage the smaller store to hold a larger inventory relative to sales.

One peculiarity of book distribution is the ability of the retailer to return unsold books to the publisher for nearly full credit. A third of bestsellers are unsold and are returned; in some cases more.[130] For example, of Bill Clinton's *Between Hope and History*, 70% of books shipped to bookstores were returned unsold. Returns reduce risk and increase profit for retailers. But they also increase net demand on publishers through the physical display of product. Large retail chains have a better inventory management system which results in a lower return rate. This and other contractual arrangements concerning returns result in lower wholesale prices to these chains, which translates into a competitive advantage.

Retail Price Maintenance for Books

The competition between large bookstore chains and small booksellers has been reflected in legal and political battles. In many countries, book publishers must fix the retail price and force the retailers to adhere to it. This system is called resale price maintenance (RPM). Book stores then compete not on price but on the quality of their service and the titles available (see also ► Chap. 11 Pricing of Media and Information).

In the USA, RPM, below-cost pricing, dumping, and price fixing are mostly prohibited.[131] In 2007, in the case of *Leegin Leather Goods*, the US Supreme Court eliminated the outright ban on RPM for maximum prices and ruled that vertical price restraints are not per se illegal but shall be viewed within their circumstances a "rule of reason."

Price discrimination, too, is outlawed in the USA. The small retailers have thus sued publishers over their discounts to chains, arguing that they were not cost based and were hence price-discrimination. In other countries, booksellers have tenaciously defended retail price maintenance, under which a publisher sets a uniform price and prevents price discounts. Online distribution has disrupted government influence over the publishing and distribution sector in several countries. In France, price competition among booksellers was outlawed in the so-called Lang Law, and bookstores had to charge the same price to buyers (a 5% deviation was permitted). With the advent of ebooks, this system was challenged. Legislation was then passed: ebooks were included in an expansion of the Lang law, and a regulatory body was given the power to control the pricing of ebooks relative to print books. Such prices would be set by consultation between the Ministry of French Culture, the French Literary Society (authors), and the National Union of French Publishers.[132]

In Australia, RPM is illegal regardless of its effect on the competition.[133] In Japan, the Sanhai System (Japanese RPM), established in 1953, allows owners of copyrighted material to set the minimum retail price of newly released or rereleased products (including CDs, records, cassettes, books, magazines, and newspapers).[134] In Germany, the RPM system has existed in Germany since 1888. For a while it was optional, but a 2002 law requires every publisher to fix its book prices. Retailers are not allowed to sell at lower prices or to give any rebates—whether direct or indirect—to the buyer. If a retailer sells for less, it is excluded from future supply of the book. Perhaps owing to this protection, the German retail store market is unconcentrated.[135] In 2006, the retail store market leader Thalia accounted only for 7% of total book sales. In comparison, in the USA the market leader, Barnes & Noble, had that year a market share of about 27%.

129 Caves, Richard E. *Creative Industries: Contracts Between Art and Commerce*. Cambridge: Harvard University Press, 2000.

130 Hendrickson, C.T., H.S. Matthews, and D.L. Soh. "Environmental and Economic Effects of E-Commerce: A case Study of Book Publishing and Retail Logistics." *Transportation Research* 1763, no. 1 (2001): 6–12.

131 Montgomery, Stephen L. *Profitable Pricing Strategies*. New York: McGraw-Hill, 1988.

132 Bridenne, Meriam. "The Google Hachette Pact." *Melville House Publishing*. December 6, 2010. Last accessed December 7, 2010. ► http://mhpbooks.com/mobylives/?p=20734.

133 OECD. "Resale Price Maintenance." 1997. Last accessed June 29, 2017. ► http://www.oecd.org/competition/abuse/1920261.pdf.

134 Nippop. "Saihan Seido – Japan's Resale Price Maintenance System." Last accessed on May 23, 2011, at ► http://nippop.com/features/Saihan_Seido___Japan_s_Resale_Price_Maintenance_System/.

135 CESifo. "CESifo DICE Report 3/2003." 2003. Last accessed June 28, 2017. ► https://www.cesifo-group.de/ifoHome/publications/journals/CESifo-DICE-Report/Archiv/CESifo-DICE-Report-2003.html.

12.8.2.2 Book Retail Distribution: Channel #2: Book Clubs

Book and record clubs can sell to consumers cheaper than other retailers because there is very little inventory holding cost of the books, or returns of books. Distributors know exactly how many books are going to be distributed to members. The retailers are also being leapfrogged. Often publishing and clubs are vertically integrated. This has been the case for Bertelsmann, which expanded through its clubs. Conversely, the book club Bookspan began to publish its own books. Book clubs were allowed to send members books before they were released to bookstores. More recently, some book clubs have adopted a subscription rental. Bookspan is allowing members to borrow multiple books at $9.95 per month with free shipping, and then return them.

Generally, book clubs have been declining,[136] but there have been notable exceptions. Oprah's Book Club was run by the TV personality Oprah Winfrey. However, it was not a distribution system as the other clubs are, but rather a presentation and discussion of books recommended by her. It was responsible for 28 consecutive best sellers. About 15 million viewers watched Oprah's Book Club on TV each month. The books she introduced focused on issues similar to her TV shows, such as schizophrenia, cheating husbands, or foster children. An Oprah-type novel is a moving, painful story and is not too hard to read. It is usually written by a woman (22 out of 28) and the brand name was Oprah, not the author's. Previously selected authors showed a dramatic drop in publication of their subsequent books without the celebrity endorsement of the book-show host. Still, being selected was beneficial for authors and publishers.

12.8.2.3 Book Retailing Distribution: Channel #3: E-Tailing of Physical Books

In 1994, a young hedge fund manager, Jeff Bezos, surveyed top mail order products and found that books represented a perfect category for ecommerce in terms of prices and convenience. Mail order catalogs, let alone retail stores, could not comprehensively cover books because of the huge numbers of titles. He started the company Amazon.com, and relocated to Seattle to take advantage of proximity to Ingram, the largest book wholesaler in the USA. Amazon was innovative in using the capabilities of online. It provided search engines, personalized suggestions, feedback from the reader community, and more. Initially, Amazon had no physical facilities for books and acted solely as an intermediary for orders. In time, it created distribution centers, strategically located in states with low or no sales tax.

Not surprisingly, several traditional booksellers expanded to online bookselling. In the UK, the top two chains Waterstones and W.H. Smith both have them. Traditional booksellers in Japan with online stores are Kinokuniya, Junkudo, and Maruzen (which is teamed with amazon.co.jp). In the USA, Barnesandnoble.com customers can pick up books at Barnes & Noble stores. Amazon bought Bookpages (a large online bookseller), which became amazon.co.uk, and Telebook (Germany's largest online bookseller), which became amazon.de. Amazon also acquired joyo.com and became one of the two major online bookstores in China.[137] Alapage is an online bookseller in France.

12.8.2.4 Book Retail Distribution: Channel #4: Print-on-Demand

It is difficult to predict consumer demand for a book. This can lead to books sitting around in warehouses (known as "rotten fruit") or, conversely, being sought after yet out of print. These problem can be fixed with POD technology. Consumers are able to print out books at special locations, such as a bookstore, and it only takes a few minutes to print, glue, and bind a book.[138] The technology allows for books to be produced and sold in small quantities, even one at a time. It reduces inventories (by publishers, wholesalers, and retailers) and creates a "pull model" for book production.

BookSurge software automates the printing process so that even single-copy print orders can be easily done. Amazon bought Book Surge in 2005.

POD entrants are copying chains such as Kinko's (acquired by FedEx) and bookstores. Ingram, the largest US book wholesaler, acquired Lightning Source, a POD service, in a move which will edge close to a retailing role by Ingram once its terminals are set up in locations outside bookstores.

POD has resulted in specialized models of publishing itself, because it lowers the entry cost for a new publisher and the risk associated with an upfront printing of books whose sales potential is uncertain. BlazeVox has played an important role in avant-garde poetry and innovative fiction. At its most extreme, POD makes self-publishing by a single author, either directly or through an intermediary, quite convenient. POD business volume has been increasing rapidly.

POD titles are deployed, for instance, in selected Barnes & Nobles or Books-A-Million stores. But consumers rarely print previously published books on demand. Instead, they mainly use these printers to print self-created content for their private use.[139] The number of self-published titles has increased significantly. As mentioned, the number of self-published print books (i.e. not ebooks) in the USA rose to more than 700,000 in 2014, with an annual growth rate of approximately 50% since 2008. The clear market leader in this field is Amazon's CreateSpace, with a market share of more than 60%. Amazon prints all of its titles on demand.[140]

136 Examples of the book clubs in the USA are Book-of-the Month Club, Literary Guild, Black Expressions, Audio Book Club, Double Day, Stephen King Library, Disney's Winnie the Pooh Book Club, and the Mystery Guild.

137 Hu, Dawai. "The Chinese publishing industry." Ehrengast 2009, Frankfurt, 2009. Last accessed July 7, 2010. ► http://www.docstoc.com/docs/20816258/The-Chinese-publishing-industry.

138 Macprint. "Offering You The Latest Printing Press Technology." 2009. Last accessed July 25, 2011. ► http://fahadlatesttechnology.blogspot.fr/2009/11/offering-you-latest-printing-press.html.

139 Hoffelder, Nate. "Books-a-Million is Pleased with its Espresso Book Machine Pilot." *Digital Reader*. March 1, 2014. Last accessed June 29, 2017. ► http://the-digital-reader.com/2014/03/01/books-million-pleased-espresso-book-machine-pilot/.

140 Bowker. "Self-Publishing in the United States, 2008–2013." 2014. Last accessed June 29, 2017. ► http://media.bowker.com/documents/bowker_selfpublishing_report2013.pdf.

12.8.2.5 Case Discussion

Book Retailing

Bertelsmann's book distribution has several very different channels:
- bookstores;
- book clubs;
- POD;
- ebookstores;
- ebook distribution.

Bertelsmann owns no retail bookstores, but supplies independent booksellers and large chains through its own wholesale operations, RHPS, VVA, TBS, and GBS, or through other wholesalers.

Random House used to sell many of its books through Bertelsmann's book clubs, based on a membership model with required purchases. This distribution channel was a major factor in the company's growth into a media giant. The same system was also used for music. Authors and publishers vied for Bertelsmann's book club distribution. The success of the book clubs made Bertelsmann a major publisher by giving its own books a wide distribution. Soon, it bought up several smaller publishers. In time, however, consumers drifted away from clubs. In 2011, Bertelsmann closed its book club division, which at the time still had 15 million subscribers in 16 countries. It sold its US book club to the Bookspan operation.

Until 2009, Random House owned 49% of Xlibris, a provider of self-publishing and on-demand printing services, but then sold it.

Bertelsmann started Bertelsmann Online (bol) in 1999 as an ebookstore, competing with Amazon.com and Barnes & Noble's BN.com. But after major losses and a restructuring efforts, it sold off bol.de.

Bertelsmann engages in ebook distribution on its own distribution platforms, as well as on other platforms. It started four ventures related to ebooks. In Germany, these were
- Skoobe, an ebook library for rental;
- Tolino, as an ebook e-retailer.

In 2012, Bertelsmann launched the first of these: the mobile direct-to-consumer Skoobe ebook distribution platform for smartphones and tablets, focused on German-language ebooks. (Skoobe is "ebooks" spelled backwards.) Its model was not selling but renting-out books, just as Netflix does for films online. It charges users €10 a month subscription to borrow up to two titles for 30 days. Renting books is cheaper than buying them. Skoobe's main selling points are price and a wide range of recently published ebooks and a user-friendly design.

The second ebook distribution venture was Tolino. This ebook platform was launched in 2013 by Bertelsmann and Germany's three major physical book retail chains, Thalia, Weltbild, and Hugendubel, together with phone giant Deutsche Telekom. Thus Tolino brought together Germany's top physical booksellers, its largest media company, and its largest telecom company, all joining to compete with Amazon and Apple. Previously, each of the five had its own ebook business, with a combined market share of 35%. There was no governmental or EU anti-trust intervention into this venture that joined major horizontal competitors and vertical buyers/sellers.

Tolino launched with over 300,000 titles, as well as a proprietary device. The Tolino Shine e-reader was a 6-inch backlit e-ink device that went on sale in 2013 for €100. It was available at 1500 retail book stores as well as 11,000 Telekom stores throughout Germany.

Another online distribution, mentioned earlier, is Pubbles, a subsidiary of Bertelsmann's Gruner + Jahr magazine division. Pubbles is an ebook and emagazine store. Gruner + Jahr distributes its various magazines and newspapers either directly from their respective websites or from Pubbles. Sales are either by subscriptions or per issue. The site has received poor reviews.

In the USA, Random House Publisher Services (RHPS) handles ebook related distribution services for Random House and for third-party publishing companies. Random House ebooks are also distributed on other platforms.[141] They are available through Amazon, Google eBookstore, iBookstore (Apple), nook (Barnes & Noble), ReaderStore (Sony), Kobo (Rakuten, Japan), and others.

To sum up: Bertelsmann's bargaining strength as a publisher, in dealing with large e-tailers like Amazon or Apple, has weakened over what it used to be relative to traditional retailers. Its strength in direct-to-readers book club distribution has collapsed, together with that form of distribution more generally. Bertelsmann's efforts to offset these trends by entering online distribution of physical books or of ebooks, or operating POD, have either failed or must yet show success.

12.8.3 Magazine and Newspaper Retailing

The retailing of magazines and newspapers, typically in newsstands or multiproduct retailers such as convenience stores, drug stores, and supermarkets,[142] is known as single copy sales. That form of distribution has been declining steeply,[143] at about 10% per year. Factors were: the much cheaper subscription prices relative to single-copy sales;[144] changing consumer shopping patterns (fewer impulse purchases, fewer shopping trips); a shift to digital reading and a proliferation of digital devices—smartphones offer far more news choices than a retailer, and with more convenience; a decline in the number of locations selling single copies, which reduced distribution cost but limited availability;[145] and the prevailing system in which newsstands and other offline retailers could return unsold copies, which shifted the risk of weak sales to the publisher. The result of these factors was a decline in

141 Random House also operates an online shop that lists the ebook options for a title, when an ebook version is available. But the shop only refers buyers to the respective third-party shops of Amazon, Apple, and so on. Thus RH avoids competing directly with its own major ebook readers.

142 Supermarkets are the largest retail center for single-copy magazine sales in the USA, with 35.6% market share.

143 Doctor, Ken. "Newsonomics: Single-copy newspaper sales are collapsing, and it's largely a self-inflicted wound." *Nieman Lab*. March 13, 2005. Last accessed February 24, 2017. ► http://www.niemanlab.org/2015/03/newsonomics-the-collapse-of-single-copy-sales/.

144 Magazine titles that discounted their subscription prices by more than 70% declined by 16% at the news-stand, four times more than magazines that discounted subscriptions by less than 10%.

145 Dool, Greg. "Newsstand Sales Fell 16 Percent in 2015". *Foliomag*. March 14, 2016. Last accessed June 29, 2017. ► http://www.foliomag.com/newsstand-sales-dropped-16-percent-in-2015/.

physical retailing to secondary status. For magazines, retail news-stand and supermarket sales make up only a small share of their overall sales. Even for consumer magazines, less than 15% of total circulation is through retail outlets:[146] for example, *Rolling Stone* magazine gets only 5% of its circulation via news-stands,[147] *Vogue* 20%, and *Time* magazine 1.8%. Celebrity publications are the most popular magazine category at newsstands, but this is also the category that has lost the most sales. Also relatively well-performing retail sales are magazines presenting highly visual information that is best done in print, examples being food, home decorating, and travel destinations.[148]

12.8.4 Music Retailing

Arguably, no part of the media industry has been more affected by electronics and online technologies than the traditional retail distribution of content. And no media retail distribution has been more affected than that of music.

Before the 1970s, there were two kinds of record retailers. They were stand-alone specialist shops and general department stores that included hit record racks. They had different supply channels. The specialist ordered records from independent "one-stop wholesalers." Department store racks were served by independent rack jobbers who selected titles and stocked the racks. Music was also retailed by record clubs.

In the 1990s, online stores such as CD-Now and Amazon emerged as retailers of physical music products. A few years later, direct downloads began, at first illegally and without payment. Subsequently, -pay online stores also entered, particularly the Apple iTunes Store. This put specialized retailers under enormous pressure. Since 1999, annual retail music sales have dropped by about 10% each year to $8.0 billion,[149] and even more so for independent retailers.

There are various ways to sell digital music. Apple sells music via its iTunes store on a model in which users acquire a song or album and downloaded it to their devices. Since 2015 Apple has also let users access music via a streaming service (Apple Music), whereby the music would only be played when connected via the internet. Since 2015, overall streaming revenue (Apple, Pandora, Spotify, and others) surpassed digital download revenue in the USA.[150]

12.8.5 Case Discussion

Retail Distribution

Bertelsmann retail distribution of music proceeded on four tracks:

- music clubs;
- retail stores;
- online sale of physical recordings;
- online music.

BMG had two strong distribution arms: direct-to-consumer music clubs, and its in-house wholesale to retailers for distribution. Bertelsmann also sold music through the Bertelsmann Media Club and its other clubs. These distributed music records directly to millions of subscribers. The model was one of "negative option billing," with customers receiving monthly shipments and bills unless they expressly unsubscribed for the month. These channels were leveraged into a content role by Bertelsmann in music. So popular were its clubs as distributors of music, including that of non-BMG labels, that the clubs did not actually secure formal licenses to distribute the records they sent to members. Instead, they paid most music labels based on the standard royalties set by copyright law, but discounted by 25%. Its customer base was so large and important to music labels that they acquiesced. Bertelsmann's clubs mostly ceased selling music in 2009, due to declining music sales, online piracy, and the lower popularity of clubs as a form of distribution.

The original online free sharing operation Napster posed a serious challenge to the recording industry. Napster users did not pay BMG any license fees. The music companies successfully used the courts to shut down Napster and others such as Grokster, but many other file-sharing services soon emerged.

The music companies, in grudging response, created legitimate online distribution systems: Duet (PressPlay) (Universal/Sony/Yahoo) and MusicNet (BMG, Warner, EMI, AOL, and RealNetworks.) MusicNet was clunky and unsuccessful; its focus was to undercut piracy, not to provide a positive user experience.

BMG's third strategy was much more imaginative: to partner with Napster. In 2000, Bertelsmann loaned Napster $50 million to develop a secure file-sharing system that would "preserve the Napster experience" while compensating copyright holders. Bertelsmann paid over $85 million to keep Napster alive. In 2002, Bertelsmann tried to buy the assets of the bankrupt company. Bertelsmann would have used the Napster brand and technology to sell music from its own BMG, and possibly from other labels, via the Napster platform. At the time, this was pretty revolutionary for the stodgy music group business.

Bertelsmann's interest in Napster was driven by its intention to convert Napster into a legal sales channel for its music and to be able to use synergies for its music division BMG. Bertelsmann was attracted by Napster's brand identity among young

146 Vasquez, Diego. "Behind magazines' decline on the newsstand." *Medialife*. February 13, 2014. Last accessed June 29, 2017. ► http://www.medialifemagazine.com/behind-magazines-decline-newsstand/.

147 Rolling Stone. "Circulation." 2016. Last accessed February 24, 2017. ► http://www.srds.com/mediakits/rollingstone/circulation.html.

148 Vasquez, Diego. "Behind magazines' decline on the newsstand." *Medialife*. February 13, 2014. Last accessed June 29, 2017. ► http://www.medialifemagazine.com/behind-magazines-decline-newsstand/.

149 Lee, Louis. "Taps for Music Retailers?" *Business Week*. June 23, 2003, 40.

150 Bloomberg. "Apple's iTunes Overtaken by Streaming Music Services in Sales." March 22, 2016. Last accessed June 17, 2016. ► http://www.bloomberg.com/news/articles/2016-03-22/apple-s-itunes-overtaken-by-streaming-music-services-in-sales.

audiences, and its software. In exchange, it got a 58% interest in Napster. However, the deal was challenged by the other music labels and blocked by the US bankruptcy court.

Because BMG sold out to Sony, Bertelsmann does not distribute music anymore. But by looking at Sony's online music distribution for BMG's past labels, one can roughly extrapolate how BMG would have been acting more recently. How does Sony distribute BMG's previously owned labels' music? It has several operations:

- Sony Entertainment Network (SEN);
- Vevo;
- Apple iTunes;
- Google Play;
- Amazon;
- Musicbox.de.

SEN provides access to several services, including Sony's PlayStation Network, Video Unlimited, and Music Unlimited. The latter is Sony's on-demand streaming music service, Subscription costs $10 per month. This service, after not succeeding in the marketplace, was absorbed into a new service called PlayStation Network, including PlayStation Video and PlayStation Music. Playstation Music is a partnership with Spotify, established after Sony closed down its old Music Unlimited service. Spotify users are able to use the PlayStation Music app as part of their subscription.

Sony also offers its songs and albums on Apple's iTunes retail music service and on Google's retail Play Store for Android devices. Songs are priced at $1.29, $0.99, $0.69, and free. Apple and Google keep 30% of the revenues. Sony also distributes via Amazon MP3, with Amazon keeping 15%. Songs are priced from $0.89 to over $1, and they are digital rights management (DRM) free, meaning they can be listened to on virtually any music-capable device.

In Germany, Sony Music offers its songs on musicbox.de which exclusively sells songs from Sony Music artists. Musicbox.de users can buy and download songs as MP3 files or ringtones.

A music video website, Vevo, is operated as a joint venture. Universal Music Group (owned by Comcast) owns about 49% of Vevo, Google has 10%, and Sony Music Group and Abu Dhabi Media own the rest. Advertising revenues are shared with Google. Vevo has about 21.4 billion views a month, which translates to about 1010 million hours of video viewed each month. The majority of visitors come from mobile devices.

12.9 Online Retail Distribution

The internet is not a physical network per se, but a network of networks—a data system that rides on various telecom infrastructure networks, linking local area computer networks with each other. It also uses cable TV infrastructure and other specialized networks, including the internal computer networks of companies and universities. ISPs organize the end close to the users—for a fee—and can provide some of their own network equipment such as hubs and routers, and at times transmission lines. The capacity (bandwidth) of internet communications had greatly increased, from dial-up narrowband to always-on broadband, whose bandwidth keeps getting bigger.

The major ISPs in the USA in 2016 were Comcast (27.3%), Charter (25%), AT&T (17.2%), Verizon (7.8%), Century Link (6.6%), and Altice (4.3%). The remaining providers had a market share of 11.8%.[151]

Within the two main categories of ISPs—telecom firms AT&T and Verizon, and the cable companies Comcast and Charter—there is no real competition because their service territories are not overlapping. Competition is with the companies of the other type of platform. Dimensions of competition are price, download speed, connection type (fiber versus coax versus DSL or hybrid combinations), reliability, access to wi-fi hotspots, and amount of data that can be downloaded.

One of the major uses of the internet is for the distribution of media content and for its retailing to end users, including transactions of search, purchase, storage, and finance. Online distribution is mostly another form of retailing. But it often straddles the retail and wholesale stages. It enables an intermediary—sometimes traditional, sometimes new—to link between producers and consumers. There are different models:

- A traditional retailer extends backwards directly to the producer. For example, the book retail chain Barnes & Noble Online leapfrogs much of the wholesale distributor.
- A traditional wholesale distributor may reach consumers directly. For example, HBO Go leapfrogs the cable TV and satellite retail intermediaries.
- New intermediaries emerge to reach end users. An example is Apple iStore.
- Producers link up directly with consumers. An example is *The Guardian* newspaper or the *New York Times,* leapfrogging wholesale and retail intermediaries.

12.9.1 Business Models for Online Media Retailing

The new online model of distribution leads to several business models. They are:

- advertising;
- pay-per-read/view/listen;
- subscription;
- public subsidies;
- the community model: storage and delivery of user-generated content.

12.9.1.1 Advertising-Based Content Provision

- Music: Pandora, Google YouTube, Vevo.
- Video: Dailymotion, Veoh, Facebook Live Crackle, Yahoo View, Vudu Movies on Us, CNN.
- Games: Rovio Entertainment, King Digital Entertainment, Mojang, Supercell, and Niantic.

151 Statista. "Number of broadband internet subscribers in the United States from 2011 to 2016, by cable provider." 2017. Last accessed June 29, 2017. ► https://www-statista-com.ezproxy.cul.columbia.edu/statistics/217348/us-broadband-internet-susbcribers-by-cable-provider/.

- Text: most magazines make part of their content available online for nothing, with advertisements. Some so-called e-zines are purely online, such as Shortlist Magazine and Stylist Magazine. There are also many magazine-like websites with feature stories. Some reference book publishers such as *Encyclopaedia Britannica* provide ad-supported text content.
- News: *AP, Huffington Post*, *Slate*. Most newspapers offer their content. Major exceptions are the *Wall Street Journal*, the *New York Times*, and the *Financial Times*.

The advertising-based business model is by far the most prevalent for text based content, for social-media type video, and for a good number of commercial music and video services. This is a logical continuation of traditional print and broadcast media being supported by advertising dollars. However, the problem of advertising as an economic foundation is that there is a huge supply of advertising opportunities online relative to the attention to such ads and to their effectiveness, and hence the price of advertisements is much lower. The former CEO of the media giant NBC Universal, Jeff Zucker, memorably summarized the problems of moving to online distribution as "trading analog dollars for digital pennies." Whereas the cost per 1000 impressions (CPM) in 2017 for TV networks averaged $24.40 and for newspapers $35, for online video it was merely $3 and for online text display ads $2.03.[152] Of this, the ad placement service of Google keeps 32%, so that the web publisher gets $1.38. On the positive side, ads can be targeted more precisely and with greater effectiveness. Yet this advantage would already be reflected in the willingness-to-pay by the advertiser, that is, in demand. Without it the prices would be still lower.

At the same time, the cost of creating online content is not lower but more expensive, if anything. It is true that digital technology makes production and distribution cheaper. But the greater competitiveness of content providers also means the need for more technical bells-and-whistles, for a higher frequency of updates such as news, and for greater marketing efforts. It also means more fragmented audiences, which translates to a smaller number of users having to support a higher cost operation through their value to advertisers. That audience is too small for most online content providers to provide an economic base, yet large enough in the aggregate to squeeze the larger media providers too.

12.9.1.2 Online Content for Sale or Rent

- Music: Apple iStore, Google Play, Amazon Music.
- Video: Amazon Instant Video, Apple iTunes, Vudu. CinemaNow also offers rental/purchase but most of its films are purchase only.
- Games: Steam, EA Origins.
- Text: ebooks from Amazon, Barnes & Noble Online.
- News (by the story): *Wall Street Journal*, *New York Times*, academic journals

For film or TV programs, the video-on-demand (VOD) (or the related but more limited pay-per-view, PPV) system has been offered since 1993 by cable TV, and then satellite telecom companies. It then migrated online where it is widely used. Some content is streamed for a once-only use while connected. In other cases, the period of use is timed and one can stream the item repeatedly during that period, thus enabling a resumption or repeat of viewing. Other content is downloaded for storage and use at any time by the user. In practice, the separation is not neat, with some downloaded material expiring after a few weeks, and conversely streamed materials that can be resumed or repeated for a while. A similar process has taken place with music, where much of it sold online through downloads or streams, in particular from Apple iTunes. Other providers are Amazon Music, Google Play Music, and emusic.com. Online text publishers, too, have taken steps in the direction of the sale of discrete items of content, though with no particular success. Under the pay per read (or pay per article) system, a newspaper charges a small amount for an article. It is a micropayment system for microtransactions. A provider exploring the pay per article model is Blendle, the Dutch news platform startup with some funding from the New York Times Company and the German publisher Axel Springer AG. Newspaper articles cost between 19–39 cents, while magazine stories cost 9–49 cents. Publishers get to keep 70%. There are no ads.[153] It recommends stories by algorithm as well as human choices. Readers who feel the article was not worth it can opt for an immediate refund. About 20% of those who register end up linking their credit card to the service.

Micropayments allow for complex pricing strategies. Price differentiation, group pricing, loyalty discounts, disaggregation, and tie in with products flourish in micropayment systems. The pricing can get very complicated. But those prices cannot be easily sustained when competition comes into play. Only unique content will sustain high or discriminatory prices.

12.9.1.3 Subscription-Based Content

- Music: Spotify, Google Play Unlimited, Pandora.
- Video: Netflix, Amazon Prime, HBO Now, Hulu Plus.
- Games: Interactive World of Warcraft (Activision Blizzard), NC Soft (Lineage, South Korea).
- Text: ebooks: Kindle Unlimited, Scribd.
- News: *Wall Street Journal*, *Financial Times*, *New York Times*, many magazines, Next Issue.

The *Wall Street Journal* began in 1997 to erect a pay-wall for subscriptions. At first, registered users dropped by 90% but the count eventually recovered. At the other extreme of size,

152 Online ads charge on a "per click" basis (CPC). For text display ads CPC averaged $0.58. The click rate per impression was) 0.35%. CPM this translates to a price of $2.03.

153 Ha, Anthony. "Pay-per-story news service Blendle comes to the US." *Tech Crunch*. March 23, 2016. Last accessed June 29, 2017. ► https://techcrunch.com/2016/03/23/blendle-us-launch/.

a small local paper, the *Champagne News Gazette*, also sold news subscriptions. It charged $4.50 a month just for sports because of a popular columnist and because of the nostalgia of University of Illinois alumni who wanted to stay in touch. The *New York Times* began to charge for access to its columnists in 2005. Online subscribers could also access archives and real estate posts. This did not work well. No one wanted to pay for columnists' opinions when so much opinion was available for free everywhere online. Eventually all content became subscription based, though offered with deeply discounted content. The emergence of mobile tablet and smartphone devices gave *New York Times* subscriptions a major boost.[154] There were 2.6 million digital-only subscribers at the end of 2017.

Thus it seems that users are willing to pay for a subscription when that online news source is the only provider of local news, or when the news source is an authority on its subject matter, such as the *Wall Street Journal*, *Handelsblatt*, *Financial Times*, or *Le Monde*. Readers will not pay for commodity news.

An example if magazine subscription services that go beyond the individual magazine with flat-rate offerings for text are UK-based Readbug, which is nicknamed "Spotify for magazines." Readbug offers an all-you-can-eat content model across its selected magazine titles for £10 per month.[155]

Many content providers have moved into a mixed model of "freemium" pricing in which they offer a basic product for nothing and charge a premium for a better grade of the service. In music, Spotify offers premium service for downloads and ad-free streaming for $10 per month, with 25% of its active users being paying subscribers. Spotify's ratio of paid to free users has held steady as the company has moved beyond early adopters.[156] Pandora implemented a subscription model with a freemium strategy: users can choose between free ad-supported radio listening or an ad-free premium which costs $5 a month.[157] Pandora's pay-users account for only 4.9% of listenership, but they contribute over 20% of Pandora's revenue.[158] For newspapers, the *New York Times* gives all visitors ten free articles per month; to read more they need to pay for a subscription. This is known as a metered paywall.[159]

Online content sites can also potentially raise revenues through transactions such as travel and e-commerce based on advertisements they display. However, they do not have obvious advantages over other more sophisticated websites.

12.9.1.4 Public Subsidy-Based Model

- Music: public broadcasters and music performance organizations such as publicly supported symphony orchestras.
- Video: public broadcasters (BBC, ARD, PBS, etc.). In addition, many films and TV production are subsidized by public funds directly or through tax shelter arrangements.
- Games: various countries, such as France, offer some form of public subsidy to game developers and distributors. Some games are created as governmental projects. One example was *America's Army*, which was made for the US Army.
- Text: universities, government agencies and their publications.
- News: public broadcasters, international mouthpieces of governments (RT, VOA, Al Jazeera, CCTV). A large number of traditional public broadcast organizations have branched out into online provision of their past, or current content. It is a natural extension of their reach and mission, including globally. These activities are often supported by the existing payment mechanism of public TV, based on user fees or government grants. This has been opposed by commercial media companies.

12.9.1.5 The Community Model: Retailing of User-Generated Content

- Music: SoundCloud, Google YouTube, Mixcloud, Bandcamp.
- Video: Google YouTube, Vimeo, Dailymotion, Facebook Live, Dailymotion, Veoh.
- Videogames: Steam, EA Origins (developers create games and upload them, and have to pay $100; then games are available through the service Steam Direct).
- Text: Wikibooks, Fanfiction, Reddit (Condé Nast), Digg.

This form of retail distribution has arguably been the most innovative contribution of the internet for content creation and consumption. There are various models of content sharing—both via unlicensed piracy and legitimate creation by members of the community who share it with others. Some of it, when successful, becomes advertising-supported.

Having analyzed the various types of business models to support online media distribution, we now take a look at several of the major online media industries themselves.

12.9.2 Online Distribution of Film and Video

Video servers store online content and serve them on demand. Capabilities include access control, encryption, and compression as well as billing, users' social interaction,

154 Doctor, Ken. "Newsonomics: The New York Times is setting its sights on 10 million digital subscribers." *Nieman Lab*. December 5, 2016. Last accessed June 29, 2017. ► http://www.niemanlab.org/2016/12/newsonomics-the-new-york-times-is-setting-its-sights-on-10-million-digital-subscribers/.

155 Lomas, Natasha. "Readbug Wants To Be Spotify For Indie Magazines." *Tech Crunch*. November 21, 2015. Last accessed June 29, 2017. ► https://techcrunch.com/2015/11/21/readbug-wants-to-be-spotify-for-indie-magazines/.

156 Dormehl, Luke. "A Whopping 25% of Spotify's 60 Million Active Users are Paying Customers." *Fast Company*. January 12, 2015. Last accessed June 29, 2017. ► https://www.fastcompany.com/3040781/a-whopping-25-of-spotifys-60-million-active-users-are-paying-customers.

157 Yiranni. "What makes Freemium work? Lessons from Pandora." June 1, 2016. Last accessed June 29, 2017. ► https://yirannnny.wordpress.com/2016/06/01/what-makes-freemium-work-lessons-from-pandora/.

158 Israelite, David. "Freemium Model Works For Pandora But Is Devastating To Songwriters." *Hype Bot*. September 25, 2015. Last accessed June 29, 2017. ► http://www.hypebot.com/hypebot/2015/09/freemium-model-may-work-for-pandora-but-is-devastating-to-song-writers-op-ed.html.

159 Norris, Ashley. "Is the New York Times paywall a success? What can it teach other publishers?" *Fipp*. October 7, 2015. Last accessed June 29, 2017. ► http://www.fipp.com/news/opinion/is-the-new-york-times-paywall-a-success-what-can-it-teach-publishers.

polling, and user measurement. They can also insert advertising, including targeted ads.[160]

A media player is software on the user's computer device to translate the digital data stream into visual media images and sounds that can be recognized by human analog senses. Major examples are Windows Media Player (Microsoft), Quicktime (Apple), and Real Player (Real Networks). Media players may also include DRM in order to limit unlicensed use.

The architecture of online distribution of video can be:

- Centralized architecture: The originating server is responsible for serving all users ("clients").[161]
- Proxy-based architecture: Remote proxy servers copy and store ("cache") the materials of the central server. They are located close to the user and thus reduce the load on the central server, as well as reducing transmission needs (and cost) and lowering delay (latency).
- Program caching: only popular content is stored on proxy servers. The reason is that the most popular 30% of the files receive 80% of requests.
- Request routing: a number of servers exist; client requests are routed to the best server, in terms of content availability, congestion, and distance.

The distribution of content from the video platform's servers to the internet is provided by a so-called content delivery network (CDN). This is a network of high-performance transmission links capable of carrying numerous video streams simultaneously. CDNs also provide content platforms with a widely dispersed network of servers that store content files to be accessed by users in a decentralized way. The CDN places files in different places so that the user can receive the nearest copy of it faster and the service provider uses transmission capacity efficiently.[162] This is particularly important for content sites streaming large video files, and those with heavy traffic in different countries. Content platforms enter into contracts with CDNs that frequently include guarantees of service quality. Content providers and distributors have also been building their own CDNs, in particular Google, Netflix, and Amazon. CDN companies include Amazon (about 25% of US market), Akamai (25%), Edgecast (8.5%), Max CDN (7%), and Cloudflare (7%). Other companies (with a combined market share of 27%) include Level 3, Microsoft Azure, Limelight, Rackspace, CDNetworks, and Cachefly.[163]

Online video has rapidly taken off. It has become the main use of the internet, in terms of quantity of transmission. Already in 2014, video traffic accounted for 78% of overall internet packet traffic online in the USA. So rapidly was its usage growing that Netflix accounted for 33% of prime-time internet traffic in 2012 and 57.5% in 2014, eclipsing Amazon, Hulu, and HBO Go.[164] That rapid increase slowed down as rivals caught up. In 2016, Netflix accounted for 35.2% of prime-time internet traffic and Amazon 4.3%.[165]

A large number of content providers, packagers, and platform providers have emerged. They include, in the USA, the following:

- Fox, Comcast (NBC), Disney & Time Warner, offering jointly the online video service Hulu;
- Viacom: CBS All Access; Showtime Anytime;
- Time Warner: HBO Go and HBO Now;
- Google: YouTube;
- Netflix;
- Amazon Prime Video;
- AT&T: DirecTV Now;
- Dish: Sling TV;
- Apple: iTunes;
- Sony: Playstation Vue;
- Facebook: Facebook Live;
- Microsoft: Microsoft Store. In addition Microsoft provides Xbox game consoles which show over-the-air broadcast TV for free;
- Snapchat;
- Twitter Periscope (UGC);
- Walmart: vudu;
- Vimeo;
- BBC;
- Vivendi: Dailymotion;
- CinemaNow;
- Disney: ESPN, Hulu;
- Sports Leagues: NBA, NFL, MLB, WWE;
- Verizon: AOL, Yahoo, FiOS;
- Veoh (P2P);
- Vevo (music videos);
- most TV networks and cable channels have individual online sites with offerings of video content.

Clearly, this sector will consolidate considerably and most likely focus around several central nodes, which are likely to be the "cloud providers" who will be the primary integrators of content, platforms, advertising placement, data, and interactive technology. Their advantages include:

- providing the convenience of a few access points to consumers;
- bridging the diversity of technical standards used by content providers;
- compliance with global laws and regulations;
- financial distributions to the various participants in the value chain;

160 Picard, Robert and Jeffery Brody. *Newspaper Publishing Industry*. Needham Heights, MA: Allyn & Bacon, 1997.

161 Thounin, Frederic and Mark Coates. "Video-on-Demand Networks: Design Approaches and Future Challenges." *IEEE Network,* March 19, 2007.

162 Sexton, Patrick. "Content Delivery Networks." *Varvy.* October 10, 2015. Last accessed June 29, 2017. ► https://varvy.com/pagespeed/content-delivery-networks.html.

163 Hearty, Jon. "CDN Market Share Update December 2013." *Datanyze*. December 10, 2013. Last accessed June 29, 2017. ► https://resources.datanyze.com/blog/cdn-market-share-update-december-2013.

164 Edwards, Cliff. "Netflix Dominates Streaming Rivals in Web-Video Market." *Bloomberg.* November 7, 2012. Last accessed July 9, 2013. ► http://www.bloomberg.com/news/2012-11-07/netflix-dominates-streaming-rivals-with-growing-web-video-share.html; Phillips, Matt. "Morgan Stanley on Netflix: 'Sustainable Competitive Advantage." *Wall Street Journal.* December 6, 2010. Last accessed July 9, 2013. ► http://blogs.wsj.com/market-beat/2010/12/06/morgan-stanley-on-netflix-sustainable-competitive-advantage/.

165 Spangler, Todd. "Netflix Chews Up Less Bandwidth, as Amazon Video Streaming Surges." *Variety.* June 22, 2016. Last accessed June 29, 2017. ► http://variety.com/2016/digital/news/netflix-bandwidth-share-2016-1201801064/.

- marketing, branding, and quality control;
- management of privacy and security;
- ability for personalization due to extensive access to user data;
- technological sophistication;
- deep pockets.

The main players in this cloud-based future global video system could well be, given today's evidence, internet-based platform companies such as Google, Amazon, Facebook, Apple, Microsoft, and Alibaba. This is further discussed in ► Chaps. 3 and 8.

Netflix was started in 1997 by Reed Hastings and Marc Randolph as a service to rent and sell DVDs over the internet. It offered a popular DVD-by-mail service. The total number of Netflix's DVD-by-mail subscribers peaked at 24.6 million in 2011 and then declined in favor of the online streaming service. In 2012, Netflix had a total of 27 million US streaming subscribers; in 2015, 62.3 million (41.4 million in the USA), and in 2017, 98 million (50.8 million in the USA). Netflix spent about $3.2 billion for its content acquisition and creation in 2014[166, 167] and $6 billion in 2017.

The content cloud providers are differentiating themselves by creating vertical extensions into content creation. In 2013, Netflix started to offer its own content: the 13-episode drama *House of Cards* with Kevin Spacey, which got much attention. Amazon, too, has been producing its own original content, including such award winning shows as *Mozart in the Jungle* and *Transparent*. It also produced the Oscar award-winning movie *Manchester by the Sea*.[168]

12.9.3 Online Periodicals Distribution

Online newspapers started in 1982, when 11 major US newspapers made portions of their print editions available to consumers on the CompuServe portal. CompuServe charged users a hefty $5 an hour for access to the papers, and modems could download content at the rate of 300 bits per second. Access to news that would cost about $0.25 in print would thus cost more than $30 online. In 1993, the *San Jose Mercury News*, located in Silicon Valley, was the first newspaper to put its news content and classified ads online (on AOL) in its entirety.

When newspapers first began to be available on new technology they were accessed from desktops, then from laptops, and subsequently from mobile phones and tablets. One of the most prominent tablets is the Apple iPad, introduced in 2010. For newspapers sold for iPads through Apple's content retailer iTunes, prices are freely set by publishers. Apple keeps 30% of the revenue.

As a result of new technologies and systems, advertisement revenues for all newspapers in the USA dropped greatly. Sites such as eBay and Craigslist provided classifieds at lower costs than newspapers. Newspapers lost their hold on important categories of ads.[169]

Although dismissed as old fashioned, paper-based publications such as newspapers, magazines, and books still carry several advantages. They are easy to use, portable, have high-contrast text, full-resolution graphics, zero power consumption, durability, flexibility, and a permanence for archives.[170] That said, online publishing brings many other advantages to distribution. Most obviously, without paper the distribution cost drops while speed and range rise. In 2008, it cost the *New York Times* twice as much to print out copies for its readers than it would have done to send them all an Amazon Kindle for nothing.[171] Digital distribution has other advantages. It facilitates interactivity and targeted advertising, and it can collect demographic or geographic information on users, or on their behavior. There are no production overruns or underruns, because the distribution model shifts from push to pull; and the need for warehousing, distribution centers, and trucks is eliminated. But the product changes, too. There is a continuous update of content; content can be customized to fit readers' preferences; there is interactivity among readers and the publication; targeting is possible for advertising. There can be multimedia content, "hypertext," sound, animation, and video. Other advantages of online text publishing are:

- links to other information and organizations;
- interactivity of readers with writers and editors;
- interactivity of readers with each other;
- variable size font helps readers with poor eyesight;
- accessibility from almost anywhere;
- continuous update of content;
- no more need for warehousing and distribution centers;
- shorter time-to-market;
- multimedia content—"hypertext," color, graphics, sound, animation, and video, all updatable.

There are disadvantages to online text publications too: technical glitches, network congestion, privacy, issuer, hardware requirements, and the need for continuous website maintenance. The glut of such information also depreciates credibility, and pushes publications to be both more sensationalist in content and less thorough in editing and fact-checking.

But by far the hardest aspect of the move to online provision is the much greater competition, coupled with the dif-

166 Sweney, Mark. "Netflix to spend $3bn on TV and film content in 2014." *The Guardian*. February 5, 2014. Last accessed June 29, 2017. ► http://www.theguardian.com/media/2014/feb/05/netflix-spend-3-billion-tv-film-content-2014.

167 EDGAR Online. "Netflix INC." January 29, 2015. Last accessed June 29, 2017. ► http://files.shareholder.com/downloads/NFLX/850278223x0x826035/b69e6840-a84e-425e-9ea3-a0ff4c507e58/SEC-NFLX-1065280-15-6.pdf.

168 McAlone, Nathan. "Amazon will spend about $4.5 billion on its fight against Netflix this year, according to JPMorgan." *Business Insider*. April 7, 2017. Last accessed June 29, 2017. ► http://www.businessinsider.com/amazon-video-budget-in-2017-45-billion-2017-4.

169 Starr, Paul. "Goodbye to the Age of Newspapers (Hello to a New Era of Corruption)." *The New Republic*. March 4, 2009. Last accessed June 28, 2017. ► https://newrepublic.com/article/64252/goodbye-the-age-newspapers-hello-new-era-corruption.

170 Wells, Alison. "Exploring the development of the independent, electronic, scholarly journal." *Information Research* 5, no. 2 (January 2000).

171 Carlson, Nicholas. "Printing The NYT Costs Twice As Much As Sending Every Subscriber A Free Kindle." *Business Insider*. January 30, 2009. Last accessed July 8, 2010. ► http://www.businessinsider.com/2009/1/printing-the-nyt-costs-twice-as-much-as-sending-every-subscriber-a-free-kindle.

ficulties around monetizing content. Although people still want to get the news, paying for it is no longer necessary. People refuse to pay for news and articles because the competition between various outlets for viewers or readers drives down the prices to or to near zero. Only the most powerful and leading brands are able to charge for content.

Scholarly journals are the most vulnerable to a collapse in price. This is because of their bizarre economics. Each year, an estimated 2 million scholarly articles are published. Content is written, edited, and selected by academics for nothing. In many cases, these articles are published by commercially owned for-profit journals, and are then bought by university libraries for high prices. An annual subscription to the *Journal of Brain Research*, which comes with a package of other journals about neuroscience, cost $15,203 in 2000, up 50% from 1995. *The Journal of Comparative Neurology* cost $13,900. The price of this subscription increased to $27,465 in 2010 in the aftermath of the journal's purchase by a large commercial publisher,[172] and to $31,819 in 2017. A combination of both print and online access is priced at $38,303. Journal expenses account for 70% of the average academic library's budget for materials, with $500 million on journals annually in the USA alone.

12.9.4 Books Online Retail Distribution

Ebooks have been around for some time, at first unsuccessfully. Some examples of the early reading devices were the Knight-Ridder NewsTablet, the Sony Discman, the Rocket Book, and the E-Book. In 1998, Softbook appeared on the market, enabling customers to download titles from Softbook at 20–25% less than list price. The price for the reader with a black and white touch screen was $200 plus $10–$20 per month with reading material for two years. In 2010, Apple introduced a new line of tablet computers, the iPad, which became wildly popular.

Phones, too, became a popular platform for ebooks, especially in Japan. Mobile phone novels, known as *keitai shousetsu*, first emerged in that country in 2003. These novels were sent through text messages to readers. They cater primarily to young females, and feature unconventional orthographs, emoticons, symbols, punctuation, and script choice common in youth colloquial speaking and typing styles.[173] The first cellphone novel, *Deep Love*, by Yoshi, tells the story of a teenager who contracts AIDS from "enjo kosai," or "compensated dating," in other words, prostitution. The Starts Publishing Company took advantage of the popularity of *Deep Love* to churn out a manga, a television drama, a film, and a series of novels that have sold millions of copies. Novels have helped bring Japanese publishing back to life, after shrinking by over 20% in the decade after 1996.[174] In 2007, four of the top five literary bestsellers in Japan were cellphone novels.

12.9.5 The Business Models of Book E-Distribution

In 2014, Amazon had a 65% market share of the US ebook market, Apple had 10%, and Barnes & Noble 15%.[175] The companies followed different business and pricing models. As mentioned in Apple's agency model, the publisher sets the end price and the e-retail platform gets a percentage of the sale price. In contrast, in Amazon's wholesale model, the online retail platform is free to price above (or below) the wholesale price charged to it by the publisher. The publishers have control over the price to the consumer. Apple has a revenue split, where it keeps 30%, the same as for music. Bertelsmann's Random House did not sign on, deeming a 30% split too high. Apple's agency model was challenged on anti-trust grounds since it prevents retailers from offering price discounts to consumers.[176] Apple, it was argued, became part of this de facto collusion among the major publishers to protect such a non-competitive system and to force Amazon into it.

But the wholesale model, too, has resulted in anti-trust problems, leading one company (Amazon) to obtain a high market share. Amazon and Barnes & Noble both concluded that the price of an ebook should be between $3 and $10. They pushed publishers toward that price range by offering a more favorable percentage of the list price. At the bottom end publishers cannot sell an ebook for less than $1. Amazon has two tiers. For list prices in the desirable range between $3 and $10, the publisher receives 70% of the list price, minus the delivery fee. When the list price is below $3 or above $10, the publisher receives only 35% of the list price.

12.9.6 Direct Electronic Distribution to Users: Streaming Music

Streaming audio technologies allow users to listen to music or view videos but restrict them from storing the music. In 2008, Apple's iStore surpassed Wal-Mart to become the #1 music retailer in America. Other online download services in the USA were Rhapsody, Buy Music, Napster, and Yahoo Music Jukebox. Each had millions of songs available for downloading. Pure streaming requires users to be connected. Companies offered subscription plans of around $10

172 English, Ray and Larry Hardesty. "Create Change: Shaping the Future of Scholarly Journal Publishing." *C&RL News*. June 2000. Last accessed June 4, 2012. ► http://www.ala.org/acrl/issues/scholcomm/crlnews/crtechange.

173 Coates, Stephanie. "The Language of Mobile Phone Novels: Japanese Youth, Media Language, and Communicative Practice." *ASAA*. 2010. Last accessed June 27, 2011. ► http://asaa.asn.au/ASAA2010/papers/Coates-Stephanie.pdf.

174 Goodyear, Dana. "Letter from Japan: I ♥ Novels." *The New Yorker*. December 22, 2008. Last accessed June 29, 2017. ► http://www.newyorker.com/magazine/2008/12/22/i-love-novels.

175 Eduardo Angel. "The current and very messy state of digital publishing." January 8, 2015. Last accessed June 29, 2017. ► http://www.eduardoangel.com/2015/01/08/the-current-and-very-messy-state-of-digital-publishing/.

176 The publishers lawsuit was *U.S. vs. Apple et Al 12 Civ. 2862*.

per month. Major music streaming services are Pandora (an early internet radio leader), Spotify (a major provider in Europe), and iHeartRadio (from the largest US radio station group). By 2017 streaming audio accounted for 15% of all audio sources in the USA; of this Pandora had a 30% market share, about 4.5% of all US radio listening.[177]

The online music industry has a unique, Catch-22 situation: the more successful it is with users, the more money it might lose. The online music sites pay a license fee to the copyright holder each time a song is played. On the other side of the ledger, subscription revenue is a much smaller business. The gap is partly filled by advertising dollars, but that revenue is still small. In 2011, online radio had about $800 million in advertising in the USA, compared with traditional radio's $15.7 billion. 2017 revenues were about $4 billion. Growth was 20% per year before 2011 and about 13% after 2014.[178]

Looking at the music service Spotify, we can observe its economics: in 2016, it streamed about 30 billion songs per month:[179] 30% were interactive and 70% non-interactive.[180] In 2016, Copyright Royalty in America set new royalty rates for non-interactive streaming services. For a paying (i.e. subscribing) user the rate is $0.0022 per stream; for a non-paying customer, the rate is $0.0017 per stream. For interactive streaming, Spotify has to negotiate with the labels and non-signed artists. Spotify reported paying $0.006–$0.0084 per stream.[181] The royalty payment is then $35.7 million per month for 21 billion songs per month for the non-interactive streaming, or $428.4 million per year. For the interactive streaming, assuming a $0.0072 per stream royalty which is the median rate, the royalty payment is then $64.8 million per month for 9 million songs per month, or $777.6 million per year. This would lead to a total royalty payout of $1.2 billion per year. If royalty payments account for 60% of cost, Spotify would need to generate $2.0 billion per year in the USA just to cover costs. Spotify would require 11.1 million paying subscribers in the USA at $15 per month to achieve this targeted annual revenue, about 22% of its worldwide base. Alternatively, running 100 billion audio ads at $20 per CPM (which outside the USA would be quite high for radio-type ads) would bring the same annual revenue. At the reported 30 billion streams per month, this would mean an ad would be broadcasted every 3.6 songs.

Streaming usage has migrated to mobile and vehicles. 70% of Pandora's listening is via smartphones. The vast majority—maybe 80%—of traditional radio listening is done while driving. In consequence, Pandora has negotiated deals so that its apps are preinstalled in the control panels of several major vehicle brands. Spotify opened its API to third-party app developers. Early apps included those of *Rolling Stone* and music-related services such as concert tracker Songkick. Advertisers can interact on Spotify with users through the apps.

177 Owen, Laura Hazard. "Left on the dial: With young people trading AM/FM for streaming, will radio find a home in your next car?" *NiemanLab*. April 18, 2016. Last accessed June 30, 2017. ► http://www.niemanlab.org/2016/04/left-on-the-dial-with-young-people-trading-amfm-for-streaming-will-radio-find-a-home-in-your-next-car/.

178 Kinsella, Bret. "Mobile Advertising Growth will boost Internet Radio Revenue." *Xapp Media*. May 3, 2016. Last accessed June 30, 2017. ► https://xappmedia.com/mobile-advertising-growth-boost-internet-radio-revenue/.

179 Dredge, Stuart. "Spotify Now Processes 'Nearly 1bn Streams Every Day'." *Musically*. July 22, 2015. Last accessed June 30, 2016. ► http://musically.com/2015/07/22/spotify-1bn-streams-every-day/.

180 Users must be premium subscribers to be an interactive user (allowing the user to select which songs they hear). In 2016, Spotify had 100 million users, of which 30 million were premium subscribers.

181 Johnson, David. "See How Much Every Top Artist Makes on Spotify." *Time*. November 18, 2014. Last accessed June 30, 2017. ► http://time.com/3590670/spotify-calculator/.

12.9.7 Online Videogame Retail Distribution

The largest online retailer of video games worldwide by far is Steam. It was started in 2003 by game production studio Valve as a way to push out updates of its games to users. It has subsequently evolved into distributing games by outside developers. In 2018, Steam offered over 8000 games and had over 150 million registered accounts.[182] Steam keeps 15–30% of retail price, depending on whether the producer is a major game house or an independent producer. In China, the major online distributors of video games are 37Games and Tencent Games.

12.10 Distribution Channel Strategies

Managers of media distribution must deal with these issues:
- self-distribution versus third-party distribution;
- the selection of distributors;
- the timing and sequencing of distribution over various platforms.

12.10.1 Self-Distribution: Customer-direct Distribution by Producers

In general, direct producer-to-consumer sales avoid sharing revenues with retailers and wholesalers. But they also reduce an understanding of the needs of local markets and lose the grassroots promotion of a retailer. In other cases, a direct relationship creates a bond. The internet enables musicians and authors to use direct-to-fan distribution to sell their work. Some of them are well known, such as Radiohead or Stephen King, who at times market their "brand" without a need for intermediaries. (It should be noted that they achieved their brand recognition inside the traditional system, and with the support of its conventional marketing operations.) This avenue will not be easily available to unknown artists. To develop audiences they need self-promotion, word of mouth, and sheer luck. While some such efforts snowball and receive much attention, the probability of success is minuscule.

For artists to go directly to audiences does not mean that there are no intermediaries. It is, of course, possible for an artist to have her own website and get paid for downloads or

182 Edwards, Cliff. "Valve Lines Up Console Partners in Challenge to Microsoft, Sony." November 4, 2013. Last accessed June 10, 2015. ► https://www.bloomberg.com/news/articles/2013-11-04/valve-lines-up-console-partners-in-challenge-to-microsoft-sony.

streaming, and perhaps also have advertising on that website. For performers, the internet permits direct-to-fans sales. An example is the comedian Louis CK, who has been called "The king of direct-to-consumer sales." He sells his standup special for $5 a copy on his website. About 200,000 copies were brought in 12 days. He also bypassed the Ticketmaster online ticket agency and instead offered the tickets to his shows directly on his website. He sold 100,000 tickets in two days, grossing $4.5 million. More likely, however, is for the artist to place the music on aggregator sites such as Apple's iTunes (for sale) and Apple Music (streaming) or Google's YouTube (for streaming) and Google Play (for downloading).

Another level of intermediary is provided by services that manage placement on the various music sites around the world, collect the royalties, and distribute them to the artist. Such intermediaries include (for music) Bandcamp, Café Press, CD Baby, Artist Board, Constant Contact, Nimbit, Pledgemusic, Official.fm, and TuneCorp.

These services charge for their work as distributors. Last.fm takes a flat $5 monthly fee no matter how many sales occur. Bandcamp takes 15% of sales up to $5000 and then drops to 10%. CDBaby charges a 9% commission on the net payout to the artist after Apple's 30% cut by iTunes, that is 6.3% of the retail price. Thus the net revenue left to the artist from the sale of her album selling on iTunes for a typical $9.99 is about $6.36, which is considerably higher than for an album sold as a CD at $15, of which the artist may get about 10%, which after a number of deductions might add up to $1 per sale. On the other hand, the number of copies sold by the artist on her own might be much smaller, since she does not have the label's brand reputation and costly marketing apparatus behind her.

Does self-distribution work in economic terms for artists? Let us look at the numbers. Suppose one artist distributes her music in the traditional way through a major record label, while another artist uses the aggregator TuneCore to distribute content. On average, the second type of artist earns $214 per year, or $18 per month. This is because 94% of digital tracks sell under 100 copies and 32% of them sell only one copy.[183] The top-earning 1% of artists on TuneCore made an average $935 per month, while less than a hundredth of 1% of artists made more than $22,000. Three artists (one in 165,000) earned more than $100,000 from digital music sales.[184] In contrast, Universal Music Group has 934 artists under contract. On average, these artists make $15,000 per month from digital music sales, which is about 830 times the amount an independent artist makes on average. Of course, Universal Music Group signs only a very small number of artists, those with strong sales potential, and then promotes them and gives their work a strong distribution.

A second revenue stream for self-publishing artists—music and blogs—is online advertising. Google YouTube sells ads through multiple streams. Those ads are then matched up to content and served when a user clicks on the video. The contributor of the content is compensated based on the advertising earnings brought in through views of their videos (i.e. how many people click on their video and watch the ad, and how much Google makes by selling the ad, since different ads sell for different amounts). Ads are selected to be served to a music video based on numerous decisions by Google's algorithm, including the content of the video (if it is compatible with a particular brand), the demographics of the user watching the video, and whether there are any copyright issues.

12.10.2 The Selection of Distributors

One strategy for a producer is to seek a wide distribution by as many distributors as possible. The idea behind such "saturation distribution" is that the more outlets and platform stock the product the greater the chance of it being bought. But in that case the distributors, whether wholesale or retailers, are likely to compete with each other and thus will end up with limited volume and profit margins. The other extreme is "exclusive distribution," with a small number of intermediaries who then fully commit to the product. Their exclusivity gives them higher profits, but their presence across the market is limited and the lack of alternative distributors may lead them to be less than fully energetic. Furthermore, having exclusivity, they might exert power against the producer. An intermediate option is "selective distribution" with a relatively small but non-exclusive number of distributors.[185]

When selecting distribution intermediaries, a company will look at several factors. These could include:

- track record;
- commitment of distributor to other and possibly competing products;
- financial position;
- ability to innovate and use new techniques.

The producer, too, must be careful to motivate and incentivize the distributor. Actions that might backfire are:

- producer bypassing distributor by selling directly to customers, possibly at a lower retail price;
- oversaturation of market by engaging numerous distributors;
- creation of new channels;
- engagements with cost-cutters.

It is almost unavoidable that there will be some competition among retailers and among wholesalers. This is known as channel conflicts. There are several types:

- Horizontal competition occurs between intermediaries of the same channel, such as rival video games stores.[186]

183 HypeBot. "You're Losing Money: Why The Majority Of Artists Should NOT Use Tunecore." November 18, 2013. Last accessed June 30, 2017. ► http://www.hypebot.com/hypebot/2013/11/youre-losing-money-why-a-vast-majority-of-artists-should-not-use-tunecore.html.

184 TuneCore. "TuneCore Artists' Music Sales – July 2011." November 22, 2011. Last accessed June 30, 2017. ► http://www.tunecore.com/blog/2011/11/tunecore-artists-music-sales-july-2011.html.

185 Palmer, Adrian. *Principles of Marketing*. (New York: Oxford University Press, 2000), 337.

186 Palmer, Adrian. *Principles of Marketing*. (New York: Oxford University Press, 2000), 337.

- Intertype competition is between different types of intermediaries, such as video games stores and large department stores that retail video games.
- Channel system competition is an arrangement where an entire channel type is competing against a different and parallel channel, such as video game retailing by stores with the online downloading of video games.

12.10.3 The Timing and Sequencing of Distribution over Various Platforms

Often the producer will separate different distribution channels by assigning them different geographic territories or customer classes. Another segmentation is by the time for their distribution activity. For film, this is known as windowing (Fig. 12.18). A film will be shown first in movie theaters. At the conclusion of the theatrical run, it will become available for sale for home movie viewing, and next by on-demand streaming for subscribers of video services. This continues until the film, having exhausted all other distribution options with a higher revenue potential, eventually ends up on late-night TV on small TV stations.

As mentioned, the basic principle for release sequence strategy is to:

1. segment the market by distribution platforms;
2. distribute via the platform that generates the highest marginal revenue per time unit;
3. cascade down in the order of marginal-revenue contribution.

Creating a release sequence is a form of price discrimination. To be able to maintain it requires keeping the various distributions and their channels separate from each other so that arbitrage does not become possible. Unauthorized use and sale undermine the ability to maintain this system. One impact of increasing piracy therefore has been the compression of the release sequence in order to shorten the time window for pirates before the film is available more cheaply than in theaters. Another response is to release films internationally at the same time as they are released in the USA, so as to give pirates less time to flood international markets. The film *The Perfect Storm* opened internationally a few days ahead of its US theatrical opening. However, early international release reduces the positive impact of favorable US press stories and performances. Moreover, marketing campaigns traditionally have the director and stars of a film visit each major country as their film is about to be released. This becomes harder with global release dates.

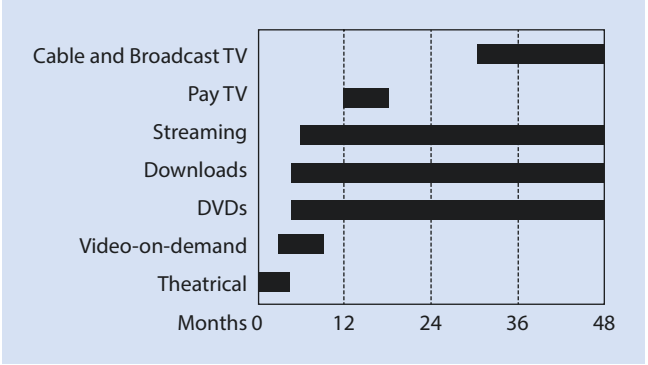

Fig. 12.18 Typical distribution windows from release date, *c.* 2014

The theatrical run of a movie is usually over within a window of three months. The home video is released about six months after the theatrical run. Spacing too closely cannibalizes the high-margin version, because some potential viewers will wait. But delaying too much results in a loss of the market awareness of the film and its image as "new."

What is the optimal length of the theatrical window? When to release a film in a second channel such as for home video rentals? This can be analyzed as a scheduling problem. The success of the film in the first channel (theaters) helps predict sales in the second channel (video rentals), and to set strategy for that second channel. When the second channel is activated, however, it draws business away from the first channel which has higher margins. Thus there is an optimal point at which one would diversify distribution with a further channel. This is discussed by marketing theorists in a variety of analytical papers.[187, 188]

12.10.4 Retail Distribution: Conclusions on Trends

While there are always exceptions, the broader trends in retail distribution are as follows:

- Bricks and mortar retailers are declining:
  - video rental stores are dead;
  - music stores are dead;
  - bookstores and game stores are in decline;
  - film theaters are squeezed.

Consolidation of retailers into large chains. Massive consolidation into chains can be observed for:

- books: Barnes & Noble (USA), W.H. Smith (UK), Kinokuniya (Japan), Hugenduebel (Germany), Payot (Switzerland), Steimatzky (Israel), and so on;
- music (before bankruptcies): Tower Records;
- video rentals: Blockbuster (before bankruptcy), Redbox;
- film theater chains: Regal (USA), Gaumont (France), Silverbird (Nigeria), Cinepolis (Mexico), PVR (India), Toho (Japan);
- video games: Valve;
- consumer electronics: Best Buy (USA), Best Denki and Deodeo (Japan), Media Markt (Germany).

187 Lehmann, Donald R. and Charles Weinberg. "Sales through Sequential Distribution Channels: An Application to Movies and Videos." *Journal of Marketing* 64, no. 3 (July 2000): 18–33.

188 Prasad, Ashutoshm, Bart Bronnenberg, and Vijay Mahajan. "Product Entry Timing in Dual Distribution Channels: The Case of the Movie Industry." *Review of Marketing Science* 2, no. 4 (2004): 1–18.

The consolidation into chains is part of a larger move to national-brand "big box" store chains that exist everywhere, from groceries to auto repairs to restaurants. The trend weakens traditional mom-and-pop retailers. The next disruptive change has been online retailing, often the *coup de grâce* for bricks and mortar stores, whether small or large, unless the smaller retailers can develop an additional value-add for the end user.

- Replacement of physical products by digital products leads to leapfrogging of traditional retailers by etailers:
  - Netflix for video streaming;
  - Apple iStore for music and ebooks;
  - Amazon for ebooks;
  - Steam for games.
- While many distribution chains show an integration of wholesaling and retailing, in other distribution chains the opposite is happening.

  For music, books, video games, or consumer electronics, the emergence of large chains and/or of electronic distribution has led to a compression of the distribution channels, with the wholesale and retail functions often combined. In some cases, they are also integrated with that of the producer. Examples are Apple's and Microsoft's retail stores, or Time Warner's HBO Now. On the other hand, there has also been a disintegration. In the film industry, the producer companies used also to be wholesale distributors and retailers (theaters). Today, film retailing in the USA is quite separate from distribution, though legally it can be joined again. Much of film production, too, is separate from distribution, though closely related by financing.
- Book retail distribution tied to publishers, such as Bertelsmann's book club, has declined considerably.
- A trend from discrete products (a film, a CD) to bundled (subscription) services:
  - music (Pandora, Spotify, Tencent);
  - video (Netflix, Hulu, Amazon);
  - newspapers and magazines (decline of street sales in favor of subscriptions).
- There is also a counter-trend to unbundling:
  - VOD instead of pay-TV subscriptions;
  - single music tracks instead of albums;
  - film streaming services instead of cable TV bundles of channels.
  - Some subscription models have declined, in particular book and music clubs, and more generally newspapers and magazines.
- Online retailers tend to be large and dominant, even more so than retail chains:
  - books (Amazon);
  - film rentals (Netflix, Amazon);
  - music (Apple iStore);
  - games (Steam, Green Man Gaming (UK), Tencent (China));
  - everything (Alibaba, Amazon).
- Dominant online retailers tend to be new retailers.

  (All of the examples above are new companies.)
- Direct-to-consumer retailing by producers has not been a major factor.

  Can we observe producers becoming retailers? Yes. In many media, the producers (even the creators) can access the end user directly. Many music labels or artists run websites that stream content. Book, magazine, and video games publishers permit direct purchases. There has been a large number of self-produced and self-marketed videos. However, the actual volume of business and of transactions is smaller than the publicity it received.
- The revenue share of retailers in overall media revenues of the industry averages 23%. It is 25% for physical content media, 21.4% for electronic content media, and 19.3 for online media. It is higher where:
  - a major local effort is involved (film theaters, 40%);
  - major investments are needed (cable TV, 33.5%);
  - large inventory is necessary (books, 40%);
  - products are perishable or risky.
- The retailing stage is resilient.

  The shift away from traditional retailers moves economic activities to new types of retailers (e-tailers), not to disintermediation of the retailing function. The resiliency of the retailing stage is based on its ability to transform itself. In several segments of the media and information sector, the retail sector has been the one that has changed the most. Examples are the music business and the video/film industry. The persistence of retailing (albeit in new forms, often integrated with wholesale distribution) suggests that retailing has a role regardless of the distribution technology used.

  Elements of this role of retailing are:
  - screening and validation of products;
  - customer service;
  - transaction management;
  - inventory storage;
  - local market analyses;
  - local marketing;
  - creating a shopping experience;
  - consumer credit;
  - comparison shopping among many brands and products—a shopping mall rather than a factory outlet.

The relative lack of success of producers—whether large or tiny—to become retailers also suggests that the respective skill sets are different. Retailers are sales and marketing oriented, which are people-oriented tasks. Producers are technology and content oriented. Both stages require a good dose of effective logistics management, which is an operational function.

The emergence of strong retailers creates countervailing power against large producers or wholesale distributors. Thus, whereas in the past retailing was characterized by small independents who were fairly weak, today Apple and

Amazon can dictate pricing arrangements to book publishers and music labels. Similarly, Netflix has power facing the Hollywood studios, and Apple can impose conditions on app developers for the iPhone. If anything, the retailer, especially when integrated with wholesale, as all the above examples are, exert so much bargaining power that the producers agitated for regulatory/government assistance in curtailing it. In the past, it was the retailers who sought such protection.

12.11 The Revenue Shares in the Distribution Chain

After our explorations of the wholesale and retail stages of the distribution chain, we now turn to the relative shares of revenues for the participants in the entire chain. Some of this was interspersed into the previous discussion. Where are the profits in the value chain? Table 12.7 is based on the analyses of this

Table 12.7 The revenue shares in the distribution chain

	Retailer (%)	Distributor (%)	Producer (%)	Creator (%)
Film Theatrical distribution[a]	40	45	16	11
Film Pay cable distribution	33.5	38.5	20	8
Film Broadcast TV distribution	22	46	22	10
Film Online distribution	25.8	20 (National Distribution) 4.7 (Local ISP) 24 (Advertising Intermediaries)	20	5
Film Home video store chain distribution	25	50	17	8
Books (print)	40	12.5	35	12.5
Ebooks	30	–	53	17
Music CD	20	17	46	17
Online music	25	8 (National Distribution) 5 (Local ISP) 18 (Advertising intermediaries)	28	16
Magazines (including advertising subscriptions)	16	8.5	68	7.5
Online magazines (including advertising)	13	–	67	20
Print newspapers (including advertising revenues[b]; adjusting for the prevalence of direct subscriptions)	13	9.5	62	15.5
Online newspapers free (including advertising)	3	23 (Advertising intermediaries)	44	30
Online newspapers by subscription (including advertising)	15	20 (Advertising intermediaries)	45	20
Consumer electronics	25	20	45	10
Physical content media	25	23.1	40.1	11.4
Online content media[c]	19.3	5.5	58.2	18
Electronic content media	21.4	14.7	48.9	15.8
All Media	23	18.3	38.5	13.1

[a]Theatrical deficit is a loss leader for subsequent distribution on other platforms.
[b]While retailer's share in single-copy sales is much higher, most of newspaper revenues come from advertising and subscriptions, in which retailers do not share
[c]Excluding advertising intermediaries.

chapter, plus interviews with participants in the various industries. They show the share in the overall revenue of a media product by the four major stages of a media production and distribution: creation, production, distribution, and retailing. We identify their share in the money consumers and advertisers paid. This share is net of payments that was kept rather than passed on to the other stages. It is not net of the other various expenses which each stage incurred. For example, of the 62% of newspaper revenues that go to the publisher, 14.7% are used for materials (paper), 18% for the actual production (printing, etc.), 6.3% for general administration, and 10.5% for marketing and promotion. 12.5% is profits. For more details, see the Appendix.

What can we observe from this table?

- The share of overall revenues that goes to the creators is invariably small and hovers around 11–15% for most media. It is highest for online media at 18%, though that is partly a function of the small role of wholesalers in that sector. It is actually highest for the newspaper industry, which reflects its labor-intensive nature. It is lowest for film, where much of the revenue goes to theaters, producers, and distributors.
- The share of revenues that goes to producers averages 49%, by far the highest share. It is highest for magazines and newspapers, where it reaches 68% and 62%, including the advertising revenues. It is high for electronic content media (48.9%) and lowest for film (19%), where most of the revenue goes to the distributors. It must be understood that these revenues do not mean share of profits. The producers of media bear some of the major costs. For newspapers and magazines, for example (beyond the cost for editorial/creators), publishers must pay for paper, printing, solicitation of advertising, marketing of the publication, overhead, and so on. If we look at profitability, profits for book publishers are 7.8% of overall retail revenue, magazine and newspaper publishers 12.5% (2% for advertiser-supported online publishing), music labels 6% (and less for online music), and consumer electronics makers 5%.[189]
- The share of the distribution chain covers much of the rest. Wholesalers average 18.3%, as has been discussed earlier in this chapter. It is much higher for film (39.9%) and lower for books (6.3%), magazines (3.8%), newspapers (2.2%), and online media (5.5%). It is larger where marketing activities must be extensive, investments are high, and risk great. It is higher, by 57%, for physical content media than for electronic content media (23.1% versus 14.7%), and both are much higher than for online media (5.5%), where wholesale operations are less important and are integrated with retailing.
- For retailing, the revenue share averages, as mentioned, 23%. It is higher (25%) for physical content media, 21.4% for electronic content media, and 19.3% for online media. It is higher where local marketing efforts are high, inventory requirements great, and risk high.
- If we look across all media, the revenue share of the distribution chain is about 41%. It is lowest for online media at about 25% and highest for physical content media (48%). This reflects the higher cost for physical distribution over online distribution, but also the greater market power that prevails.

12.12 The Impact of Distribution on Content

12.12.1 Distribution and Content

We are on the verge of truly exciting changes in the way we create and consume culture and information. This enrichment of media content will inevitably lead to new genres and styles. There is a relation between media technology and content. Marshall McLuhan, the 1970s media guru, is known for the aphorism "the medium is the message"—that is, distribution technology defines content style. He argues that "We shape our tools and thereafter our tools shape us."[190]

Visual images are composed of a huge number of information units. Digital technology expresses information elements as "bits"—binary information. The cheaper it becomes to produce bits and to distribute them, the more visual the medium becomes. Weaker visual capability favors story line and character development dialogue. Higher visual capability favors special effects, adventures, and action. Before photography and film, the major medium was print. The print medium was expensive in distribution and hence parsimonious in its use of "bits." It generated extraordinarily subtle works—novels, poems—with each bit containing a lot of content. Film changed all that. Its cost of distribution per megabyte of information was much cheaper than that of print and thus it enabled an enrichment of the content. It could provide the visual details. Therefore, film could stretch imagery to levels that did not exist before. In less than ten years, film pioneered new forms of expression and new genres—science fiction, outdoor adventure such as Westerns, voyeuristic content.

Early film was probably the most unsubtle form of mass media expression ever. Since there was no sound, it had to rely on heavy-handed physical action. The plots were simple with simple characters. This was not just because of the technical limitations of the medium, but also because of the socio-economics of the medium. Because the film experience was cheap, it was affordable for the working class and the style reflected mass popular taste, not elite taste. In 1927, the first full-length movie with sound was released. It enabled real dialog, and in consequence films became subtler.

The second constraint was the cost of distributing these bits of content. In the first generation of television (broadcasting), there was a limited number of channels, and the high opportunity cost meant national, middle-of-the-road content. The second generation of TV was the multichan-

189 These are not profit margins on producer sales, but margins on consumer prices. Since there are markups by wholesalers and retailers, the profit margins of producers are thus higher. See the table in the Appendix.

190 As quoted in Culkin, John M. "A Schoolman's Guide to Marshall McLuhan." *The Saturday Review*. (March 18, 1967), 51–53.

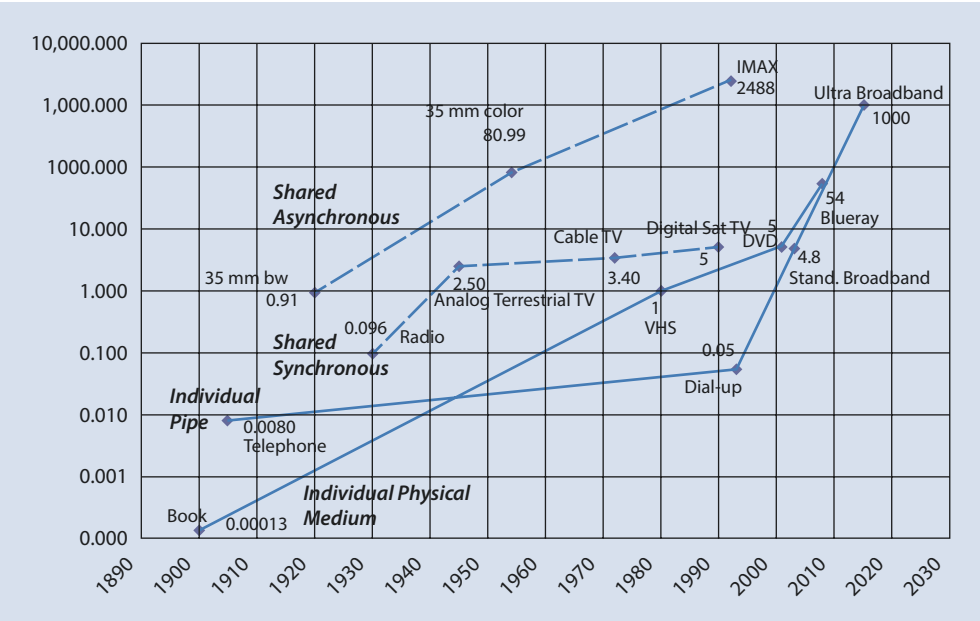

Fig. 12.19 Trend of information enrichment of media

nel stage—Cable TV, DBS, VHS, and DVD. Cable enabled more channels because to distribute them did not require an audience of 20–30% of the population, as limited broadcast TV did. Very specialized content channels emerged, such as Baby First TV, the Boating channel, or Black Belt TV.

And now emerging is the third generation of TV: TV over the broadband internet. Bits have become still cheaper to create, manipulate, and transmit. This changes media in two dimensions: widening and deepening.

The widening of video distribution continues past trends:

- more TV channels;
- more regular TV, but at different times;
- narrower narrowcasting: long tail content;
- more imported channels;
- user-generated video;
- more distribution platforms, including mobile telecom (anytime, anywhere) and follow-me TV.

There is also a second dimension of change: deepening. This refers to a greater richness of media, that is, to the greater extensions of signals to sensory receptors such as eyes, ears, nose, skin, and mouth. It loads on human signal processing. More powerful and affordable distribution will lead to richer media and to media applications that operate with more "bits", not just more of the same.

The dimensions of media richness will include, over time:

- better quality of picture, especially for larger screens;
- three-dimensionality;
- virtual reality;
- immersion;
- interactivity;
- individualization.

These elements will create video entertainment of an experiential nature, with user immersion, participation, and interactivity. This leads to entirely new types of content and its subcategories (genres):

- immersive films and games;
- sports immersion and simulation;
- marketing tools for experiencing products;
- travelogue experiences;
- participatory news (you are there);
- education and training simulation content;
- social immersive sharing;
- individualization of content: advertising and even plot lines customized to different individuals or user categories.

In our discussion of trends of distribution we observed that the price of creating information, as measured by the price of 1 GB of information, has declined enormously with the technology of production. We also observed, in the present chapter, the rapid and continuous decline in the cost of distribution of information over time. These two trends, taken together, have led to an enormous decline in the price of a bit of information delivered to the end user. Such a price decline leads predictably to a rise in consumption of bits.

If we identify the trend of major media technologies over the past century we can observe a continuous rise in bit-intensity per unit of time. This is depicted in Fig. 12.19, a semilog presentation of such growth. It shows a compound growth rate of about 8%.

Thus, with this trend of bit enrichment of media channels, what is the implication? What can we expect in terms of media and information if the bit rate of media continues to grow at that compound growth rate?

A medium of expression tends to start at a high cost per bit, and in that period of high cost it is first introduced and used by a few high-income elite users. Then the medium creates a system of shared usage. This lowers the cost for each user and it distributes the high fixed cost over multiple users.

For example, theater, concert, and opera were used in shared consumption. Shared consumption is usually synchronous. However, costs decline over time and eventually move to a range where it becomes affordable for individuals. At that point, the medium starts to become individualized and asynchronous.

This means that by looking at present use of shared media, and assuming a certain rate of price decline per bit, one can predict the future individualized usage. What is affordable today only when we share the cost will become affordable individually in the future along a path that is reasonably foreseeable. And that means that we can predict the next individual content type from the existing shared communications style.

12.12.2 Implications for Media Distribution Companies

If people spend more of their lives inside and/or connected, media companies will get more of their time, attention, and money. This is, on the demand side, good news for these companies, whether they produce bits, distribute them, or transport them.

However, on the production side, a richer content also means a more expensive content. This is also a continuation of trends. And this has business implications for the structure of content production industries.

To produce such next-generation content is costly. It requires creativity, many programmers, and many new versions. For *Terminator 3*, $20 million was spent on computer graphics alone. For *Avatar*, the main visual effects company Weta Digital had up to 900 employees working on the project. Weta used 3000 HP servers with 35,000 processors.[191] Each minute of the film filled 17.28 GB of memory. *Avatar* consists of 40% live action and 60% computer generated/enhanced footage. It cost $280–310 million to make the film. And this is only the beginning, since making the same linear content individualized, interactive, and immersive raises costs exponentially.

Such expensive content exhibits strong economies of scale on the content production side, and network externalities on the demand side. Both the content production side and the demand side favor content providers with big budgets who can diversify risk, distribute over other platforms, brand, deliver to large audiences, and coordinate specialized inputs.

On the other hand, long tail content can be supplied by everybody, through the lower-cost production and distribution technology. There is room for experimentation in content and technology. Some of this will be created by decentralized peers and non-profit user communities collaborating loosely with each other. When successful, these innovators typically are acquired, hired, or copied by major firms. What will emerge is a two-tier system of large integrator firms and a bevy of small and medium-sized specialist firms.

When it comes to news rather than entertainment, the trend will be to move from a model of wide audiences receiving relatively low relevance stories—mass media—to a model of small segments of people receiving highly relevant news—personalized media. Customizing content in a meaningful and accessible manner requires a comprehensive collection of information, a feat too great for any one newspaper. News organizations therefore will have to go beyond internally produced and compiled content. Instead, they must make connections with other newspapers, magazines, trade journals, newsletters, blogs, other non-traditional sources, freelancers, investigative journalists, and so on. In other words, the news organization becomes a network, an information distribution system for the user to navigate.

12.13 Conclusions

12.13.1 Case Discussion

The Role of Distribution in Bertelsmann's Future?

For Bertelsmann, one strategy would be to focus purely on content and drop distribution platforms (such as TV stations, media clubs, online streaming, etc.) as well as printing. Without distribution how would content be affected? Already, Bertelsmann's UFA films are being distributed mostly by others, and its music distribution, along with the rest of BMG, has been sold off. Its music and book clubs are in decline or have closed down. TV broadcasting is also declining in general. Bertelsmann's origin is in content publishing. Bertelsmann printing division is declining, along with printing more generally.

In the past, Bertelsmann controlled strong distribution channels in book and music clubs, and leveraged this into a strong role in book publishing and music labels. RTL TV licenses gave Bertelsmann a strong role in film and TV distribution and therefore production. But in online media, Bertelsmann's role in distribution declines, and with it the advantage for its own content.

The second strategic option is to focus on online distribution. But what has been Bertelsmann's track record been in creating online distribution?

- Music: it was far ahead of the rest of the music industry, but its deal with Napster was blocked.
- Film and TV online: online efforts had no noticeable impact.
- Books: bol failed. Tolino, and Skoobe efforts are noteworthy, but wield no real power in a consortium that includes all the major German book retailers in a joint alliance.
- Video Games: no presence.

The question then is:

- What can Bertelsmann do to strengthen its role in online forms of distribution?

191 Wikipedia. "Avatar (2009 film)." Last accessed July 8, 2010. ► http://en.wikipedia.org/wiki/Avatar_%282009_film%29.

12.13.2 Overall Conclusions on Distribution

In the media and information industry, the distribution of content and devices usually gets less attention than creation and production. However, it is a key skill in an environment of glut and multiple platforms and stages. Several trends are occurring:

- The rapid advancement of technology is driving the migration of media distribution to electronics.
- Distribution is moving from bulk to individualization.
- Distribution is becoming globalized.
- Convergence to IP is leading to the convergence to multipurpose platforms.
- The rising economies of scale in distribution is changing market concentration.
- The lowering of entry for applications and content is creating a greater dependence on distribution platforms.
- The technological and economic trends are transforming individualized electronic distribution from a kilobit stage of individual information to the megabit stage and soon to the gigabit stage.

One network principle—known as Amdahl's Law—says that a system's speed is determined by the slowest component in the data path (i.e. a convoy travels at the speed of the slowest ship). Another maxim—Drucker's Law—states that profits migrate to the supplier of the missing component necessary to complete a system. (i.e. the bottleneck gets the profits). By combining the two, it seems that the most profitable segment is not necessarily the one most developed and innovative but the one most restricted. And that segment more often than not is the distribution stage of the value chain.

Distribution is restricted not because of technology—that is moving ahead rapidly. But rather, it is the fundamental economics of this change. We have seen that networks are characterized by economies of scale, economies of scope, network effects, and instability. And the trends increase these factors, which is why distribution networks are almost always highly concentrated in a few companies. Electronic networks are becoming more expensive in fixed cost and less expensive in marginal cost. This raises industry concentration. It is for that reason that we have market structures with six major film distributors, three music distributors, one infrastructure phone company, one local cable company, maybe two DBS firms, one local newspaper, two to three broadband internet providers, one satellite radio distributor and three or four mobile wireless providers.

As we have shown, it is not the absolute cost of distribution that determines the concentration of distribution networks. It is the relative cost of fixed versus marginal cost or fixed versus total cost that determines market structure.

Some distribution is becoming more open and less concentrated, since new technologies create shocks and upheavals to established players. But soon the fundamental economics of distribution will assert themselves with a high fixed cost and low marginal cost. In competition, prices will plummet toward low marginal cost, which cannot support the high fixed cost. Companies go out of business, the survivors consolidate and establish an oligopoly that maintains prices at a higher level. Airlines, telecoms, and, historically, films and music are examples of these dynamics.

The analytical tools for managerial decisions and control are similar for physical and similar electronic distribution. They incorporate a tradition of engineering analysis, operations and logistics, business economics, and law. Of course they are not identical for different platforms. For example, electronic distribution is less secure and makes piracy easier. On the other hand, electronic distribution has stronger feedback, better consumer price comparison, and easier individualized price differentiation.

We return to the points we presented at the beginning of this chapter.

12.13.2.1 Myth #1: "Content Is King"

This is the cliché of the media industry sector. It believes that content is scarce and difficult, and that distribution is commodity. Relative power in the value chain is based on the relative scarcity of the stage.

The source of market power is distribution. And distribution, given its fundamental economics, tends to be inherently concentrated. Content has much lower entry barriers, and is not inherently concentrated. Distribution firms leverage this asymmetry into a role in content creation and content aggregation.

The main source of economic power of media firms is distribution. Distribution companies leverage this into a role in content creation and content aggregation. Vertical integration is the symptom, not the cause of market power in distribution. As the complexity of distribution rises, as FC/MC ration rises, and as regulation is less effective, distribution becomes the key.

12.13.2.2 Myth #2: Technology Breaks Up Market Power in Distribution

Isn't distribution becoming more open and less concentrated? More broadband internet, fiber networks, mobile communications, and cable channels?

New technology indeed creates new and more advanced forms of distribution. More advanced distribution technology means fewer bottlenecks but not less market power held by the distribution company. It could even become more powerful. As we discussed, technology is raising economies of scale and hence reduces the number of players and raises their market power.

12.13.2.3 Myth #3: Disintermediation

Retailers and wholesalers are needed and fulfill several essential functions. Producers' direct business with consumers is fairly weak. There are new types of distributors, and some distribution stages become integrated, but the function does not disappear. On the contrary, the new distribution intermediaries are more powerful and central than ever.

12.13.2.4 Myth #4: Electronic Distribution Is Very Different from Physical Distribution, and Changes Everything

People often make a big distinction between electronic and physical distribution. But there are great conceptual, economic, structural, and organizational similarities. The new distribution technology changes network architectures, market structures, and the players. But the basic roles of distribution intermediaries—wholesalers and retailers—remain.

Given its fundamental economics, distribution is inherently concentrated. Content has much lower entry barriers and is not innately concentrated. Thus the main source of economic power of media firms is distribution.

In other words, for some types of media, content is king. But if so, then distribution is the emperor. It must be managed. It can be leveraged.

12.14 Review Materials

Issues Covered

In this chapter, we have covered the following issues:

- What the concept of distribution networks is.
- How network design affects economies of scale and market structure.
- How physical distribution is affected by electronic channels.
- How governments impact a firm's distribution business.
- Whether vertical integration of distribution and production creates synergies.
- What the various topologies and architectures of networks are.
- How different disciplines approach the analysis of networks.
- What the concepts are of guaranteed QoS versus best-effort work.
- How net neutrality regulations affect the internet.
- What the distribution systems for film, music video, and video games are.
- What the distribution systems for books, newspapers, and magazines are.
- How wholesaling and retailing can be vertically integrated.
- How electronic distribution affects print, music, and video.
- How to select distribution intermediaries.
- How to analyze release sequencing strategies over various platforms.
- The different stages in a distribution chain.
- What the trends are in wholesaling.
- What the trends are in retailing.
- What the revenue shares are for firms in the distribution chain.
- What the extent of disintermediation and consumer-direct distribution is.
- How inbound logistics is planned.
- The reasons why network competition is unstable.
- The various ways in which the broadband internet impacts traditional media distribution.

Tools Covered

We used these tools to address distribution issues:

- Social network theory
- Operations Research
- Queuing models
- Erlang network capacity analysis
- QoS analysis
- Distribution architectures
- FC/MC ratio
- Economies of scale of networks
- Derived demand curve with network effects
- Metcalfe's Law
- Shannon's Law
- Release sequencing models
- Economies of scope
- Network effects

12.14.1 Questions for Discussion

1. How are electronics changing physical distribution?
2. What are the parallels in physical and electronic distribution networks, and how will declining prices affect these networks?
3. How will the film industry change as various operations move toward electronic distribution?
4. Are the problems of volatility facing network companies today similar to those faced by other network industries? How did they deal with these problems?
5. Identify a non-media industry where the approach to distribution has changed dramatically over the last few years. What are the implications for suppliers to that industry?
6. List the criteria a content provider might use in selecting a channel intermediary.
7. In what media industries is JIT inventory management relevant, and for which less so?

8. Describe logistics management in consumer electronics.

9. Business managers and engineers both need to make economic decisions. As a business manager, how does the decision process differ from that of an engineer?

10. You are a manager at a large ecommerce company such as Amazon.com. Analyze the effect of a pull supply chain on your company.

11. What are the limitations of Metcalfe's Law?

12.14.2 Quiz

1. What is not a myth?
   A. Content is king (the scarce element);
   B. Technology reduces the market power in distribution;
   C. Electronic distribution is very different from physical distribution and changes everything;
   D. Electronic and physical distribution are organized around networks.

2. Which one is not a primary characteristic of telecom networks?
   A. Two-way;
   B. One-to-many connectivity;
   C. Individualized medium;
   D. Limited capacity.

3. What is the main problem of the "party line ("bus network") architecture"?
   A. Direct connection between every user and every producer pair;
   B. Vulnerable and congestible;
   C. Costly and underutilized;
   D. Can't be used to create ring networks.

4. What is not a conceptual similarity between electronic and physical distribution?
   A. Transport links;
   B. Nodes;
   C. Hierarchy;
   D. Wired links.

5. From the factors listed below, which one is the key factor in networks?
   A. Price deflation;
   B. Intangible products;
   C. High fixed costs, low marginal costs;
   D. Convergent markets.

6. What does the telecom network traffic volume measured in Erlangs represent?
   A. The continuous use of one line for an hour;
   B. The number of users in one line;
   C. The number of lines necessary for a single user;
   D. The number of broken links in a network in one hour.

7. Which alternative is false?
   A. In a push supply chain, production and distribution decisions are based on long term forecasts;
   B. In a pull supply chain, production and distribution are demand driven so that they are coordinated with true customer demand rather than forecast;
   C. Push and pull systems allow the elimination of inventory and increase service levels;
   D. It takes longer for a pull-based supply chain to react properly to a changing marketplace.

8. Which platform is not a broadband distribution option?
   A. Satellite;
   B. DSL;
   C. Dial-up modem;
   D. Powerline;
   E. Cable modem;
   F. Wi-Max.

9. Satellite delivery is very appealing for what reasons?
   A. Ability to reach far-flung areas;
   B. More secure than physical distribution of film;
   C. Centralized scheduling;
   D. All of the above.

10. Which of the following is not associated with network analysis?
    A. Shortest Path Problem;
    B. Queuing Theory;
    C. ROI;
    D. Maximum Flow Problem.

11. Given lead time (LT), demand (D), Q (initial quantity), n (number of cycles), reorder level (ROL) is:
    A. $D \times \text{LT} - (n - 1) \times Q$;
    B. $D - n \times Q$;
    C. $\text{LT} \times Q - n \times D$;
    D. $\text{LT} \times D - n \times Q$.

12. The key economic characteristics of communications networks are:
    A. Economics of scale;
    B. Economics of scope;
    C. Network effects;
    D. All of the above.

13. What is Metcalfe's Law?
    A. The total value of the network to all users, n, is proportional to $n \times (n - 1)$;
    B. The value of the network grows by the square of the processing power of all the terminals attached to it;

C. The total value of the network to all users, n, is proportional to $(n - 1)(n + 1)$;
D. The total value of network grows by the nth power of the processing power of terminals attached to it.

14. What are the implications of Shannon's Law?
A. The stronger the signal, and the lower the interference ("noise"), the more information can be put on a transmission link;
B. The stronger the signal, and the higher the interference ("noise"), the less information can be put on a transmission link;
C. The stronger the signal, and the higher the interference ("noise"), there is no effect on the amount of information can be put on a transmission link;
D. None of the above.

15. VPN:
A. Virtual public network;
B. Virtual private network;
C. Exists not as a physically separate network, but as part of larger existing networks;
D. B and C.

16. VoIP is possible between:
A. PC and telephone;
B. Telephone and PC;
C. Telephone and telephone;
D. All of them.

17. The biggest obstacle in the widespread use of internet telephony has been:
A. Lower quality and lack of defined communications standard;
B. Too much congestion on the Internet;
C. Phone companies began charging internet phone users for making long-distance telephone calls.

18. Investment in telecommunications networks in the future is likely to:
A. Decrease, because most of the network has already been built;
B. Be more difficult, because capital suppliers will be warier of regulatory conditions and capital requirements;
C. Increase rapidly and exponentially, owing to high levels of demand for multimedia services.

19. Digital is more effective than analog for communications because:
A. Digital signals can travel faster;
B. Analog signals cannot travel through walls;
C. Digital information has less degradation over distances.

20. Which of these statements on telecom history is incorrect?
A. Samuel Morse built the first near-digital network;
B. Alexander Graham Bell's major advantage was that his technology was years ahead of his competitors;
C. The US telecom monopolist AT&T was broken up by a Supreme Court decision;
D. Japan, the EU countries, Korea, and others privatized their state telecom companies in the 1980s.

21. What is not another term for network effects?
A. Network externalities;
B. Spillover effects;
C. Supply-side economies of scale;
D. Demand-side economies of scale.

22. What are current wholesale distribution trends?
A. Replacement of a three-stage system by a four-stage one;
B. Decreasing market concentration in wholesale distribution;
C. Large retail chains don't deal directly with manufacturers/producers, and this increases the role of the wholesalers;
D. Expansion of distributors into content production.

23. What key economic factors shape distribution in the media industry?
A. High fixed costs & low marginal costs;
B. High marginal costs & economies of scale;
C. Low fixed costs & low marginal costs;
D. Low fixed costs & high marginal costs.

24. What are business implications of network effects?
A. A large network is less attractive to users and hence less competitive, all other factors held equal;
B. Larger networks don't add any value to the users;
C. Interconnectivity to large networks is not important to a small network, because this doesn't raise its value to customers;
D. The control to access to a large base of users can be a company's greatest asset.

25. What statement refers to the Tree-and-Branch distribution architecture?
A. Topology that contains multiple distributors and multiple consumers;
B. The flow of information or of products is two-way;
C. The flow of information starts with a wide distribution pipe which then branches into increasingly narrower ones;
D. In this architecture every consumer is horizontally connected among various users.

26. What is a trend in retail distribution?
    A. Brick and mortar retailers are increasing in their share;
    B. Direct-to-consumer retailing by producers has been a major factor;
    C. A shift from single product offerings to bundled services;
    D. In music, digital download revenue is growing faster than digital streaming revenue.

27. 1. What are criteria for selecting distribution intermediaries?
    A. Track record.
    B. Financial position.
    C. Commitment of distributor to other and possibly competing products.
    D. All of the above.
    E. A and C only.

28. What action by a media producer is most likely to backfire in a producer distributor setting?
    A. Development of new products;
    B. Creation of new distribution channels;
    C. Setup of an innovative marketing team;
    D. None of the above.

29. Which of the following statements about revenue shares in the media distribution chain is correct?
    A. Creators typically receive the largest revenue share;
    B. On average across all media, producers generate the highest revenues;
    C. Distributors receive a higher revenue share for online content media than for physical content media;
    D. Relative to distributors, retailers receive a higher revenue share for pay cable films but a lower revenue share for broadcast television.

Appendix: Revenue Shares (Tables 12.8 and 12.9)[192]

Table 12.8 Revenue shares

Film–theater distribution[a]	**Percentage of total revenue**
Exhibitor (retail)	40%
Distributor	45%
Marketing	20%
Admin/overhead	10%
Profit	15%
Producer	16%
Production, shooting, etc.	16%
Creators/artists	11%
Script rights	2%
Director	2%
Cast/artists	7%
Net profit	(12)%
Film–pay-cable distribution[b]	**Percentage of total revenue**
Cable MSO (retailer)	33.5%
Wholesale distributor	38.5%
Cable pay channels (HBO)	20.5%
Studio distributors	18%
Admin/overhead	20%
Profit	15%
Production	20%
Creators/artists	8%
Film–broadcast TV distribution[c]	**Percentage of total revenue (incl. advertising)**
Local TV Station (Retail)	22%
Wholesale distributors	46%
TV network	27.5%
Marketing	10%
Admin/overhead	7.5%
Profit	10%
Film distributors	18.5%
Marketing	4%
Admin/overhead	5%
Profit	9.5%
Producer	22%
Creators/artists	10%
Film: online distribution (Netflix)	**Percentage of total revenue (incl. advertising)**
Online content site (retailer)	25.8%
Technology, CDN, development	9%
Marketing	10%
General administration/ overhead	4.3%
Content site profit	2.5%
Distribution ISPs	4.7%
Content wholesale distributor	20%
Advertising intermediaries	24%
Production	20%
Creators/artists	5.5%
Film: home video store chain distribution[d]	**Percentage of total revenue**
Retailer	25%
Distributors	50%
Marketing	20%
Admin/overhead	10%
Profit	20%
Producer	17%
Creators/artists	8%
Hardcover book[e]	**Percentage of total revenue**
Bookstore (Retailer)	40%
Wholesale Distributor	12.5%
Producer/publisher:	35%
Printing, storage, shipping:	12.5%
Design, typesetting, editing:	3%
Marketing	3.9%
Admin/overhead:	7.8%
Profit	7.8%
Creators/authors	12.5%

(continued)

192 Revenue shares are net of payments to the upstream stages that are listed. Profits listed are those of the central stage, usually the distributors. For the other stages there are outlays to other suppliers such as landlords and raw materials, etc. Calculations are based on the sources listed, plus experts' feedback, and estimated, in order to create a cross-industry consistence of presentation.

Table 12.8 (Continued)

Ebooks[e]	
Retailer	30%
Producer/publisher:	53%
Digitizing, tech, typesetting, editing:	8%
Marketing:	6%
Admin/overhead	13%
Profit	26%
Creators/authors:	17%
Music CD[f]	**Percentage of total revenue**
Retailer	20%
Distribution (wholesale)	17%
Physical distribution	10%
Admin copyrights	7%
Label (production)	46%
Manufacturing	10%
Production (recording)	5%
Marketing	15%
Overhead	10%
Profit	6%
Creators/artists (incl. composer)	17%
Performer & composer	11%
Composer & songwriter	6%
Online music[g]	**Percentage of total revenue (incl. advertising)**
Retailer	30%
Distributor (encoding/ submission)	8%
Producer (label)	28%
Marketing	11%
Production (recording)	10%
Admin/ Overhead	5%
Profit	2%
Advertising intermediaries	18%
Creators/artists	16%
Performers	10%
Songwriter & composer	6%

Table 12.8 (Continued)

Magazines (print)[h]	**Percentage of circulation revenue**	**Percentage of total revenue (incl. advertising)**
Retail	30%	15.0%
Wholesale	15%	7.5%
Producer/publisher	55%	67.5%
Production		25.6%
Marketing		11.6%
Admin/overhead		7.8%
Profit		12.5%
Creators/editorial		7.5%

[i]*Including advertising revenue assuming 100% of circulation revenue*

Online magazines[j]	**Percentage of circulation revenue**	**Percentage of total revenue (incl. advertising)**
Retail (online news-stand)	30%	12%
Producer/publisher	70%	67%
Marketing & PR		20%
IT & development		27%
Admin/overhead		20%
Advertising intermediaries		7%
Creators/editorial		20%
Net loss		0%

[i]*Advertising revenue estimate 150% of circulation revenue*

Newspapers-print[k]	**Percentage of circulation revenue**	**Percentage of total revenue**[i] **(incl. advertising)**
Retailer (vendors)	30%	10%
Wholesaler	20%	6.6%
Producer/publisher	50%	59%
Materials		16.7%
Production		20.8%
Admin/overhead		8.3%
Advertising & marketing		12.5%
Profit		12.5%
Creators/editorial		12.5%

[i]*Including estimated advertising revenue at 200% of circulation revenue*

Table 12.8 (Continued)

Newspaper online[l] (free)	Percentage of total advertising revenue	
Retail (online news-stand)	3%	
Producer/publisher	44%	
Marketing	15%	
IT & tech	35%	
Admin/overhead	15%	
Profit	2%	
Advertising intermediaries[m]	23%	
Creators/editorial	30%	
Newspapers online subscription[n]	**Percentage of subscription revenue**	**Percentage of total revenue (incl. advertising)**
Retail (online news-stand)	30%	15%
Producer/publisher	50%	45%
Marketing		15%
IT & tech		20%
Admin/overhead		15%
Profit		15%
Advertising intermediaries		20%
Creators/editorial		20%
[i]*Including estimated advertising revenue at 100% of subscription revenue*		
Consumer electronics[o]	**Percentage of total revenue**	
Retail	25%	
Distributor	20%	
Producer/manufacturer	45%	
Production cost	20%	
Marketing	10%	
Admin/overhead	10%	
Profit	5%	
Creators/engineers	10%	

[a]Hollywood movie. Source: ▸ http://www.eastlakedrama.com/Film_files/Film%20-%20Cost%20Hollywood%20Movie.pdf; ▸ http://www.eastlakedrama.com/Film_files/Film%20-%20Cost%20Hollywood%20Movie.pdf; ▸ http://www.creativeskillset.org/film/knowledge/article_5103_1.asp.
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(continued)

Table 12.8 (Continued)

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[m]Advertising servers such as Google provide media firms with a share of ad revenues of about 32%. Another part of ads are generated by the media firms themselves, and are not subject to sharing with the ad servers. The extent of self-generation varies for different media, and is estimated as 75% for magazines, 25% for newspapers and film/video, and 10% for music.
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Table 12.9 Revenue shares by media segment (all types of distribution of content medium)

	Creator	Producer (incl. advertising intermediaries) (%)	Wholesaler/ distributor (%)	Retailer (%)	Key segment profit[a] (%)	Share of distribution (wholesale & retail) in revenues (%)	Wholesale share of in overall distribution (%)
Film	8.4	23.8	40.8	29.3	14.4	70.1	58.3
Books	14.8	44	6.3	35	16.9	41.3	15.2
Music	16.5	46	12.5	25	4	37.5	33.3
Magazines	13.8	70.8	3.8	13.5	6.3	17.3	21.7
Newspapers	20.8	63.7	2.2	9.3	9.8	11.5	19.1
Consumer electronics	10	45	20	25	5	45	44.4
Physical content media	11.4	40.1	23.1	25	12.3	48.1	48.0
Electronic content media	15.8	48.9	14.7	21.4	10.3	36.1	40.6
Online media	18	Producers 42.8 Advertising intermediaries 15.3	5.5	19.3	7.9	24.8	22.0
All media	13.9	38.5	18.3	23.0	11.1	41.2	44.3

[a]"Key Segment" are the producers for all media, except for the several film media types, where the distributors are the central player

Quiz Answers

1. D
2. B
3. B
4. D
5. C
6. A
7. D
8. C
9. D
10. C
11. D
12. D
13. A
14. A
15. A
16. D
17. B
18. B
19. C
20. B
21. C
22. D
23. A
24. D
25. C
26. C
27. D
28. B
29. B

Feedback Loop

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13.1 Accounting and Media Accounting

This chapter deals with accounting in the media and digital sector. In this book, we have covered so far:

1. How firms create their product.
2. How firms harvest their product.
   We will now deal with:
3. The feedback loop: How firms identify performance and plan for the future. The present chapter is about such feedback through accounting and financial information in the media and digital sector. The reader will take out of this chapter:
   - an overview of media accounting issues;
   - a recognition of the problems and pitfalls for managers;
   - a recognition of how to analyze the financial condition of media and tech firms.

To do so, this chapter discusses:

- How companies gather and report financial information to partners, investors, regulators, and tax authorities, and the special accounting and reporting issues for media and digital companies.
- How investors and partners analyze finance reports.
- How companies use accounting information to run their business and allocate resources.

The impact of new information technology (IT) an accounting information and on management control over operations. Accounting has been around for a long time. What makes it so interesting today?

1. The rapid change in data technology: collecting, storing, aggregating, disseminating, analyzing, distributing, verifying, and acting on it.
2. The rapid changes in companies' business models, which lead to new ways of dealing with financial information. These changes include the greater importance of:
   - globalization;
   - start-ups;
   - project-based organizational structure;
   - intellectual assets;
   - institutional investors.

Media and IT companies have been at the forefront of changes in accounting:

1. as creators and adopters of new accounting approaches, services, and technologies;
2. as leaders in pushing the envelope;
3. but also in overstepping lines and violating laws and accounting practices.

13.1.1 The Function of Accounting in Business

13.1.1.1 Accounting as Science Versus Accounting as Persuasion

Accounting is the arrangement of quantitative information about an organization's operations and financial state. It has a long history. Counting and numbers emerged early as a human endeavor parallel to writing and letters. Writing skills developed into the professions of scribes, writers, and intellectuals. Counting skills gave rise to mathematicians, scientists—and accountants. Humans count heads of cattle, bushels, and barrels. They account for their activities in lists and ledgers. And they do accounting through tabulations, balances, and summaries.

Accounting has a dual nature, that of objective science and that of subjective persuasion. These two aspects of accounting differ in their goals, and they pull accounting professionals in two different directions. On the one hand, the role of accounting is to illuminate and analyze the activities of an enterprise (or even country), which is the scientific dimension. Correspondingly, modern accounting has been an early user of highly advanced information processing technologies. On the other hand, the persuasive aspect of accounting aims to convince others about the health of an enterprise.

Managers and owners need accurate and timely information on the economic condition and performance of a firm to help guide their decisions. Accounting as a science provides reasonably well-defined guidelines and processes that provide for generating such information.

Investors use accounting information to make their decisions, and it is therefore in the interest of firms to use accounting reports to make themselves look good. For managers, positive accounting information ensures continued support by owners and top management. Conversely, in a setting where profit-sharing is tied to financial results, accounting practices can be used to lower the reported profit and hence lead to lower payments to profit-sharing investors, collaborators, and partners. Skillful accounting can also lawfully reduce tax payments. Properly presented, a firm can gain favorable government treatment owing to its reported performance, whether stellar or dismal. All this is possible because, despite the rules-oriented characteristics of accounting, major decisions within the accounting process are often far from clear cut.

This tension over proper accounting is part of a struggle over the control of information among the key players: investors, managers, and the government. Company insiders have a vast informational asymmetry in their favor. They will try to part with as little negative (or, occasionally, premature

positive) information as possible. Only law and competitive pressure forces them to disclose more about the firm than they would otherwise do. Accounting as a profession is caught in the middle of this struggle.

As accounting grew to be able to serve many functions, it also became more complex. And now, this very formal structure is being applied to the digital sector. On the one hand we have more technology to do the numbers faster and better than ever. But we also have a dynamic entrepreneurial business culture which brings its business and technology creativity into a profession that has been staid almost by design. This is a never-ending tension, It is, in a way, the underlying theme of this chapter.

13.1.1.2 History of Accounting

The accounting process bears the image of tedious bookkeeping. Its structural elegance is often obscured, and people imagine it as confining, narrow, and lacking in imagination. Often, the cultures of "creatives" and "entrepreneurs" clash with a derided culture of "bean-counters." Yet this perspective on accounting is highly superficial.

Accounting is one of humanity's great intellectual constructs. The process summarizes human activities by numbers, follows transaction flows, and provides snapshots of reality. This enables analysis, control, and oversight of organizations and governments. Accounting creates a unified measuring system that allows for the integration of millions of actions by thousands of people in dozens of countries.

Based on techniques going back 500 years, accounting has evolved into a well-established profession complete with standards, self-governance, and research. Today, new technology pushes the accounting profession from the traditional historic-based reporting to real-time monitoring and control.

Accounting systems are as old as business and administration. As more transactions were performed, it became necessary to count payments, people, and food, and to "account" for activity. The earliest and most rudimentary forms of keeping track of transactions appeared in Sumeria and Egypt in 2000 BC. As the methods continued to develop, helpful tools such as the Chinese abacus were created.

A major step forward came in Renaissance Italy with the monk Luca Pacioli (1447–1517) setting forth the principles of "double entry" bookkeeping in his work *Summa de Arithmetica, Geometrica, Proportioni et Proportionalita* (1494). He pioneered the concept of debits and credits that would balance accounts. Pacioli is considered to be the father of accounting. Three centuries later, Josiah Wedgwood (1730–1795), the grandfather of Charles Darwin and an early industrialist, introduced techniques for recording managerial transactions by developing what became cost accounting. Wedgwood determined the cost of materials and labor for each of his famous pottery products and recorded their value. This provided a tool for production planning and for pricing.

By the late eighteenth century, accounting practices became more standardized, with professional "accomptants" being used by many businesses in London. In 1849 and 1854 the first accounting firms of Samuel Price and of William Cooper got started. Today it is the 'P' and the 'C' in the "Big Four" accounting firm PwC.[1] After 1862, the auditing of companies by independent "public accountants" became mandated in Britain, allowing for a rise in their status. In Japan, Western-style accounting was introduced in 1873 by Yukichi Fukuzawa.

Modern managerial accounting was born in 1923 as General Motors President Alfred Sloan introduced major cost accounting techniques, made as calculations of return on investments and on equity, and flexible budgeting.

Thus accounting has been around for a long time. What makes it so interesting today are the rapid changes in the technology of collection and processing of information; the rapid changes in companies' business models; and the rising importance of globalization, start-ups, project-based organizational structures, intellectual assets, and institutional investors.

13.1.1.3 A Company's Accounting Function: General

The role of an accountant takes on various forms depending on company size, ownership, structure, and industry.

■ Stage 1 Firm: Small Proprietorships

In small entrepreneurial firms, the owner–manager of the firm typically starts out by keeping her own financial records and books. Such firms typically retain an independent professional accountant such as a certified (or chartered) public accountant (CPA), also known as a public accountant in some countries, for the preparation of quarterly or annual financial statements and tax returns.

■ Stage 2 Firms: Around 20–30 Employees

As the start-up business grows, the volume of transactions rises and with it the number of bills and invoices. The owner's time becomes too valuable and the company hires its own bookkeeper. For labor-intensive tasks such as inventory and human resources (HR)/payroll, the company might need outside help. The firm still requires the work of an outside CPA to prepare monthly or quarterly reports, but the involvement of such a paid professional will usually be limited to about a dozen days a year. In other cases, an intensive project such as a film production may have a dedicated accountant to deal with its financial issues.[2]

■ Stage 3 Firms: Around 100 Employees

As a firm becomes mid-sized, it will employ an internal accountant or controller. The internal controller reports back to top management and, where required, to lending banks.

1 PricewaterhouseCoopers. "History and Milestones." Last accessed July 6, 2017. ► http://www.pwc.com/us/en/about-us/pwc-corporate-history.jhtml.

2 Such accountants prepare schedules and budgets for film productions, as well as managing the day-to-day accounting functions and reporting the project's financial progress against the budgets. Usually, production accountants will have a thorough knowledge of union contracts, taxes, and relevant government regulations. These accountants usually work for a film production on a freelance basis or as part of a specialized firm.

She is responsible for overseeing accounts payable, accounts receivable, special ledger accounts, and internal cost calculation. Outside accountants may also be used at the request of banks and investors. These accountants compile, review, and audit the transactions recorded by the internal controller throughout the year. They might typically spend two or three weeks a year with a firm.

Stage 4 Firms: Large Company

A large company retains an outside independent CPA firm to perform audits for investors and management. Special projects will also require the services of a CPA. Large companies spend tens of millions of dollars on their annual CPA bill.

Typically, the chief accounting officer or controller oversees the internal accounting process within a company, reporting to the chief financial officer (CFO).

The role of an internal accountant in this setting is to prepare and interpret data needed by management, monitor business process for compliance with the budget, and design systems to prepare payrolls, record purchases and sales, keep track of assets, and so on. The accounting department tracks the flow of money inside the company. The tasks are often divided internally between accounts receivable/payable, payroll, a credit department, and a tax department. Some tasks may be outsourced to an outside financial services provider.[3]

13.1.2 Is Accounting for Media and Technology Special?

The basics of accounting in media and technology are the same as in other industries but they must often deal with unusual circumstances.

- Many of the assets of media and media tech firms are intangibles. These include copyrights, patents, and licenses. How does one account for such items of value?
- For internet start-up companies, asset valuation is difficult owing to low or absent cash flow. They are also heavy users of stock options. They are eager to project a positive picture to potential investors.
- The pervasive role of the government in the media sector often governs rules on how to state a firm's financial performance.
- In e-commerce, firms engage in highly globalized transactions, often in real time and subject to numerous tax systems.
- In the film industries there is much profit and revenue sharing.
- In the TV and radio industries there is a heavy use of non-cash barter deals.
- For book publishing, music recordings, and patent licensing, compensation takes the form of royalties often based on revenues.
- For tech start-ups, there is often an exchange of equity for services.
- Accounting itself is an information industry, and increasingly a high tech one.

13.1.3 The Post-2000 Scandals in Media and Digital Sector Accounting

There have been a good number of accounting scandals in the media and the information, communications and technology (ICT) sector, and they illustrate some of the issues.

13.1.3.1 Seriously Inflating Income or Understating Expenses

Several tech companies, such as WorldCom, AOL, Computer Associates, and Lucent, experienced a rapid growth in income. This growth encouraged investment. But when revenues began to slow or drop, the companies used questionable methods to boost profits in their financial reports.

The telecom upstart WorldCom achieved substantial growth while misreporting billions of dollars of ordinary operating cost as capital expenditures, that is, as investments rather than expenses, thereby disguising losses. This misstated $11 billion and inflated WorldCom's reported profits by nearly $4 billion. When reality caught up, WorldCom had to file for bankruptcy. Its chief executive officer (CEO) Bernard J. Ebbers was sentenced to 25 years in prison for fraud.

WorldCom's auditor was Arthur Andersen, the same "Big Eight" accounting firm that had audited the energy firm Enron which also went down spectacularly, despite showing positive conditions in its audited financial reports. These scandals led to Arthur Andersen's own collapse as clients left en masse.

One type of creative accounting was for a firm to pay for its own sales deals. Lucent Technologies was a company with 5.3 million shareholders, more than any other company in the world. Under CEO Richard McGinn, Lucent showed continuously rising revenues. But what the company actually did was to extend credit to buyers to generate sales. In other words, it gave customers the money to buy its products. It then reported these sales as income. The more it sold, the more of its income was in accounts receivable, and was of often-dubious quality. Through this method, receivables rose 49% and revenues rose 20%.[4] But soon, as the telecom industry hit over saturation, many customers were unable to repay Lucent's loans and the company was in the red, and tried to keep afloat by repeatedly dipping into its employee pension fund. It was later revealed that revenues had been overstated by $700 million in one quarter alone.

Still another technique of inflating performance and raising advertising prices is to overstate the number of sales. The

3 Berton, Lee and Roy Harris. "Reel-World Accounting." *CFO* 15, no. 3 (March 1999): 34–40.

4 Magrath, Lorraine and Leonard G. Weld. "Abusive Earnings management and Early Warning Signs." *The CPA Journal* 72, no. 8 (August 2002): 50.

media companies Adelphia, Tribune, Belo, and Hollinger all padded the number of subscribers to their services in an effort to increase their advertising revenues, stock market valuation, and bond rating.

Adelphia, a large cable TV company, reported the number of subscribers in a misleading way. The company overreported the number of actual subscribers in institutions such as hospitals and hotels. This was part of a larger concealment of liabilities and misappropriations of company funds for personal expenses. As a result, the 83-year-old founder and CEO John Rigas was sentenced to 15 years in prison. His son Timothy was sentenced to 20 years. The company went bankrupt.

Another accounting gimmick was for two firms to swap a similar product with each other and then record this as a sale. Qwest and Global Crossing sold transmission services to each other in a virtual exchange and recorded the transactions as income. For this and other transaccounting and securities transgressions, CEO Joe Nacchio was convicted to six years in prison and forfeited a total of $73 million.

In Japan, Olympus is a major camera and optics firm. Starting in the late 1980s and extending to 2011, the firm concealed more than $1.5 billion of investment losses and questionable fees and payments. This included alleged secret payments to organized crime. The scandal eventually wiped out 75–80% of the company's stock market valuation. Eleven past or present Japanese directors, senior managers, auditors, and its bankers were arrested for alleged criminal activities or cover-up.[5]

Also in Japan, Takafumi Horie, CEO of Livedoor (a major internet company), was arrested in 2004 for violations of securities laws by manipulating the company's annual report. Livedoor announced a profit over the year when, in fact, there had been a loss.[6] Livedoor reported that a subsidiary company, Value Click Japan, had bought another company, Money Life, through a stock deal, when in actuality that investment had been paid for by Livedoor. Livedoor also overvalued Money Life. In that fashion, Horie made the company's stock price increase greatly.

In France, Jean-Marie Messier, the CEO of Vivendi, the country's largest media conglomerate, overstated the amount of cash the company had available to pay off debt. By including the earnings of partly owned subsidiaries, investors were led to believe that Vivendi was doing better than it was. Confident that the company had a solid stream of income and a strong cash position, the company's board did not curb the CEO's acquisitions. In 2002, Messier lost his position at Vivendi. That same year, the company reported a loss of €23.3 billion. Vivendi soon ran out of cash and nearly went bankrupt. Messier was convicted by a French court, nine years later, to a genteel three-year suspended sentence and a fine of about $200,000. Additionally, Edgar Bronfman Jr., chief executive of Warner Music Group, was accused of insider trading and profiting from private information about a potential sale of shares during his time as Vivendi's vice-chairman.[7] He was fined about $6 million and handed a suspended sentence of 15 months.

In India, Ramalinga Raju, CEO of Satyam Computer Service Ltd., was arrested in 2009 for fraud. The company reported cash of $1.1 billion and an operating profit margin of 24%. But in fact, 94% of cash deposits did not exist and the operating profit margin was only 3%.[8]

13.1.3.2 Intermingling of Personal and Business Expenses and Income

In 2007, Lord Conrad Black, the Canadian CEO of Hollinger International, a large newspaper chain, was convicted and sentenced by a US court to 78 months in prison for personally collecting payments from another company for "non-compete" agreements, which should have been made out to the company itself rather than to its main owner and chief executive.[9]

In 1998, the Japanese company Sony had to pay a $1 million fine to the Securities and Exchange Commission for downplaying losses related to movie-making and mergers. Sony also had to pay $12.5 million to the plaintiffs in a class-action lawsuit over financial reporting irregularities.[10]

13.1.3.3 Misdating Stock Options in ICT Firms

Many high-tech firms have been charged with improper or fraudulent backdating of stock options. Some of the biggest names in tech and media have been charged—including Apple, Broadcom, Dell, CNET, McAfee, Monster, Cablevision, Barnes & Noble, and Marvell. Stock option contracts are commonly used by companies as a form of compensation to their executives and employees. The practice becomes controversial when a company grants options with an exercise price that is below the market price of the stock on the date when the options are granted. Under these circumstances, the officers immediately receive "value" in the form of stock options instead of having to wait for an increase in the price of the stock at some point in the future, which is an incentive for strong performance. At Apple, CEO Steve Jobs narrowly escaped prosecution by the Securities and Exchange Commission (SEC), but his CFO and the General Counsel were charged and settled for large fines. The General Counsel lost her license to practice law.

5 Slodkowski, Antoni. "Olympus, former executives plead guilty in fraud trial." *Reuters.* September 25, 2010. Last accessed July 6, 2017. ► http://www.reuters.com/article/us-olympus-trial-idUSBRE88O01920120925.

6 The Economist. "Livedoor: Melting Down." January 26, 2006. Last accessed June 17, 2017. ► http://www.economist.com/node/5444987.

7 Saltmarsh, Matthew and Eric Pfanner. "French Court Executives in Vivendi Case." *New York Times.* January 21, 2011. Last accessed July 6, 2017. ► http://www.nytimes.com/2011/01/22/business/global/22vivendi.html.

8 Kamiyama, Tetsuya. "Corporate governance in India and Satyam fraud case settlement." *Nomura Institute of Capital Markets Research.* September 7, 2011. Last accessed July 11, 2017. ► http://www.nicmr.com/nicmr/report/repo/2009/2009spr47.pdf.

9 Stern, Andrew. "No victims, no smoking gun, Conrad Black trial told." *Reuters.* June 19, 2007. Last accessed July 6, 2017. ► http://www.reuters.com/article/bondsNews/idUSN1948838120070619. Some of the payments had been used to purchase non-corporate assets such as original documents written by Franklin D. Roosevelt, to be used in Black's otherwise admirable biography of that President.

13.1.4 Case Discussion

Disney's Accounting -- Mickey Mouse or Cinderella?

The Walt Disney Company is the world's second largest media company.[11] Its Walt Disney Studios division produces films through Walt Disney Pictures, Touchstone, Hollywood Pictures, Pixar, Lucasfilm, Marvel, and, for a time, Miramax. Its film distribution arm is Buena Vista. Disney's other divisions include the TV networks ABC and the cable channel families ESPN (80% ownership) and A&E (50% ownership). In 2018 Disney announced a deal to buy major parts of 21st Century Fox, including its film and TV studio, TV and several cable networks, and the satellite broadcasters Sky and Star India. Disney also owns and/or operates theme parks in several countries (Disneyworld); it also runs or co-owns online operations (Hulu), theaters, and retail stores. It controls the subscription streaming platform Bamtech as the foundation for its online sports and entertainment future.

During 2003 and 2004, CEO Michael Eisner was harshly criticized by some shareholders and directors for the company's business performance. (This was also discussed in ► Chap. 5 Human Resource Management for Media and Information Firms) At the 2004 Annual Meeting, 43% of shareholders,[12] including major institutional investors, voted against management. This is highly unusual in corporate America, especially since under Eisner the share price of Disney had risen enormously. One share bought in 1984 for $52 would have been worth $1334 at the end of 2004, a rise by a factor of 25.4 in 20 years. And the financial reports for 2004 were good, suggesting a further rise. This invites us to take a close look at Disney's accounts at the time. Were Disney's financial reports painting a rosy picture to take some pressure off management? Or were the critics wrong? We will return to this question throughout this chapter.

13.1.5 The Five Books of Accounting

There are different purposes for accounting. Since each calls for different treatment, they create different accounting summaries, and they do so in a perfectly legal manner. These different "sets of books" are those of:

- financial accounting;
- managerial accounting;
- tax accounting;
- regulatory accounting;
- profit accounting.

Financial accounting provides information to decision-makers outside a company—shareholders, bankers, financial analysts, investors, labor unions, and so on. The product of financial accounting is a set of financial statements which is often publicly disclosed. These documents are crucial to the relationship between a company's owners and managers.

Securities laws try to ensure that people managing the business do not defraud investors by providing them with false or misleading information, or by failing to disclose information that a reasonably prudent investor would want to know.[13]

The process tries to assure investors of the accuracy of financial reports. To assure compliance with "generally accepted" accounting rules, firms have their public financial statements examined by independent chartered or certified accountants.[14]

In contrast, managerial accounting is addressed to the internal management of the firm. It measures, analyzes, interprets, and communicates financial information internally.[15] In particular, it helps measure the cost of products, the profitability of divisions, and budget allocations. Because these reports are for internal rather than public use, they need not follow any particular set of official rules.

Tax accounting is the process for calculating an organization's tax liability, following methodologies regulated by tax authorities. The purpose is to follow governmental rules while minimizing tax liability. These documents, too, are not public.

Regulatory accounting rules are established by government agencies for a regulated industry or activity. For example, in America the Federal Communications Commission (FCC), or in India the Telecom Regulatory Authority, established financial reporting requirements and formats for the telecom industry. This process provides information to governments for measuring compliance with regulations and enables the setting of regulated prices.

Profit accounting is utilized for allocating profits. An example is the distribution of profits from a film or a music project. This type of accounting will be discussed first.

13.2 Profit Accounting

The following analysis focuses on profit accounting in film. But the issues are similar for all business activities where a share of profits must be paid to outsiders, such as a limited partnership in a tech venture or where patent license fees are based on a profit share.

10 Berton, Lee and Roy Harris. "Reel-World Accounting." *CFO* 15, no. 3 (March 1999): 34–36.

11 O'Reilly, Lara. "The 30 Biggest Media Companies in the World." *Business Insider*. May 31, 2016. Last accessed July 6, 2017. ► http://www.businessinsider.com/the-30-biggest-media-owners-in-the-world-2016-5/#27-gannett--295-billion-in-media-revenue-4.

12 Teather, David. "Disney shareholders force Eisner out of chairman's role." *The Guardian*. March 4, 2004. Last accessed July 6, 2017. ► https://www.theguardian.com/business/2004/mar/04/usnews.citynews.

13 Litwak, Mark. "Financing independent films." *Mark Litwak*. June 2005. Last accessed July 6, 2017. ► http://www.marklitwak.com/uploads/2/2/1/9/22193936/financing_independent_films.pdf.

14 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts, Methods, and Uses.* (New York: Dryden Press, 2000), 411–450.

13.2.1 How to Depress Accounting Profits

Typically, the entity that must pay out has incentives to show profits that are low. David O. Selznick, the independent producer of the legendary film *Gone with the Wind*, complained that Hollywood was "built on phony accounting." Is profit accounting Hollywood's most creative art? Part of the issue is that the studio companies have an economic incentive to understate profits which they must share. But another part of the problem is the non-comprehension by many creatives of the concept of overhead costs. To depress profits, the distributor's accountants will allocate high costs to overhead expenses, set a high percentage for the depreciation and amoritzation of assets, charge high internal transfer prices for inputs and low ones for outputs, and put high price tags on marketing expenses.

Other methods of depressing accounting profits are the exclusion of certain revenue streams (in film, for example only, part of home video sales are counted).

Film profit accounting achieved notoriety in the case of *Buchwald* v. *Paramount*. Art Buchwald, a famous syndicated newspaper humorist, sued Paramount for plagiarizing his script idea for the film *Coming to America*, and he won in the courts. Paramount then claimed that even though Buchwald was, by the court decision, entitled to a share of the profits, regrettably the movie had actually lost money, and nothing was therefore owed to him. This seemed strange. The movie had grossed $350 million, had been relatively cheap to produce, yet it showed an $18 million loss. Such a situation was not unique. Well-known films such as *Forrest Gump*, *The Untouchables*, *Fatal Attraction*, *Rain Man*, *Who Framed Roger Rabbit*, and *Batman* also reported accounting losses despite being box office blockbusters.

Another film, *Crash*, won the 2006 Oscars for Best Picture, Best Editing, and Best Original Screenplay. The film had a modest production budget of $7.5 million and grossed $180 million in revenues worldwide. However, for a long time, the co-writers and directors had received less than $300,000 and the eight principal actors, with profit participation rights, (including Sandra Bullock, Matt Dillon, and Don Cheadle), had received checks for only $19,000. Director Paul Haggis, co-producer Cathy Schuman, and co-writer Bobby Moresco thereupon sued producer Bob Yari for profits. Haggis had conceived the project based on a personal experience. To raise the money he mortgaged his home. To cut costs he used his own car in the film. In their lawsuit, they charged that Bob Yari had diverted funds to third parties, including six companies that he controlled or used. Matt Dillon alleged that Yari deliberately applied an incorrect formula for the calculation of Dillon's contingent compensation. Five years later, a court awarded $12 million to Haggis and several others. Additional lawsuits were subsequently settled.[16]

13.2.1.1 Example

Police Academy 4

Usually, however, the discrepancy between revenues and profits for a content production is within the contractual agreement. An example is *Police Academy 4*. This film was released in 1987. Total receipts were $52,573,000 and total direct production costs ("negative cost") were $17,325,000. Therefore, the profit seems to be $35,248,000. But this is only the beginning of the calculations. The first major deduction against revenues is distribution cost (■ Table 13.1). This is the out-of-pocket type expenses by the distributor studio in particular for items such as making prints of the film, advertising, and taxes.

Second, there are distribution fees. These are service fees for providing managerial overhead and toward the studio's profit. This generally amounts to either about 15% of the production budget or a percentage of "adjusted gross receipts," which are the various revenue streams after deduction of sales taxes and similar taxes.[17] On adjusted gross receipts, the major studio distributors charge a fee of about 30% in North America, and slightly higher rates for international distribution.[18] If sub-distributors are used in some territories, then the sub-distributor will charge an "override" of an additional percentage. For foreign films distributed in the U.S., distribution fees are 30%–40%, i.e. the distributor gets to keep more. Foreign television distribution fees usually are 30–40%. Distribution fees for some ancillary rights, such as merchandising, may go to 50%.

This distribution fee is basically a wholesaler's charge for its services as a percentage of sales revenues. Such wholesale shares exists in most industries. Moreover, in the case of films the distributor often takes a very active role in the production, marketing, and risk-taking. In other media industries,

■ **Table 13.1** *Police Academy 4*—distribution cost (in '000 dollars)

Prints	3501
Reprints, dubbing, etc.	376
Advertising	11,419
Taxes, duties, customs	940
Trade associations	47
Freight, cartage, handling	618
Guild, union, residuals	1213
Miscellaneous	578
Total Direct Distribution Cost	**$18,692**

15 Gillet, Phillip W. "Managerial Accounting Fundamentals Website." *San Diego State University*. Fall 2000. Last accessed July 29, 2011. ► http://acct202.tripod.com/.

16 Cohn, Michael. "'Crash' Filmmakers Awarded $12 M Judgment in Hollywood Accounting Case." *Accounting Today*. December 21, 2011. Last accessed July 6, 2017. ► https://www.accountingtoday.com/news/crash-filmmakers-awarded-12m-judgment-in-hollywood-accounting-case.

17 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005. Epstein's excellent and informative book has been a major source of information in this and several other chapters.

18 Blake, A. Brandon. "Striking a Deal in the Global Market." *BlakeWang*. 2001. Last accessed July 6, 2017. ► http://www.blakewang.com/international_lawyer.htm.

Table 13.2 *Police Academy 4:* cost calculation

Production Costs	17,325
Distribution Cost (to studio)	18,692
Distribution Fee (to studio)	18,136
Interest (to studio)	4592
Total Costs	**$58,744**
Total Receipts	52,573
Net Profits	**($6171)**

Table 13.3 Studio income streams (theatrical distribution)

	Charges	Cost (est.)	Net
Distribution fee	18,135	4000	14,135
Advertising overhead (10%)	1038	200	838
Production overhead (13%)	2259	500	1759
Interest	4592	3000	1592
Accounts receivable	15	15	0
Total	26,040	7715	18,325

such as magazines, the distributor is usually a logistical operation only.

A third charge against a film's revenues is interest expenses. Studios often provide some financing for independent productions which they distribute. They typically charge a rate of 125% of prime rate interest until their financing is earned back. This also applies to the money owed by the film to pay for its distribution cost and distribution fees mentioned above. Interest begins accruing when expenses are incurred (not necessarily when they are paid), and it continues to accrue until all other expenses, including distribution fees, distribution expenses, and the interest itself, are recovered.[19] We now factor these various cost items into the accounting for the film *Police Academy 4* (Table 13.2).

With those deductions, the net profit for the film is now a negative $6,171,482. The film appears to be a financial failure.

But this does not mean it is a failure for the studio distributor. One main reason is that the various cost items and overheads that are charged to the project are higher than actual costs, and thus have a profit element built in (Table 13.3).

Thus the cost elements of interest, advertising overhead, production overhead, and often others tend to include a healthy profit margin for the distributor. On top of it, the 30% of revenues of the distribution fee goes to the studio. Once this is included, the film returned to the studio an estimated $18.3 million above the actual cost to the studio. Thus, the film may be in deficit for the overall project, and investors and the stars who participate in gross profits might be out of luck, but it has been profitable for the distributor.

Moreover, and importantly, this calculation does not take into account the studio's share of revenues from aftermarkets—home video, pay-cable, TV, and other revenue streams. These can be quite substantial to the distributor, and the incremental cost of generating them is small. In such a light, *Police Academy 4* now appears to be an economic success to the studio, justifying *Police Academy 5* in 1988, *Police Academy 6* in 1989, and *Police Academy 7* in 1994.

Other income items besides the home videos that are excluded from the calculation of gross receipts are receipts from the sale or licensing and product placement of posters and still photos, and receipts for the rights to produce sequels and television series based on the original film.[20] Another way to lower a project's profit is the setting of low internal transfer pricing. Vertically integrated media firms are also able to sell programs between divisions at "below market: prices (below what an outside syndicator would pay).

Thus, profits can be described and defined in several very different ways. As a result, contracts with investors and others with a stake in the profits need to specify carefully how profits will be determined by the distributor (or, similarly, by a general partner (GP) in a limited partnership.)[21] If any other participants disagree with their profit allocations, their options, unless specified in the contract, are limited when they lack the relevant information. A character in David Mamet's play *Speed-the-Plow* sums up his learning about Hollywood financials in one sentence: "There is no net, meaning that film producers do not show profits other than to the studios."[22]

The two basic types of profit participation deals are "gross" and "net" participation. Participants with bargaining power, such as major film stars and other top talent, will demand a percentage of the project's gross profit, because of the many potential disputes over deductions of cost and expense items from gross profits to reach net profits. The most desirable (and rarest) variation is called "dollar one," where participants are entitled to a share of all the revenue received by the

19 Bengai, Ross and Bruce Ikana. "Where's the profit? Accounting for net profit participation in film industry." *Management Accounting* (December 1997). Conversely, when the studio receives advance payments from theaters, they are not credited to the participation statement until the film is actually exhibited. This, too, results in higher interest charges to the project.

20 Bengai, Ross and Bruce Ikana. "Where's the profit? Accounting for net profit participation in film industry." *Management Accounting* (December 1997).

21 Vogel, Harold L. "Movie Industry Accounting." In *A Concise Handbook of Media Industry Economics.* Ed. Charles Moul. New York: Cambridge University Press, 2005.

22 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005. On top of that, payments to all gross participant are considered a deferred production cost and are retroactively added to the budget of the film. The $30 million payouts to Hanks and Spielberg therefore added $60 million to the film's budget, and it therefore raised the studio's overheard and other charges that were calculated as a percentage of the budget, by another $15 million. Taken together, all other profit participants needed the film to make an extra $75 million to get to the "breakeven" point where their own profit participation started.

studio distributor (or limited partnership) before any deduction except those mandated by law.[23]

In *Saving Private Ryan*, star actor Tom Hanks and star director Steven Spielberg each received 16.75% of the revenues from the first dollar received. They both earned $30 million from theatrical distribution alone and more from other revenues.

Other complexities in accounting for a film's cost are the various ways to compensate a star to achieve lower taxes. For example, a studio may pay a star's retinue or her special corporate entity (which may have a star's employees and family members on the payroll).

Keep in mind that most participants, whether producers, directors, or actors, are experienced in the film business, and are advised and represented by seasoned agents and lawyers, all of whom understand these accounting practices and take them into consideration. If these accounting practices were challenged through regulation, for example, the distributors would simply require a higher formal revenue share. Ultimately, their share in the project's profit is a reflection of relative bargaining strength and the essentiality of the contribution of the studio/distributor, not of underhanded accounting.

As we have seen, the actual profitability of a film depends on how costs and revenues are accounted for. In some cases, the company will use accounting to show a deficit, as we have seen in the preceding example. In other cases it might have incentives to do the opposite, to paint a rosy picture. This will be shown in the next example.

13.2.2 Case Discussion

The film *Gone in 60 Seconds* was a car-theft movie starring Nicholas Cage and Angelina Jolie. It was specifically cited by Disney CEO Eisner in Disney's 2004 annual report as one of the company's hits. The film brought in a worldwide box-office gross of $242 million, while the production (negative) cost was $103 million, and this seemed to show a profit of $139 million.[24]

This was the good news to Disney investors. But it was not as good as it sounded. How come?

To physically get the film into theaters cost Disney $13 million for prints and $10.2 million expense for the insurance, local taxes, customs clearances, reediting for censors, translations, and shipping fees. Advertising cost $67.4 million, and $12.6 million was paid to various members of guilds and unions on "residual fees." This was the distribution cost. Overhead charges to pay Disney's production, distribution, and marketing arms (distribution fee) was $17.2 million. Interest payments were $41.8 million. Thus, the accounted cost to make the film was about $265.5 million.

Revenues, too, were less than they appeared. $242 million was indeed collected at the box office, but theaters kept $140 million, leaving Disney with $102 million. If we subtract from that figure the cost calculated, then there was a loss of over $162 million on the theatrical release of the film movie, instead of the $139 million profit.

This, however, reflects only the theatrical box office revenue. Studios collect other revenues through home video, television, cable, and online releases. Such information is not publicly available, in contrast to the box office receipts. Aftermarket incomes are non-transparent even to the investors, unless required by contract.

Home videos are not accounted for as a gross receipt, in the same way as box office receipts. They are accounted for as a royalty from the studio distributors to the project, typically 20% of the video revenues, minus various deductions that are taken to reach the "net."

In the case of *Gone in 60 Seconds*, the royalty system works like this: The Walt Disney Company distributes its home videos through its video distribution arm Buena Vista Home Entertainment International. By 2002, Buena Vista had earned $198 million from sales and rentals of home videos of *Gone in 60 Seconds*.[25] Buena Vista then paid a 20% royalty to another Disney subsidiary, Walt Disney Pictures ($39.6 million). These were the video's "gross rentals." From this, $19.6 million was deducted: $12.6 million (32%) for the video-distribution fee and about $7 million for distribution cost and other expenses (6%). This left $18.4 million credited to the film project, which amounts to less than 10% of the home video wholesale revenues. Disney, on the other hand, retained $179.6 million ($198 million – $18.4 million). Disney's expenses were about $29 million for manufacturing, packaging, and actual returns. This results in a profit of about $150 million.[26]

If Nicholas Cage, star of *Gone in 60 Seconds,* had been entitled to 10% of the video's gross rentals, he would have received $3.96 million. If, instead, the much higher Buena Vista Home Entertainment International's gross receipts of $198 million had been used to calculate his share, he would have received $19.8 million. On the other hand, if his share had been based on net, it would have been only $1.8 million.

Therefore, a star's contractual entitlement of "10% of gross home video revenues" should not be read literally. It may well be only about 2% in real terms. Was Cage being short-changed? Hardly: he is experienced in the film business, and (as mentioned above) has agents, lawyers, accountants and noted relatives to protect his interests. They all understand that "10%" means more like "2%" and negotiate accordingly.

23 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005. A variation of gross profit participation is for stars or investors to receive a share of the film's revenues, after the film earns a specified amount, such as breakeven.

24 All figures in this case segment are from Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

25 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

26 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

13.2.3 Royalties for Books and Music

For books, the royalty calculation to the author is based on the cover price: If the cover price of a hardcover book is $20 and royalty rate is 10% of the cover price, the royalty is $2 per book. An alternative system is based on revenues received.[27] If the book gets discounted by, say, 50%, the royalty is now 10% of $10, not of $20, and the author's take is $1 per book.[28] Publishers issue a periodic royalty statement and check. Publishing contracts typically contain a clause entitling authors to inspect and audit the relevant records, but often only within two years.

Similar issues of defining profits exist in the music industry. Is it true, as often stated, that 80% of records do not make any money? This depends on the method of accounting and cost allocation, usually specified by contract. Accounting issues within the recording industry include "recoupment," royalty accounting, audits, and contract structure.[29] Many of the major costs of a recording are "recouped," that is subtracted, from the artists' royalties against prior payments known as advances. An artist is responsible for part of the recording costs, equipment and personnel, costs of live performances, and at least half of promotional costs such as music videos. Royalties are only paid out after the advances have been covered. But the label assumes the risk if the recording does not generate enough revenues for deduction.

Example: The Economics of a Gold Record

A "gold record" means that 500,000 copies were sold in the USA. (in China 20,000; in France 50,000; in the UK, Germany, India, and Japan 100,000.) It is a mark of success. One would therefore assume that a Gold Record is a financial bonanza for the artist. But the reality can easily be different.

Suppose that a band signs a contract that stipulates a royalty rate of 14%, and the CD sells 500,000 copies at $14 each, for a total of $7 million. One would therefore expect the band to receive $980,000. But this does not account for the many deductions. For example, the CD royalty rate applies only to 85% of the CDs. The band recorded the album on a $300,000 budget, the producer receives a standard 3% of the royalty, and there may be contractual discounts for breakage (even though CDs do not break like vinyl or shellac did), "free goods" for promotions, and packaging (Table 13.4).[30]

Thus, under this example, the band would actually end up owing $247,800, which would have to be covered from subsequent sales and future recordings.

Table 13.4 Gold Record Economics

Nominal royalty = 500,000 CDs x $14 CD retail price x 14% royalty rate	$980,000
Real royalty (a) Less 15% free goods (copies given away to radio stations and reviewers and for quantity and sales discounts (b) Less CD-rate discount 15% (c) Less breakage allowance 10% (d) Less packaging discount 20% (e) Share of royalties to producer = 3% Together, these deductions add up to 60%. Total royalties before deductions: 500,000 × 40% × remainder × 11%	$308,000
(f) Less payments to agent and manager 10% =	(−$30,800)
(g) Less recording costs	(−$300,000)
(h) Less 50% of independent promotion	(−$100,000)
(i) Less 50% of video costs	(−$75,000)
(j) Less tour support	(−$50,000)
(k) Total =	(−$247,800)

13.2.4 Profit Accounting in Limited Partnerships

In limited partnerships, the share of the general partners (GP) depends on investment contributions, required management effort, and so on. The share of the limited partners depends on the size of their investment and other considerations that established by contract. In limited partnerships (LLPs) of hedge funds the GP typically takes 2% of fund assets per year, plus 20% of profits, often limited to those above a hurdle rate such as an 8% return.

GPs often have incentives to minimize profits they must share. They can do so by:

- increasing salaries of managers, including that of the GP;
- setting high bonuses for managers and classify them as expenses rather than as partial profit;
- deducting expenditures such as travel, dinner, meetings;
- creating reserves for future contingencies;
- allocating general overheads against fund profits;
- setting high transfer prices for intra-company transactions of purchases and low ones for sales;
- using high rates of depreciation and amortization.

13.2.5 How Profit Participants Can Protect Themselves

Companies' accounting practices are often non-transparent when it comes to royalties and profit shares.[31] Contracts often

27 Ellenberg, Ethan. "All About Royalties." *The Ethan Ellenberg Literacy Agency*. July 1999. Last accessed July 6, 2017. ► http://ethanellenberg.com/all-about-royalties/.

28 There is a "Reserve for Returns" Books are fully returnable and publishers therefore keep a permanent accounting reserve as a percentage of gross shipments.

29 Holzman, Keith. "Manage for Success: Royalty Accounting." *Holzman Solutions*. August 2002. Last accessed July 6, 2017. ► http://www.holzmansolutions.com/articles/16-aug02.html; Gunderson, Edna. "Bye, bye, a piece of the pie." *USA Today*. June 11, 2004. Last accessed July 6, 2017. ► http://www.usatoday.com/life/music/news/2004-05-16-royalties-main_x.htm; Passman, Donald S. *All You Need to Know About the Music Business*. New York: Simon & Schuster, 2000.

30 Based on Passman, Donald S. *All You Need to Know About the Music Business*. New York: Simon & Schuster, 2000.

31 Wasserman, Jim. "Calif., N.Y. Weight Regulation: Recording Industry in for New Fight." *Associated Press*. April 4, 2003. Last accessed June 17, 2017. ► https://www.newspapers.com/newspage/221055721/.

prevent the auditing of ledgers and accounts to accurately determine the amount of royalties or payments owed.[32] In 2003, BMG, Universal, and Warner Music announced reforms in their accounting practices. BMG took the lead by eliminating packaging and promotional deductions and calculating royalties based on wholesale price rather than discounted retail price.[33] It adopted what it described as a "fairer and more transparent" royalty system that shrank a standard contract from 100 pages to 12 pages.[34] Universal Music Group agreed to give auditors access to previously denied financial records.

These reforms reduced conflicts but did not end them. In 2009, the singer and film star Cher sued Warner Music and Universal for royalties owed to her for two compilation albums. She claimed, unsuccessfully, that the companies paid out royalties based on a lower rate than the contract-specified amount. Cher also claimed that Warner Music UK was using a subsidiary business to hide revenue from sales of these albums in the UK.[35]

In order to raise confidence and hence facilitate transactions, investors—whether in content production or technology ventures—need to protect themselves by some of the following measures:

1. Require a collection account manager, an independent third party who is protecting the interests of investors.
2. Due diligence check on the producer/GP/entrepreneur to determine their track record.[36]
3. Understand the parameters of the deal, and whether it compensates for inflation and so on.
4. Obtain all promises in writing and in contracts.
5. Establish an arbitration clause, with the prevailing party entitled to reimbursement of legal fees and costs.
6. Participate actively outside direct management site visits, progress reports, briefings, feedback.
7. Participate in the monitoring of the project, for example making sure that the funds are spent on the agreed upon project rather than new ones, unless further agreed.
8. Obtain an experienced advisor where expertise, time, or local presence are lacking.
9. Make sure that the contract is clear on all the terms, such as the definitions of net profit and receipts.[37]
10. The amount and types of overhead charged to the project should be clearly spelled out.
11. Insist on reasonable controls and limitations on claims for expenses.[38]
12. Understand that the profit participation reports are prepared on a cash basis for revenue and on an accrual basis for expenses.
13. Define the dates and frequency of financial reporting.
14. Include the right to audit.
15. Require errors and omissions insurance—this helps ensure completion.
16. Require recoupment of net profits to be scheduled prior to financial contributions to certain other payees.

13.3 Public Financial Accounting

13.3.1 Major Financial Documents for Investors

Financial accounting is used to prepare financial information for stockholders, banks, suppliers, and regulators. All publicly traded companies are required to publish financial statements and must follow general procedures known as Generally Accepted Accounting Principles (GAAP) in the USA,[39] similar national principles in many other countries, or global principles known as the International Financial Reporting Standards (IFRS).

13.3.1.1 Balance Sheet

The first major document of financial accounting is the balance sheet. This reports a company's assets, liabilities and stockholders' equity. The value of a company's assets, by definition, balances with the sum of liabilities and the equity. Assets are typically reported in terms of net book value—the original cost of the asset minus the depreciation on the asset.

13.3.1.2 Income Statement

The income statement, also known as the P&L (profit and loss) statement, presents the operating activities of a firm. Expenses are subtracted from revenues, revealing how much money a company made (or lost) within an accounting period.

13.3.1.3 Cash Flow Statement

The statement of cash flows can be thought of as a business's checking account. It is a company's summary of cash transactions during an accounting period. The statement shows where money comes from, how it is spent, and how much is at hand. These transactions are divided into three categories—operating, financing, and investing—which enables investors to better see how money flows into and out of the company.

32 Future of Music Coalition. "California State Assembly Hearing on Major Label Accounting Practices." Last accessed June 17, 2017. ► https://futureofmusic.org/filing/california-state-assembly-hearing-major-label-accounting-practices.

33 Holloway, Lynette. "BMG Plans to Simplify Royalty Deductions." *The New York Times*. November 21, 2002. Last accessed July 6, 2017. ► http://www.nytimes.com/2002/11/21/business/bmg-plans-to-simplify-royalty-deductions.html.

34 Holzman, Keith. "Manage for Success: Royalty Accounting." *Holzman Solutions*. August 2002. Last accessed July 6, 2017. ► http://www.holzmansolutions.com/articles/16-aug02.html; Gunderson, Edna. "Bye, bye, a piece of the pie." *USA Today*. June 11, 2004. Last accessed July 6, 2017. ► http://www.usatoday.com/life/music/news/2004-05-16-royalties-main_x.htm.

35 Belloni, Matthew. "Cher, Bono Heirs Sue Universal Music over Royalties." *Reuters*. June 2, 2009. Last accessed July 6, 2017. ► http://www.reuters.com/article/2009/06/03/industry-us-cher-idUSTRE5520MT20090603.

36 Alberstat, Philip. *The Insider's Guide to Film Finance*. Waltham, MA: Focal Press, 2004.

37 Shindler, Marty. "Understand before you sign." *The Shindler Perspective, Inc.* Last accessed July 6, 2017. ► http://www.ishindler.com/articles/TSPUnderstandBeforeYouSign.htm.

38 Jones, Cones. *The Feature Film Distribution Deal: A Critical Analysis of the Single Most Important Film Industry Agreement*. Carbondale, IL: Southern Illinois University Press, 2006.

39 Accounting.com. "What is GAAP?" Last accessed June 17, 2017. ► http://www.accounting.com/resources/gaap/.

13.3.1.4 Pro Forma Financial Statements

Companies often also report with separate financial statements, called "pro formas." These have no defined meaning or formal requirements.[40]

The pro forma statement, being without clear rules, can be based on estimates and projections.

The basic idea behind pro forma is that a firm facing exceptional gains or losses in a year can indicate the one-time nature of these events and adjust its profit and loss (P&L) to provide investors with a more realistic picture. For example, it can adjust for:

- major gain from sale of division or asset;
- major loss from isolated legal action.

We will discuss all four types of public financial accounting statements, starting with pro formas.

Problems arise when pro forma statements are used to prettify or disguise the true financial condition.[41] In 2002, Nokia, the Finnish wireless technology company, reported a third quarter pretax profit of €1.1 billion with pro forma statements. Without the pro forma adjustments Nokia's pretax profit was at a much lower €281 million.[42]

In another example, the major mainframe software firm Computer Associates (CA) used in 2001, a pro forma statement to disguise reality. CA reported 42 cents pro forma earnings for the quarter, while in reality it had a 59 cents loss under GAAP rules. In the several quarters of financial year (FY) 2000, CA inflated its revenue by approximately 25%, 53%, 46%, and 22% by including prematurely recognized revenue of $2.2 billion in 2000 and 2001.[43] As a US government official described it, "Like a team that plays on after the final whistle has blown, Computer Associates kept scoring until it had all the points it needed to make every quarter look like a win." CA kept its accounts open for additional days to create the illusion of increased revenue, leading to a 35-day month.

After CA was forced to stop recognizing revenue prematurely, its stock price dropped over 43% in just one day. CEO Sanjay Kumar was charged with securities fraud and sentenced to 15 years in prison. The Head of Worldwide Sales, Stephen Richards, was sentenced to seven years in prison and the General Counsel and Senior Vice-President, Stephen Woghin, was sentenced to two years. The company also had to pay $225 million to harmed shareholders.

Case Discussion

Pro Formas

In its 2001 Annual Report under CEO Eisner, Disney used a pro forma presentation to maintain the appearance of stability in its earnings per share (EPS). Consider the following excerpt from the Annual Report (Table 13.5), which transforms Disney's loss (common stock per share as-reported) into pro forma profit. It does so by the cumulative effect of accounting changes, excluding restructuring and impairment charges and gains on the sale of businesses.[44] Disney reported in its formal P&L statement—which followed the GAAP guidelines—a $0.02 loss per share. This is identified in the top line of Table 13.5. But the bottom line of that pro forma "Financial Highlights" statement showed a $0.72 pro forma gain per share. The company reported a loss of $158 million; therefore, each $0.01 per share that the company was to lose or gain is equivalent to $79 million. A $0.74 net difference per share is hence about a $5.8 billion difference in economic performance.

Disney reached this result through several pro forma items:

Disney reported in its pro-forma statement certain transactions or events differently from the way they must be reported according to GAAP rules. It did disclose these adjustments, yet a layperson would have trouble understanding them. Basically, it excluded from its earnings several items which it considers "one-time events." These include the sale of Fairchild Publications (its magazine subsidiary) in the preceding year, the acquisition of the search engine Infoseek, the conversion of Internet Group common stock to Disney common stock, the closure of the Go.com portal, and the adoption of different accounting standards.

- A $0.06 (per share) negative adjustment is made to attribute 100% of Internet Group operating results to Disney common stock. In 2001, Disney stopped reporting for the Internet Group independently, and integrated it into the Disney stock. This adjustment aims to show how the company has done based on its current structure, rather than the structure used during the previous reporting period. This adjustment depresses earnings.
- Disney incurred one-time expenses in closing down its portal Go.com. If it excluding this one-time event from the P&L, earnings improve by $0.09 per share.
- Disney incurred one-time $1.5 billion in restructuring and impairment fees, related to Go.com. Disney excludes this from its pro forma, as it did not view it as a usual expense. This adjustment improved earnings by $0.41 per share.
- A $0.13 adjustment is made to exclude the cumulative effect of accounting changes. In 2000–2001, Disney adopted accounting procedures spelled out in the American Institute SOP 00–2, and SFAS 133, 138 and

40 US Securities and Exchange Commission. "Cautionary Advice Regarding the Use of 'Pro Forma' Financial Information in Earnings Releases." December 4, 2001. Last accessed July 29, 2011. ► http://www.sec.gov/rules/other/33-8039.htm.

41 US Securities and Exchange Commission. "Cautionary Advice Regarding the Use of 'Pro Forma' Financial Information in Earnings Releases." December 4, 2001. Last accessed July 29, 2011. ► http://www.sec.gov/rules/other/33-8039.htm.

42 Manuel, Gren. "European Interest Grows in Pro Forma Accounting." *Wall Street Journal*. January 8, 2002. Last accessed June 22, 2011. ► http://search.proquest.com/docview/398962008?accountid=10226.

43 US Securities and Exchange Commission. "SEC Files Securities Fraud Charges Against Computer Associates International, Inc., Former CEO Sanjay Kumar, and Two Other Former Company Executives." September 22, 2004. Last accessed June 19, 2007. ► http://www.sec.gov/news/press/2004-134.htm.

44 Walt Disney Company. "2001 Annual Report." November 7, 2001. Last accessed July 10, 2017. ► https://ditm-twdc-us.storage.googleapis.com/2015/10/2001-Annual-Report.pdf.

141–4. These standards affected various accounting principles, ranging from how certain revenues and costs should be recognized to how derivatives, good will, intangible assets, and long-lived assets should be accounted for. The pro forma earnings exclude these charges.

A further $0.17 is added in the table below as an adjustment to exclude still other restructuring and adjustment charges.

In order to make them more comparable to the preceding year, Disney then uses these pro forma results to create comparable financial highlights for 2000 and 2001. And the bottom line is now identical for both years: $0.72 per share, a result that suggests consistency in performance, thus giving investors an assurance of predictability, even if some of it was achieved by accountants.

Disney properly qualifies these results in a footnote. Its pro forma permits a better comparison of the two years 2000 and 2001. However, in many cases the classification of something as being a "one-time event" is to make earnings look better. The definition of a one-time event is subjective. In theory, many of Disney's earnings could be clarified as "one-time events" because every movie is unique. Exclusion or inclusion is also not used consistently. The exclusion of the Go.com restructuring, which produces a gain of $0.41 per share, does not get partially attributed to 2000. All of this is perfectly legal and Disney discloses it. However, interpreting it requires a sophisticated reading of the report.

Another example for the use of pro formas by Disney is in its acquisition of the huge TV network and station group ABC/Capital Cities in 1995. Disney had added earnings and acquisitions before the mergers had formally took place. The company presented to the investors two sets of numbers: pro forma and as reported. The pro forma set was compiled showing what the 1995 financials would look like had the companies already merged.[45]

The pro forma numbers showed a growth in earnings. To reach this result required some fancy accounting. In 1995 Disney had reported a net income of $2.60 a share, whereas in 1996 it was, in the pro forma calculation, only $2.23 a share. How then could the company show an earnings rise for 1996? It accomplished this by revising retroactively the 1995 pro forma earnings down to $1.94 a share by writing down a part of the assets it had acquired when it had bought Capital Cities/ABC.

Moreover, Disney did not include all debt, leaving some of them "off balance sheet". Specifically, Disney had agreed to purchase various broadcasting rights for sport events from the NFL, NBA, NASCAR, and others. If these contractual obligations (which could not be cancelled) were capitalized as a liability, instead of being expensed each year, it would more than double the company's debt.

Table 13.5 Disney pro forma adjustments

(unaudited)	2001	2000
As-reported (loss) income per share attributed to Disney Common Stock	**$(0.02)**	**$0.57**
Adjustment to attribute 100% of Internet Group operating results to Disney common stock (72% included in as-reported amounts from the period from November 18, 1999 through January 28, 2001)	$(0.06)	$(0.13)
Adjustment to exclude pre-closure GO.com portal operating results and amortization of intangible assets	$0.09	$0.35
Adjustment to exclude the cumulative effect of accounting changes	$0.13	–
Adjustment to exclude GO.com restructuring and impairment charges	$0.41	–
Adjustment to include a pre-acquisition Infoseek operating results	–	($0.04)
Adjustment to reflect the impact of the new Film Accounting rules	–	($0.03)
Diluted earnings per share before the cumulative effect of accounting changes, excluding restructuring and impairment charges and gain on the sale of business	**$0.72**	**$0.72**

13.3.1.5 Investor Red Flags[46]

- Companies with relatively high debt ratios—to be discussed below—are usually an immediate red flag for an investor. But it could also be a sign of aggressive forward motion. An investor should compare a company's debt with industry averages and peer-companies.[47]
- The cash flow statement is a good gauge of the direction of the company. If cash from operations is lower than what the company is investing, then the company is most likely increasing its debt burden.

45 Gubernick, Lisa. "Mickey Mouse, CPA." *Forbes.* March 10, 1997. Last accessed July 29, 2011. ► http://www.forbes.com/forbes/1997/0310/5905042a.html 03.10.1997.

46 McGrahan, Kathleen and Gordon Shillingaw. *Accounting: A Management Approach*. Homewood, Il: Irwin, 1993.

47 National Association of Online Investors. "Special Report from NAOI: Investors: Read Financial Statements with a Critical Eye." 2009. Last accessed July 29, 2011. ► www.naoi.org/pressroom/flags.htm.

- Investors should also analyze changes in the balance sheet of at least the past three years. Things to look out for are large increases in accounts receivable, large increases in the inventory account, and large decreases in the reserve account.
- A change in auditors might also be a warning signal, because the previous auditor may have been more critical and tough.
- Large "sales to related parties" in the income statement
- High compensation and stock option to top managers in proxy statements.
- High allowance for uncollectable accounts (a sign that revenues were stated prematurely).[48]

13.3.2 Auditing

Given the potential for problems, how can the accuracy of financial information be protected?

An audit of a firm's financial statement means that an independent expert reviews the company's books for compliance with accounting principles. It is also a review of the ability of a firm's accounting system to deal with transactional data properly and effectively, such as through checking a random sample of transactions.

Another layer of financial control is the audit committee of the board of directors, whose task it is to ensure the integrity of the company's financial reporting. This committee generally oversees internal and external reporting and audit processes. This audit committee comprises independent (i.e. non-officer) directors. The actual process is delegated to internal employees of the firm or to external consultants or auditing firms.[49]

In the USA, the 2001 Sarbanes-Oxley Act created in 2002 strict rules of responsibility for accurate financial reports. Auditing firms had to divest themselves of all non-accounting activities. The law established an Oversight Board to review the audits of public companies and to set guidelines for accounting firms.

Auditors must be certified (chartered). In order to become a CPA or a chartered accountant one must generally have a bachelor's degree in accounting and one year of specialized instruction. Candidates must then pass a special exam,[50] and gain several years of work experience.

CPAs can work outside a company for an auditing firm or financial services company, or on the inside as a controller, financial analyst, or in internal audit services.[51] CPAs can also establish their own practice, working with both individuals and businesses, generally small or medium-sized firms. They provide clients with tax return services, auditing, tax planning, retirement planning, and budgeting. CPAs also handle payroll services for clients and consult with companies and individuals on incorporation and corporate structuring.

48 Magrath, Lorraine and Leonard G. Weld. "Abusive Earnings management and Early Warning Signs." *The CPA Journal* 72, no. 8 (August 2002): 50.

49 Burke, Frank M. *Audit Committees: A Guide for Directors, Management, and Consultants,* 3rd ed. (New York: Aspen Publishers, 2004), 1–220.

50 AICPA. "Become a CPA." Last accessed July 21, 2011. ► http://www.cpa-exam.org/.

51 AICPA. "CPAS: Keeping Every Industry on Track." Last accessed June 17, 2017. ► http://www.startheregoplaces.com/todayscpas/careeroptions/careerpaths/?SSID=E285F5688FAC44F8BF2CA45C8AB2C7AB#public.

13.3.2.1 The "Big Four" Accounting Firms

There used to be a "Big Eight" of accounting firms, dominating worldwide public accounting. They became the "Big Four" through mergers since the late 1980s and the collapse of Arthur Andersen in 2002. The remaining four firms audit 78% of all publicly traded companies in the USA by numbers count and 99% by annual sales. The same firms dominate the international market for big-firm audit services.

PricewaterhouseCoopers (PwC)

PwC is the world's largest professional services firm with 236,000 employees and $37.7 billion in revenue in 2017.[52] The firm audits 45% of the companies listed in the *Fortune 1000*. The firm originated in London in 1849 under the direction of Samuel Price. Another accountant, William Cooper, founded his own firm in 1854. The two successor firms, Price Waterhouse and Coopers & Lybrand, merged in 1998 to form PricewaterhouseCoopers, headquartered in London. In 2002, PwC sold most of its consulting business (which was especially active in electronic management systems) to IBM for $3.9 billion. PwC's clients include the Academy of Motion Pictures, CBS, Thomson, Viacom, Disney, and Nintendo in the media sector; IBM, Yahoo, Cisco, Corning, Dell, Ericsson, Nokia, Qualcomm, Samsung, Kyocera, LG Corporate in the media-tech sector; and KDDI, TeliaSonera, BT, DT, KPN, NTT, and Saudi Telecom in telecoms.

Deloitte Touche Tohmatsu

Deloitte Touche Tohmatsu in 2017 employed over 295,000 people and reported revenues of $38.8 billion.[53] The company was formed in 1989 with the merger of Deloitte Haskins & Sells with Touche Ross (which had earlier merged with Tohmatsu of Japan). The Touche firm was founded in New York City in 1900. The merged global headquarters is located in Wilton, Connecticut. Deloitte Touche Tohmatsu's major clients include WPP, Bloomberg, Comcast, and Cox in the media sector, Microsoft in the technology sector; and Vodafone in the telecom sector. Deloitte Consulting is the independent consulting operation, among the world's largest consultancies.

Ernst & Young

Ernst & Young, too, was created through a series of mergers. The oldest of these component companies was founded in London in 1849. In 1903 the firm Ernst & Ernst was formed in Cleveland, Ohio and in 1906 Arthur Young & Co. was founded in Chicago, Illinois. The two firms merged in 1989 to become Ernst & Young, and in 2002 was joined by many former operations of Arthur Andersen. The company divested its consulting activities to the French firm Capgemini in 2002 for $11 billion. The company in 2017 employed 250,000

52 PricewaterhouseCoopers. Global Annual Review 2017. 2017. Last accessed June 27, 2018. ► https://www.pwc.com/gx/en/about/global-annual-review-2017.html.

53 Deloitte. "Deloitte announces record revenue of US$38.8 billion." September 14, 2017. Last accessed June 27, 2018.

people and reported revenues of $31.4 billion.[54] Ernst & Young's clients include EMI, News Corp, NTL/Telewest, Time Warner, Warner Music and Vivendi in the media sector; Amazon.com, AMD, Google, HP, Intel, Oracle, Philips, and RIM in the technology sector; and AT&T, FT, Global Crossing, Orange, Telefonica, Telnor, Telstra, and Verizon in the telecom sector. Its headquarters is located in London.

KPMG

The earliest predecessor of KPMG (Klynved Peat Marwick Goerdeler) was the William Peat firm established in London in 1870. The company eventually merged into KMG in 1979, creating a large European international firm. The KPMG of today was formed with a merger in 1987 and in 2001 it divested its consulting business, mostly to BearingPoint Inc. That company filed for bankruptcy in North America but operates in Europe. In 2015 KPMG employed 173,965 people and reported revenues of $24.4 billion.[55] KPMG's clients include BBC, Bertelsmann, National Geographic, NBC Universal, RH Donnelly, Real Networks, Sony Music, WoltersKluwer, CNET, and TiVO in the media sector; Dolby, Electronic Arts, Ericsson, and Motorola in the technology sector; and Sprint and Qwest in the telecom sector.

Case Discussion

Auditing

Unlike its rivals Vivendi Universal and Time Warner, Disney avoided accounting scandals in the period under CEO Eisner. Its external auditors, PwC, received $8.7 million for auditing Disney in 2001. That same year, Disney also paid PwC $43 million for consulting and other services, such as the design of a provided financial information system and its implementation.

Already prior to the enactment of the Sarbanes-Oxley Act that outlawed this type of conflict of interest,[56] shareholders asked that management drop PwC in either their capacity as auditors or consultants. The Disney board then voted to do so. This cut annual fees paid to PwC by 75%. Disney became the first major company to make such a move to separate auditing and consulting.

13.3.2.2 Internal Audits

Less formal internal audits are conducted by the company itself, as a way to check on proper internal handling of transactions and resources, and to prevent fraud and embellishment of performance. In a large business, there is usually an auditing group within the larger accounting division.

To ensure the accuracy of financial statements, firms often put into place a system that allows employees to anonymously report to the audit department inconsistencies or possible wrongdoings.[57]

Another aspect of internal audits is not to find wrongdoing but to check on operations. Has the division or product reached the firm's goals or projections? This prevents subunits from being tempted to make their performance look better, or to gloss over problems.[58]

Internal auditors make recommendations. They are typically accountants who attempt to examine the same data and use similar steps as the external auditors, so that they can catch and fix any problems before the external auditors.[59]

Case Discussion

Internal Audits

An internal audit of Disney revealed that Harvey Weinstein, the co-chairman of Miramax, (a medium-sized studio which Disney bought in 1993), strategically scheduled release dates of certain film projects in order to paint overly positive pictures of Miramax's finances. Weinstein had, fully within his legal rights, exploited a loophole in the Miramax-Disney contract. It offered the Weinstein brothers a performance-based bonus, roughly a third of profits from their films. However, the deal calculated profits within the year of their release, not in the year of their acquisition. The release of big budget films (which were less likely to be large profit winners) could therefore be pushed to later years when they would not affect the Weinsteins' high bonuses.

13.3.3 Regulation of Accounting

13.3.3.1 Government Regulation

Government rules exist for the public and correct disclosure of financial information by companies whose stock is publicly offered. Accounting manipulations by some companies can discredit the entire economic system and reduce investor confidence, resulting in less investment and costlier private safeguards.

In the USA, the SEC was created in 1934 to ensure the disclosure of important financial information from publicly traded companies. The act was passed in response to the Great Depression; generally, the public distrusted the reliability of a company's accounting information, and laws were therefore enacted that required companies to publish accurate information in their financial statements. The SEC has the authority to establish standards, but has historically delegated the details to self-regulatory accounting bodies.[60]

54 EY. "EY reports strong global revenue growth in 2017." September 5, 2017. Last accessed June 27, 2018. ► https://www2.deloitte.com/global/en/pages/about-deloitte/articles/global-revenue-announcement.html.

55 KPMG. 2015 KPMG International Annual Review. 2015. Last accessed June 17, 2017. ► https://home.kpmg.com/xx/en/home/about/international-annual-review-2015.html.

56 Wall Street Journal. "Auditors Still Perform Nonaudit Services." April 3, 2002, C1.

57 Burke, Frank M. *Audit Committees: A Guide for Directors, Management, and Consultants.* 3rd Ed. (New York: Aspen Publishers, 2004), 1–220.

58 Wright, Wilmer. *Management Accounting Simplified*. (New York: McGraw Hill, 1980), 99–100.

59 Cornell University Audit Office. "University Audit Office." Last accessed July 6, 2017. ► www.audit.cornell.edu/.

60 Financial Accounting Standards Board. "Facts about FASB." Last accessed July 29, 2011. ► http://www.fasb.org/facts/index.shtml.

Other countries have similar agencies and procedures.

- Japan: the SESC was established in 1992 to approve fair trade in financial futures and securities;
- France: Autorité des Marchés Financiers (AMF);
- UK: Prudential Regulation Authority,[61] Financial Conduct Authority;
- Germany: Federal Financial Supervisory Authority (BaFin—Bundesanstalt für Finanzdienstleistungsaufsicht);
- Korea: Financial Services Commission (FSC).

Governments compel companies to provide extensive basic information relevant to their performance. Some of it is confidential, such as income tax information. Other information is public, such as a license renewal application by a TV station.

There are also several industry-specific accounting regulations. In the USA, the Federal Communications Commission established the Uniform System of Accounts (USOA) for telecommunications companies to separate regulated from unregulated activities. The USOA rules are used to determine a variety of telecom-to-telecom interconnection prices, subsidies etc. USOA balance sheets differ from non-regulated industries in their classification of assets and liabilities. They also have different rules on depreciation.

13.3.3.2 Self-Regulation of Accounting

GAAP

In the USA, the Financial FASB, an independent, private sector organization, sets accounting standards. The FASB, the SEC, and the American Institute of Certified Public Accountants (AICPA) have established the GAAP, which is a common set of authoritative standards, principles, and procedures.[62]

GAAP has four basic principles:

1. The historical cost principle: companies are required to account and report based on past acquisition costs rather than current fair market value for most assets and liabilities.
2. The revenue recognition principle: firms are required to record revenue when it is realized and earned, not necessarily when the cash is received. This is called accrual basis accounting.
3. The matching principle: a firm's expenses have to be matched with revenue as long as it is reasonable to do so.
4. The full disclosure principle: information disclosed should be enough for an investor to make a judgment, while keeping costs of disclosure reasonable.

Investors and journalists often believe that GAAP-based financial results, being based on established principles, are an accurate measure of the performance of a company. This is not so. GAAP allows a variety of treatments of reserves, depreciation, and non-recurring expenses. These are picked by a company's management. Another problem with GAAP financial statements is that they are cost based. This means that intangibles such as copyrights and patents—very important in the media and tech sector—are inadequately covered, as is discussed below. GAAP financial statements should therefore be supplemented by other data, such as cash flow data and discounted cash flow analysis.[63]

International Accounting Standards

Most countries have their own rules similar to the American GAAP. The UK's accounting standards are governed by a collective known as the Accounting Regulatory Bodies (Institute of Charted Accountants, Association of Chartered Certified Accountants, Chartered Institute of Public Finance and Accountancy, and Charted Institute of Management Accountants).[64] These organizations are self-governed by their members.

Going beyond national standards many countries have moved to International Financial Reporting Standards (IFRS).[65] The IFRS are a set of accounting standards developed by the International Accounting Standards Board (IASB).[66] Over 120 jurisdictions permit or require IFRS for domestic listed companies. The European Union (EU) requires it for companies incorporated in its member states whose securities are listed on an EU-regulated stock exchange.

The IFRS are typically more detailed than the national standards they replace and require more financial disclosure.[67] In the media sectors, IFRS, because it depends on a cost-based system, often does not accurately reflect intangibles, just as GAAP does not. IFRS uses similar basic principles to GAAP in the USA, but with several differences. IFRS guidelines regarding revenue recognition are less extensive and less industry-specific than GAAP.[68] For example, under GAAP there are specific rules for the recognition of software revenue and sales of real estate, but not in the IFRS.[69] The detailed US rules also often contain exceptions for particular types of transactions, whereas IFRS contains general principles. Other differences exist for the treatment of leases and financial instruments. Efforts are underway to overcome these differences and converge the two systems.

61 Bank of England. Last accessed July 6, 2017. ► http://www.bankofengland.co.uk/pra/Pages/default.aspx.
62 AICPA. "American Institute of CPAs." Last accessed July 21, 2011. ► http://www.aicpa.org/index.htm.
63 Litan, Robert E. and Peter J. Wallison. "Beyond GAAP." *Regulation* 26, no. 3 (Fall 2003): 50–55.
64 Business Accounting Basic. "Accounting Regulatory Bodies." Last accessed Jun 22, 2011. ► http://www.businessaccountingbasics.co.uk/accounting-regulatory-bodies.html.
65 AICPA IFRS Resources. "International Financial Reporting Standards." Last accessed July 6, 2017. ► http://www.ifrs.com/updates/aicpa/ifrs_faq.html.
66 International Financial Reporting Standards. "IFRS." Last accessed July 6, 2017. ► http://www.ifrs.com/pdf/IFRSUpdate_V8.pdf.
67 Palea, Vera. "IAS/IFRS and financial reporting quality: Lessons from the European experience." *China Journal of Accounting Research* 6, no. 4 (December 2013): 247–263.
68 International Financial Reporting Standards. *International Financial Reporting Standards (IFRS) – an AICPA Backgrounder.* Durham: American Institute of CPAs, 2011.
69 Ernst & Young. "US GAAP versus IFRS: The Basics." November 2013. Last accessed July 6, 2017. ► http://www.ey.com/Publication/vwLUAssets/EY-US-GAAP-vs-IFRS-the-basics-2013/$FILE/EY-US-GAAP-vs-IFRS-the-basics-2013.pdf.

13.4 Analyzing Financial Statements and Valuation of Media Firms

Now that we have the four major financial documents before us, based on established principles and verified by independent accountants, how do we use and interpret them?

Securities analysis uses data from public financial accounting, plus projection into the future and other factors. Securities analysts ask two basic questions when looking at a company. Is the firm financially sound? Is it earning an adequate rate of return? The answers are needed by investors to interpret financial statements and to understand whether the company is a good investment.

Securities analysis values a company from the perspective of an outsider using publicly available information. It is typically performed by outside services, whereas corporate finance is usually conducted by insiders, such as a financial manager. Securities analysis begins with the collection and analysis of public financial data. That data is then projected into the future and other factors are applied.

One methodology of securities analysis is the technical" or chart analysis. It uses past stock prices to predict the future rise and fall of securities. This does not take into account the financial health of a particular company, but looks at past patterns and trends to estimate future movements. Technical analysts believe that investors as a whole repeat past behavior and use this information to predict future stock prices. In contrast, fundamental analysis or quantitative analysis use financial statements to value securities. Public information such as assets, debt, equity, and liabilities are used to value investments. Simple calculations are then used to derive a variety of different indicators that give insight into a corporation's strengths, weaknesses, and overall health. In 1934 Prof. Benjamin Graham of Columbia University and David Dodd published the book *Security Analysis*,[70] which laid down the framework for value investing. Value investing uses a fundamental analysis based on a company's financial statements to measure a company's current condition. Billionaire Warren Buffett has been the most famous of Graham and Dodd's students and disciples.

One study has shown that accounting statements explain about 63% of stock price changes: of this, balance sheets explain 41% and income statements explain 22%.[71] The explanatory value of income statements has declined over time, while balance sheet contributions have increased. (Even so, just about every financial discussion in the press leads with the income statement.) For high-tech firms, the earnings information has a same explanatory weight (23%) as it does for low-tech firms. But balance sheet information for high-tech firms has a weight of 36% versus 43% for low-tech firms.

How important are different accounting statements to an evaluation of a stock? A study of that question differentiates between four stages of analysis: familiarization, exploration, scanning, and reasoning. Familiarization refers to getting to know the company. Exploration refers to directed and targeted search behavior. Scanning is when a person goes through data without looking for anything in particular. The main goal in this type of search is to find something unusual. An example would be going through a company's financial report and finding that a high debt level stands out, raising concerns about the ability to invest and grow. The last concept, reasoning, is reviewing and analyzing information to reach an opinion.[72]

Table 13.6 shows the weight given to accounting information by analysts during the evaluation of a stock:

Financial statements are thus especially important during the early stage of familiarization and later for scanning. Ratios seem to be used for a quick selection or exclusion of stocks in the early stage of narrowing the field, but not later. For non-GAAP information, the pattern is the opposite, because obtaining and digesting such information is harder and would be applied toward final decision about an investment.

Table 13.6 Contribution of financial information to stock analysts' evaluation

	Familiarizing	Exploring	Scanning	Reasoning
Financial statements	46%	38%	48%	27%
Financial ratios	24%	13%	8%	11%
Non-GAAP information	30%	49%	44%	62%
	100%	100%	100%	100%

Bouwman, Marinus and Paul Frishkoff. "The Relevance of GAAP-based information." *Accounting Horizons* 9, no. 4 (December 1995): 22–26

70 Graham, Benjamin and David Dodd. *Security Analysis*. New York: McGraw-Hill Professional, 2008.

71 Francis, Jennifer, and K. Schipper. "Have Financial Statements Lost Their Relevance." *Journal of Accounting Research* 37, no. 2 (1999): 319–352; Lev, Baruch and Paul Zarowin. "The Boundaries of Financial Reporting and How to Extend Them." *Journal of Accounting Research* 37, no. 2 (1999): 353–385.

72 Bouwman, Marinus and Paul Frishkoff. "The Relevance of GAAP-based information." *Accounting Horizons* 9, no. 4 (December 1995): 22–26.

13.4.1 Ratios and Metrics

Analysts use equations and ratios to compare a firm's performance over time and in comparison with others. Such ratios are published in many financial databases. For example, average ratios for industries are found in *Risk Management Association's Annual Statement Studies*. That report compares data that comes directly from the financial statements of 150,000 small to mid-size companies across 600 industries.

Several ways exist to use ratios:

- comparisons among industries;
- comparisons within industries to other companies;
- comparisons among years, for the same company;
- comparison with target.

There are several basic categories of ratios, and within such categories there are several types. They are:

1. liquidity ratios;
2. leverage ratios;
3. financial ratios;
4. performance ratios;
5. growth rates;
6. customer measures;
7. marketing effectiveness ratios;
8. measures of innovation;
9. social accounting measures.

They will now be discussed.

13.4.1.1 Liquidity Ratios

Liquidity ratios are used to measure a company's ability to pay current liabilities with current assets. A company's ability to convert short-term assets into cash to cover debts is important. Bills need to be paid. A commonly used liquidity ratio is the current ratio.

It is defined as:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The lower the ratio, the less likely a company is to be able to pay its debt obligations.[73] Generally, this ratio should be above 1.5.

In 2001, Microsoft had $39.6 billion in cash and short-term investments (current assets). Compare this with the company's debt: Microsoft has no long term debt and its short-hand term (current) liabilities equaled $11.1 billion.[74] Microsoft's current ratio was hence $39.6/11.1 = 3.3. A ratio over 3 would normally indicate too much cash. Microsoft's balance sheet shows over three times the amount of cash necessary to pay off current liabilities and long term debt. Why isn't Microsoft putting this money to work? Unless it is saving resources in order to launch new products, build new production facilities, or make major corporate acquisitions, a current ratio this high usually shows that management is not using cash very efficiently.

Liquidity ratios such as the current ratios should be monitored for changes, but it is usually only in periods of very low or very high ratios that these numbers can signal major problems for a firm.[75] One scenario is that the firm faces a slump in the general business cycle, and liquid assets are low while liabilities are high.

Case Discussion

Liquidity Ratios

Disney's current ratio for 2004 was 0.89.[76] In comparison, its peer company Time Warner's current ratio was 0.98.[77] The industry average ratio for that year was 1.0. Disney's current ratio was thus below the industry average, suggesting a below average ability to meet its short term debts. Below a ratio of about 1, a company likely faces some difficulty in meeting its debt obligations for the short term (one year or less). Disney was slightly below that line.

Leverage and Solvency Ratios

Solvency and leverage ratios are used to measure a company's ability to pay its long-term debt and thus avoid bankruptcy. These metrics determine if a company has overextended itself through an excess of debt.

Leverage ratios measure how much of the company's financing is supplied by the owners and how much by the creditors.

Two of the most common measures are the debt to equity ratio, and the interest coverage ratio.

Debt to Equity Ratio (Debt Load)

A company's relative debt load is measured, in particular, by the Debt/Equity ratio:

$$\text{Debt To Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

A related measure is the Debt to Capitalization Ratio

$$\text{Debt / Capitalization Ratio} = \frac{\text{Long Term Debt}}{\text{Long Term Debt} + \text{Shareholders Equity}}$$

73 Labyrinth Inc. "How do we interpret our financial statements?" 2005. Last accessed July 29, 2011. ► www.labyrinthinc.com/SharedContent/SingleFaq.asp?faqid=58.

74 Kennon, Joshua. "Analyzing a Balance Sheet." *About*. 2002. Last accessed July 29, 2011. ► http://beginnersinvest.about.com/library/lessons/nlesson3.htm.

75 University of Notre Dame. "Financial Ratio Explanations." Last accessed July 18, 2011. ► http://www.nd.edu/~mgrecon/simulations/micromaticweb/financialratios.html.

76 YCharts. "Walt Disney Current Ratio (DIS)." Last accessed July 6, 2017. ► https://ycharts.com/companies/DIS/chart/#/?format=real&units=&maxPoints=720&securities=include:true,id:DIS,,&endDate=&displayTicker=false&quotes=&correlations=&securitylistSecurityId=&calcs=include:true,id:current_ratio,,&zoom=&startDate=&recessions=false&chartView=&splitType=single&scaleType=linear&securitylistName=&securityGroup=.

77 YCharts. "Time Warner Current Ratio (TWX)." Last accessed June 9, 2011. ► http://ycharts.com/companies/TWX/current_ratio.

A ratio of 1.0 would mean 100% of the assets are financed by debt.[78]

The company's total debt, both short and long term, is divided by the amount of owner's equity. The ratio is known as the company's leverage. If the ratio is below 1.0, the firm owns more than it owes. Generally, a company with a debt to equity ratio of over 0.4 or 0.5 is highly leveraged.[79]

The debt to equity ratio helps give investors an idea as to whether a company can service their debt. If a company has a high debt to equity ratio within an industry this should raise a red flag, especially if interest rates are on the rise or if the company's cash flow shows volatility.

Case Discussion

Disney Debt Load

Disney's debt to equity ratio in 2004 was 0.27.[80] In 2016 it was a much higher 0.47. In comparison, Time Warner's debt to equity ratio in 2004 was 0.37. The media industry's average ratio in 2004 was 0.35, somewhat higher than Disney's. But for the overall corporate economy debt was much higher. For the Standard & Poor (S&P) 500 index companies, the average debt to equity ratio was 0.85 in 2004. In comparison, Disney was not highly leveraged in that year.

Interest Coverage Ratio

The interest coverage ratio is a measurement of the number of times a company could make its interest payments with its earnings before interest and taxes (EBIT). The lower the ratio is, the higher the company's debt burden. The interest coverage ratio is calculated by dividing EBIT by the total interest expense.[81]

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

The lower the proportion, the more the company is weighed down by debt expense. An interest coverage ratio below 1.0 indicates that the business does not generate the cash necessary to pay its interest obligations. A ratio below 1.5 is considered risky.

Case Discussion

Leverage and Solvency Ratios

For the 2004 fiscal year, Disney's EBIT was $4.4 billion,[82] and interest expenses were $624 million.[83]

$$\text{Interest Coverage Ratio} = \frac{4.4 \text{ billion}}{624 \text{ million}} = 7.1x.$$

Disney has a strong interest coverage ratio of 7.1, indicating ease in servicing its debt. This ratio is higher than the 4.9 average for the media entertainment industry and for the S&P 500 average. This ratio means that Disney can pay its interest roughly seven times over with its earnings in one year.

13.4.1.2 Financial Measures

Cash Flow

Conceptually, most companies are initially analyzed in terms of what a buyer might be willing to pay for the right to obtain access to the cash flow of an enterprise.[84] The cash flow is represented by cash receipts minus cash disbursements for a given period. Operating cash flow (OCF) is the difference of revenues minus operating expenses. A firm may have positive earnings but a negative cash flow. This could be due to high debt payments, which offsets the positive results of operation. It could also be due to aggressive accounting of earnings and depreciation.

The free cash flow (FCF) is the OCF minus capital expenditures. A firm may have a negative FCF but still do well if it is making productive investments.

Average Revenue per User Metrics similar to cash flow that are used to analyze media companies include the average revenue per user (ARPU).

$$\text{ARPU} = \frac{\text{Overall Revenue}}{\text{Subscriber Count}}$$

In the analysis of a mobile telecom company, for example, the company's ARPU is compared with the industry average.

The P/E Ratio

The price/earnings ratio (P/E ratio) is the ratio of the company's current market value to its annual earnings (profits after tax and preferred dividends).

$$\text{P/E} = \frac{\text{Market Value Per Share}}{\text{Earnings Per Share}}$$

78 Herrick, Dennis. *Media Management in the Age of Giants,* 2nd ed. Albuquerque: University of New Mexico Press, 2012.

79 Kennon, Joshua. "Analyzing a Balance Sheet." *About.* 2002. Last accessed July 29, 2011. ► http://beginnersinvest.about.com/library/lessons/nlesson3.htm.

80 WikiInvest. "Walt Disney Company." 2004. Last accessed July 6, 2017. ► http://www.wikinvest.com/stock/Walt_Disney_Company_(DIS)/Data/Debt_to_Equity/2004.

81 Kennon, Joshua. "Analyzing an Income Statement." *About.* 2002. Last accessed July 29, 2011. ► http://beginnersinvest.about.com/library/lessons/nlesson4.htm.

82 YCharts. "Disney Financial Data." Last accessed July 6, 2017. ► https://ycharts.com/financials/DIS/income_statement/annual/2.

83 Walt Disney Company. 2004 Disney Annual Report. December 9, 2004. Last accessed July 6, 2017. ► https://ditm-twdc-us.storage.googleapis.com/ar_2004.pdf.

84 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts Methods and Uses.* New York: Dryden Press, 2000.

The P/E ratio measures the company's current market value per share relative to annual earnings (profits after taxes per share). This is a key valuation tool. However, while P/E ratios are available for traded companies whose stock price can be readily sold, they do not exist for untraded privately held companies, such as internet start-ups which have no market price P.[85, 86]

The P/E ratio reflects the value the market has placed on a common stock. A high P/E, of 25 or above, means the market places a high expectation of future growth in the company's earnings. From 1996 to 2007, Disney had much higher average annual P/E ratios than the average S&P (Standard & Poor's 500 stock index companies) P/E ratio, which was around 26.3 over that period. In 2014, Disney had a P/E ratio of 22.3, lower than rival Time Warner (26.8) and the media industry average (26.3). For the years 1989–2007, Disney's P/E ratios ranged from 6.1 (1990) to 46.0 (2000), dropping to 17.8 (2007) and 16.4 (2018).

A high P/E ratio may also mean that the market is overvaluing the stock, or stocks in general. But it is also possible that earnings have dipped briefly owing to factors which the investors believe are temporary. A P/E can be high if the expected annual growth rate of profits is high, for example if the firm operates in a market niche with strong growth potential.

Similarly, a low P/E ratio may mean that a company is being undervalued, or that future prospects for a company are not promising and are affecting market confidence in the stock. A P/E ratio can be high if the expected annual growth rate of profits is high, for example if the firm operates in a market niche with strong growth potential.

Many mature industries, such as utilities, will have lower P/E ratios than new tech companies, which may have very high P/E ratios owing to future performance expectations. It is therefore important that P/E ratios be compared across the same industries.

To estimate the value of an untraded company for which no stock prices exist, one can take the expected earnings and multiply them by the P/E ratio of a comparable company or others from the same industry that are traded.

And what if there are also no earnings at all for the company, as is typical for dot-com companies? With neither an "E" or a "P," a P/E ratio does not exist. Thus, valuation must be based on metrics that are not dependent on earnings. These methods include the use of other ratios, such as the

- debt/contributed capital;
- debt/subscriber
- debt/net capital expenditures.

85 There are variations of a P/E ratio. The trailing P/E or TTM (trailing 12 months) P/E ratio uses historical data of the most recent 12 months. Projected P/E or FFQ (forward four quarters) P/E ratio uses estimates for the next four quarters of a company's performance for a ratio. A third is a mixture of the senior two, combining the performance of the company for the past two quarters and the estimated performance of the upcoming two quarters to come up with a ratio.

86 Investopedia. "P/E Ratio: Conclusion." Last accessed July 18, 2011. ► http://www.investopedia.com/university/peratio/peratio5.asp.

Market/Book Value Ratio

Price/book (P/B) ratios compare a stock's market value to its book value.

$$\text{Market to Book Value} = \frac{\text{Market Price Per Share}}{\text{Book Value Per Share}}$$

The book value is the net amount of assets shown in the firm's balance sheet—total assets minus total liabilities. A low P/B ratio could mean that the stock is undervalued by the market relative to its assets. A higher P/B ratio implies that investors expect management to create more value from a given set of assets. It may also mean that the market value of the firm's assets is significantly higher than their accounting value. It may also mean that the assets were acquired a long time ago, and their value today is much higher.

The book value has less relevance to the evaluation of many media firms since much of earnings power is down to intangibles such as copyrights and patents that were created and booked as expenses rather than capital assets. If shown as assets, the company's book value would show a much greater value, and the ratio would be higher.

Case Discussion

Financial Ratios

In 2000, with the stock market booming, Disney's M/B value ratio was at its peak with a ratio of 3.36. In FY 2004 it dropped to 2.11, and to 1.85 in 2005. (Book value per share $13.18, market value per share $27.88.) In 2016, it was 3.69. Disney has a high P/B ratio in its industry. In 2004 Time Warner's ratio was 1.4 Viacom's was 4.0, and the industry P/B ratio was 1.56.[87] Thus Disney's market value was over twice the book value, and well above the industry average. One reason was that the company's book value does not include most of its intangible assets. Another reason is that investors must believe that its future earnings will be above the industry average (assuming a similar composition of assets.)

13.4.1.3 Performance Ratios

If investors in Disney stock want to calculate the opportunity costs of investment, they would select a set of peer stocks and compare the performance of Disney.

Operating Ratio

The operating ratio shows a company's efficiency by comparing net sales to operating expenses. It is calculated as:

$$\text{Operating Ratio} = \frac{\text{Operating Expenses}}{\text{Operating Revenues}}$$

This ratio measures the company's effectiveness in using resources to run the company's operations. The smaller the

87 Damodaran, Aswath. "Price to Book Ratio by Sector." *New York University*. January 2005. Last accessed July 6, 2017. ► https://web.archive.org/web/20050305181937/http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/pbvdata.html.

rate, the greater the ability to create profits. However, the ratio does not take into account repayment of debt, which is not part of operating expenses. A firm may be efficient by this ratio but still fail if its debt is too high for repayment.[88]

Operating Margin

Operating margin measures profitability, and shows how much of each dollar of revenue is left over after costs of goods sold and operating expenses are subtracted.

$$\text{Operating Margin} = \frac{\text{Operating Income}}{\text{Net Sales}}$$

Operating income in this equation is revenues from sales minus the cost of the goods sold and operating expenses.

$$\text{Operating Income} = \frac{\text{Revenue from Sales} - \left(\begin{array}{l}\text{Cost of Goods Sold} + \\ \text{Operating Expenses}\end{array}\right)}{\text{Net Sales}}$$

For example, if a firm's operating margin is 15% (0.15), it is earning 15 cents on each dollar of sales. Note that this performance does not include interest payments, taxes, or one-off special events.

Total Assets Turnover Ratio

The total assets turnover ratio measures a firm's ability to generate sales from its assets. It is defined as:

$$\text{Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

13.4.1.4 Profitability Ratios

Profit Categories

Profitability ratios show how successful a company is returning profits on its investment. Profit margin $= \frac{\text{Profit}}{\text{Revenue}}$.

Before delving into the profitability ratios, it is useful to define the different categories of profits. Generally, the terms income, earnings, and profits are used synonymously.

Profitability "margins" are the several profit definitions, which are in monetary units, expressed as a percentage of revenues. They show a firm's ability to produce earnings during that period, and are an important benchmark against other companies in the industry. Depending on the definition of profit these measures are either gross margin, operating profit margin, pretax margin, or net profit margin. The latter—arguably the most meaningful measure—is also described as profit margin.

88 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts Methods and Uses*. New York: Dryden Press, 2000.

Profit Categories

Revenues (net sales, aka the "top line")
- -minus cost of goods sold (materials and labor for production)

= Gross profit
- -minus selling, general, and administrative (SG&A) expenses, that is, the costs of operating the company)
- -minus R&D

= EBITDA (earnings before interest, taxes, depreciation, and amortization[89]
- -minus depreciation and amortization

= operating profit (aka EBIT)[90]
- -minus interest expense

= pretax profit (EBT)
- -minus tax

= net profit (earnings after tax, EAT, aka the "bottom line")

Case Discussion

Profit Margins: Disney Versus Time Warner

The figures in Table 13.7 show that Disney outperformed, based on net profits, its rival Time Warner. However, Disney was even with the industry and slightly trailed behind the S&P 500.[91] Over the five-year average of net profit margin, Disney significantly outperformed its rival Time Warner as well as the industry (both of which had negative averages). But the S&P 500 outperformed Disney (slightly) and the industry (greatly). This suggests problems in the media industry relative to the rest of the economy. It also indicates a strong profit performance by Disney.

13.4.1.5 Return on Assets, Investment, and Equity

Whereas the preceding section looked at a firm's performance relative to its sales—profit per dollar of sales—a firm's success ultimately lies in its profitability relative to its assets, or its investment, or of the capital contributed by investors.

Return on Assets

The ROA is net income divided by average total assets.

$$\text{Return on assets}\left(\text{ROA}\right) = \frac{\text{Net Income}}{\text{Total Assets}}$$

It shows profit for each dollar in assets and relates the operating performance to investments of a firm, independent of the financing used in the acquisition of assets (i.e. whether

89 A new measure is ACSOI "adjusted consolidated segment operating income," which treats a company's marketing-related expenses as an investment which is being amortized over several years. It therefore deducts only a portion of such expenses, and is hence higher than EBITDA. This is discussed further below.

90 Assumes no investment income.

91 Disney's gross profit margins are lower than those of its peers and of the S&P companies, which might be due to its relatively high cost of goods sold owing to an expensing of some activities rather than capitalizing and depreciating them over time.

Table 13.7 Profit margins of Disney in comparison (2004)

	Disney	Time Warner	Industry	S&P 500
Gross Margin	13.2%	42.0%	37.0%	49.3%
Pretax Margin	13.1%	11.6%	11.9%	12.8%
Net Profit Margin	8.3%	7.9%	8.3%	10.0%
Operating Margin	12.9%	14.3%	14.9%	13.2%
5-Year Average Gross Margin (2005–2009)	16.0	54.8	41.4	47.1
5-Year Average Pretax Margin (2005–2009)	9.6	−16.9	−5.3	9.8
5-Year Average Net Profit Margin (2005–2009)	5.4	−19.9	−9.4	6.3
5-Year Average Operating Margin	16.2%	9.3%	16.1%	12.5%

Table compiled using company information obtained at YCharts. "Walt Disney Company (DIS)." Last accessed July 6, 2017. ► https://ycharts.com/companies/DIS; YCharts. "Time Warner (TWX)." Last accessed July 6, 2017. ► https://ycharts.com/companies/TWX. Industry and S&P 500 information obtained from CSI Market. "Industry Profitability Ratio." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_Profitability_Ratios.php?ind=902; CSI Market. "Industry Growth Rates." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_growth_rates.php?rev&.

equity or debt).[92] The ROA also shows the asset-intensity of a business.

However, a high percentage of a media or tech company's assets is intangibles, much of uncertain value. Thus, in the case of Disney or Time Warner where maybe 80% of assets are intangibles, looking at such metrics as ROA and ROI will not provide good information. In these situations, it would be more useful to look at the company's cash flows, subscriber numbers, or other "hard" measures to get a better idea of performance.

Return on Investment

A firm's ROI is a measure to compare the profitability of a firm's specific business project, or of an investor's return for her investment. It is basically the profit rate for the investment, the "bang for the buck." It measures the efficiency of the investment in terms of profits relative to investment.

$$\text{Return on Investment}\left(\text{ROI}\right) = \frac{\left(\begin{array}{l}\text{Net Income} + \\ \text{Interest Expense}\end{array}\right)}{\text{Total Assets}}$$

Return on Equity

Return on equity (ROE) is the ratio of net income to the book value of the shareholders' equity in the company. Shareholder's equity is equal to total assets minus total liabilities. The ROE represents how well the company has done for its shareholders, and how effectively shareholders' investment is being used.

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders}' \text{ Equity}}$$

For most of the twentieth century the return on equity for the stocks in the S&P 500 index was 10–15%, but in the 1990s that percentage jumped to 20%.[93] With the financial downturn in 2007/2008 things changed again. From 2007 to 2016 the return on equity in the S&P 500 was 8.75%.[94]

Case Discussion

ROE, ROA

Table 13.8 displays the investment returns for Disney in FY 2004 and compares them with those of Time Warner., the industry, and the S&P 500.

Disney performed well when compared with its competitor Time Warner and with the media industry as a whole, in both ROA and ROE. It underperformed, however, when compared to the S&P 500. The media industry, the data shows, has a lower return on equity and on assets than other components of the S&P 500.

13.4.1.6 Growth Trends

Balance sheets are a snapshot in time. In contrast, P&L statements are the results for a period of time—typically a year or a quarter. What investors are often looking for is a trend. This has two dimensions: a growth rate and its volatility.

92 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts Methods and Uses.* New York: Dryden Press, 2000.

93 Morningstar. "Walt Disney Co." Last accessed July 6, 2017. ► http://financials.morningstar.com/income-statement/is.html?t=DIS.

94 YCharts. "S&P 500 Total Return." Last accessed July 6, 2017. ► https://ycharts.com/indicators/sandp_500_total_return_annual.

Table 13.8 Returns of Disney in comparison

Investment Returns %	Disney	Time Warner	Industry	S&P 500
Return On Equity	8.9%	5.2%	3.2%	12.2%
Return On Assets	4.2%	2.4%	2.9%	2.8%
5-Year Average Return On Equity	4.4%	−15.9%	0.1%	13.8%
5-Year Average Return On Assets	2.1%	−9.9%	−3.7%	7.5%

Table compiled using company information obtained at YCharts. "Walt Disney Company (DIS)." Last accessed July 6, 2017. ► https://ycharts.com/companies/DIS; YCharts. "Time Warner (TWX)." Last accessed July 6, 2017. ► https://ycharts.com/companies/TWX. Industry and S&P 500 information obtained from CSI Market. "Industry Profitability Ratio." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_Profitability_Ratios.php?ind=902; CSI Market. "Industry Growth Rates." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_growth_rates.php?rev&

Companies, especially publicly traded companies, seek a decent-sized growth rate but also that it be stable. Meeting the expectations of investors and analysts helps ensure a favorable stock price by lowering the riskiness of a stock. To maintain this stable income and growth rate over several time periods, companies use an "accounting cushion" in which they overstate liabilities in strong years and then overstate the income in a weak period.

Case Discussion

Growth Rates

Disney's sales growth (Table 13.9) over the year preceding the confrontation over CEO Eisner was about even with Time Warner's (3.8% versus 3.7%), and much better than the industry average of –4.5%, but it was lower than the S&P 500 companies (13.0%). More importantly, Disney's net income (profits) rose by 8.0% whereas Time Warner's dropped by 13.6%. Disney's annual average five-year growth (2001–2005) rate in net income was very high at 35.1% and should have made its shareholders happy with management. To put this in perspective, however, S&P performance was even higher, which can be explained by the year 2001 being a recession year and hence a low base for any subsequent income growth calculation.

13.4.1.7 Subscriber Count Measures

An evaluation of a company can be based on the number of its subscribers or customers multiplied by a "rule of thumb" or benchmark multiplier used in that industry for the value of such a subscriber. In the cable industry the subscriber count is an important metric, partly because it is simple. For that reason, companies such as Adelphia or AOL inflated subscriber counts to look better to investors. AOL sold internet service to large organizations at a "bulk program" for as little as $1 a month. These companies then offered such subscriptions to their employees as a benefit. AOL reported these transactions as fee subscriptions, even though many of these subscriptions were never activated, and if they were used they did not generate profits. Such transactions added 830,000 "subscribers" to AOL's count in 2001 and 2002.[95]

Newspapers and magazines use circulation count for the prices they charge advertisers. This, in turn, affects revenues and investors assessments of the publishing firms. To prevent overstating subscriber counts, newspapers and magazines established a circulation auditing system,[96] known generically as an Audit Bureau of Circulation (ABC), to verify the self-reported circulation of magazines and newspapers. But even with such an auditing system, some newspapers inflated their claimed circulation counts. In the telecom field, too, the number of subscribers carries much weight and carriers exaggerated. In 2004, the US government asked the major US telecom companies to explain their methodology for counting access lines and subscribers. The goal was to provide guidance on how to standardize customer count—considered a crucial business metric.[97] Under two weeks later, Verizon reported that it had overstated its number of long-distance lines by 1.5 million, attributing the overestimation to a database issue unrelated to the inquiry.[98]

In 2010, the Hong Kong based conglomerate and mobile telecom owner Hutchison admitted to the Irish government's Commission for Communications Regulation that it had been overstating its subscriber base since 2006.[99] Hutchison had reported its subscriber base as 554,000 but only 56% of these were actually "active."[100]

95 Teather, David. "AOL Accounting Inquiry Widened." *The Guardian*. July 30, 2003. Last accessed July 6, 2017. ► https://www.theguardian.com/technology/2003/jul/31/business.onlinesupplement.

96 Steinberg, Jacques. "Newspapers Create New Safeguards After Circulation Scandals." *New York Times*. October 25, 2004. Last accessed July 6, 2017. ► http://www.nytimes.com/2004/10/25/business/media/newspapers-create-new-safeguards-after-circulation-scandals.html.

97 Fitchard, Kevin. "SEC Opens Inquiry into Carrier Math." *Connected Planet*. July 12, 2004. Last accessed February 18, 2011. ► http://connectedplanetonline.com/broadband/print/telecom_sec_opens_inquiry_2/.

98 Stern, Christopher. "SEC Examines Telecom Firms' Calculations of Total Customers." *The Washington Post*. July 3, 2004. Last accessed October 31, 2011. ► http://www.washingtonpost.com/ac2/wp-dyn/A24592-2004Jul2.

99 Commission for Communications Regulation. "Quarterly Key Data Report Information Notice." August 19, 2010. Last accessed July 6, 2017. ► http://www.comreg.ie/_fileupload/publications/ComReg_1065.pdf.

100 Mansfeld, Ian. "Hutchison 3G Ireland Overstating Subscriber Base." *Cellular News*. August 24, 2010. Last accessed June 22, 2011. ► http://www.cellular-news.com/story/44997.php.

Table 13.9 Disney growth rates

Growth Rates % (2005 versus 2004)	Disney[a]	Time Warner[b]	Industry[c]	S&P 500[d]
Sales (2005 versus 2004)	3.8%	3.7%	−4.5%	13.0%
Net Income	8.0%	−13.6%	209.2%	32.0%
Sales (5-Year Annual)	4.9%	16.3% (14.7% after AOL merger)	0.4	19.4%
Net Income (5-Year Annual)	35.1%	30.4%	N/A	48.3%
Dividends (5-Year Annual)	2.9%	(0.0%)Not Offered	−1.92	8.4%

[a]YCharts. "Walt Disney Company (DIS)." Last accessed July 6, 2017. ► https://ycharts.com/companies/DIS
[b]YCharts. "Time Warner (TWX)." Last accessed July 6, 2017. ► https://ycharts.com/companies/TWX/net_income_ttm
[c]CSI Market. "Broadcasting Media & Cable TV Industry." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_growth_rates.php?net&ind=902
[d]CSI Market. "S&P 500 Net Income Growth." Last accessed July 6, 2017. ► http://csimarket.com/Industry/industry_growth_rates.php?net&

The online environment is full of numbers that purport to measure subscribers, users, clicks, visitors, and so on. Such numbers and their trends greatly affect investors' evaluation of these companies. In some cases, the numbers are based on third-party measuring services such as ComScore or Experian Hitwise, using large panels in "user-based" methodologies. But in many instances the numbers are self-reported in "site-based" counts of often dubious quality. That is even more the case for subscriptions. Here, even the definition is quite flexible. For additional detail, see ► Chap. 9 Demand and Market Research for Media and Information Products.

13.4.1.8 Non-Financial Business Metrics

Not all metrics to judge a firm's performance are financial in nature. Non-financial information about a company can be used along with income and cash flows to provide a better picture of a company's performance. Non-financial measures include:

- customer churn;
- return rate of products and defect rate;
- customer reorder rate;
- the quit rate of the workforce;
- new patents;
- the share of sales from new products;
- the ratio of patents to research and development (R&D) expenses;
- average time to present the product into the market;
- the conversion rate from solicitations to sales;
- cost of acquisition per new customer acquired.[101]

These non-financial measures are not often used. Companies are reluctant to report some of this data. Even when it is favorable, they fear being locked into the future release of unfavorable data, or to become liable for erroneous numbers, or to reveal information to competitors and negotiating partners. However, there is a push to disclose such information to investors, coupled with a "safe harbor" shield against liability resulting from the disclosure of non-traditional information.

13.4.1.9 Social Accounting

Social accounting—also known as social auditing, social reporting, ethical accounting, or triple-bottom line—is a way of measuring and reporting on an organization's social, environmental and ethical performance.[102] Social accounting aims to bring quantitative measures to socially beneficial activities, based on the concept that "if you can't measure it, you can't manage it."[103]

There are many different techniques for looking at the social impact of an organization. Some are quantitative, some use benchmarking, and others are more in the nature of inspired—or inspiring—story-telling, and still others are a public relations effort.

The steps to conduct social accounts are:

1. identify the firm's stakeholders;
2. establish indicators, information, benchmarks, and targets
3. put into place data gathering systems;
4. analyze and interpret results;
5. use an external verification process;
6. disclose information;
7. act on the results.

None of these steps is simple in concept, definition, data availability, or valuation. Yet the process may help a company's

101 Litan, Robert E. and Peter J. Wallison. "Beyond GAAP." *Regulation* 26, no. 3 (2003): 52.

102 Social Audit Network. "What is social accounting and audit?" Last accessed July 6, 2017. ► http://www.socialauditnetwork.org.uk/getting-started/what-is-social-accounting-and-audit/.

103 Norman, Wayne and Chris MacDonald. "Getting to the Bottom of 'Triple Bottom Line.'" *Business Ethics Quarterly* 14, no. 2 (April 2004): 243–262.

Table 13.10 Social Accounting Targets

Commitments	Metrics
Corporate philanthropy goals	Amount of money given; Hours volunteered
Environmental sustainability principles	Tons of solid waste going to landfill; Carbon emissions
Code of ethics	Number of ethics complaints
Commitment to open communication with stakeholders	Performance records of interaction with major stockholders
Diversity	Employee and management diversity; Vendor diversity; Number of complaints and safeguards

image, marketing, and investor relations. It may also help management in its decision process.

Some items that might be reported in a social accounting are[104]: Listed in Table 13.10.

For example, the Australian bank Westpac developed a set of trends and metrics to measure its non-financial performance, and briefs analysts to provide a more holistic picture of the company's performance. At the time of its annual report, the bank also issued an extended performance statement of its social, environmental, and workplace performance,[105] to be read in parallel to the traditional financial numbers.

Another banking firm, Citigroup, publishes an annual Citizenship Report, focusing on the three areas—microfinance, financial education, and responsibility to the environment—where the company believes it has made the most progress outside its traditional business.

The number of such social audits has grown but are the exception nevertheless. Even companies with a strong sense of corporate responsibility are reluctant to issue social audits because they fear that this can expose them to unwanted negative media coverage and criticism from stakeholder groups.[106] Another reason is that many of the dimensions of social accounting are hard to define, measure, quantify, and value. But as information technology spreads into all aspects of economic and social life, it will become easier to track the impacts of a company's activities in new ways, both by the company itself and by outside groups and governments.

A related approach, more modest in scope, is environmental/full cost accounting (FCA). This is a system that capture environmental costs. FCA can be applied on the level of an individual, a product, a division, a facility, or an entire company.

Case Discussion

13

Excepts from Disney's Citizenship Report

"Message from Our CFO

Dear Stakeholders:

In addition to overseeing the Company's finances the Chief Financial Officer of The Walt Disney Company is also responsible for leading our citizenship efforts, because corporate citizenship is embedded into our everyday actions and decisions. It allows us to integrate our work in citizenship with the financial strength of the Company, ultimately driving greater shareholder value.

I am happy to report that 2012 was not only another year of record financial results for Disney, it was also a banner year for our citizenship performance. We became the first major media company to build upon our landmark nutrition guidelines, and introduced food advertising standards for kids. We reduced our net direct and indirect greenhouse gas emissions, achieving our targets for the year and taking another major step forward in our efforts to reduce the Company's impact on climate change. We also implemented new policies to reduce the risk for workers and families along our extended supply chain.

We are proud of the progress we have made against these targets. The following [Table 13.11 and Fig. 13.1][107] outlines our 2012 performance on the 65 citizenship targets:

Examples of these projects include:

- A groundbreaking, play-based curriculum that transforms unstructured recess time into engaging learning time for **179,000 kids** across the USA.
- A new creative learning program in China serving more than 68,000 rural children in grades 3–5.
- A creativity lab themed in virtual worlds reaching 450 kids in the USA and around the world.
- A theater program that brings Disney licensed musicals into underserved schools in Nashville, TN, allowing 305 kids, their teachers, and their families to participate in all aspects of production.
- A hands-on afterschool learning laboratory for more than 300 kids from disadvantaged populations in Los Angeles, CA."[108]

In conclusion, it can be seen that Disney's *Citizenship Report* shows a substantial effort to identify, structure, and monitor the company's social performance. In addition to being a sign of social responsibility as a company value, the effort also helps the company to buttress a wholesome family-oriented image. As one can expect in a document driven by that goal, the positive dimensions of Disney social contributions are listed while negatives are mostly left out. That said, Disney's report is impressive and stands out among large corporations.

104 Zadek, Simon. "Social Auditing." *The New Economics*. June 1995. Last accessed July 29, 2011. ► http://www.fpm.com/script/UK/Jun95/social.htm.

105 Kukec, Sonja. "Accounting for the Non-tangibles." *Charter*. Feb 2007. Last accessed July 29, 2011. ► http://proquest.umi.com/pqdweb?index=0&did=1230208461&SrchMode=1&sid=1&Fmt=4&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1175789598&clientId=15403.

106 Zadek, Simon. "Social Auditing." *The New Economics*. June 1995. Last accessed July 29, 2011. ► http://www.fpm.com/script/UK/Jun95/social.htm.

107 Disney FY12 Citizenship Report. Retrieved from ► https://ditm-twdc-us.storage.googleapis.com/FY12DisneyCitizenshipSummary_FINAL_0.pdf.

108 Disney FY12 Citizenship Report. Retrieved from ► https://ditm-twdc-us.storage.googleapis.com/FY12DisneyCitizenshipSummary_FINAL_0.pdf.

Table 13.11 Disney social accounting report[a]

Status	Completed	On Track	Getting Started	Did Not Achieve
Total	15	43	5	2
Target		Status	Summary	
By 2020, contribute more than 5 million hours of employee community service through the Disney VoluntEARS program			In 2012, Disney employees volunteered more than 586,000 hours through the Disney VoluntEARS program.	
By 2014, set a baseline for the percentage of employees who volunteer at least one hour of service annually in the VoluntEARS program			We identified a system to help track participation that will be implemented by 2014.	
By 2020, positively impact the lives of 10 million children and families in need			In 2012, we reached over 563,000 kids and families in need through a variety of efforts.	
By 2014, donate 18 million books to organizations that provide new books to children in need			In 2012, we donated more than 8 million books.	
By 2012, engage over 4 million players through online games to raise awareness of, and encourage participation in, giving to people and the planet			In 2012, we engaged more than 2.4 million players through our Pixie Hollow and club Penguin properties, but we did not achieve this target.	

[a]Disney FY12 Citizenship Report. Retrieved from ► https://ditm-twdc-us.storage.googleapis.com/FY12DisneyCitizenshipSummary_FINAL_0.pdf

Fig. 13.1 Disney social accounting—carbon footprint

13.5 The Valuation of Media Properties

Investment guru Warren Buffett once said: "If I were teaching an MBA class on finance, the final exam would be one question: how do you value an internet company? Anyone who turned in an answer would fail the exam."[109]

How, in general, are companies valued? To investors this is a critical question. There are several techniques. They include:

- historic cost;
- book value;
- replacement cost;
- discounted cash flow;
- market price (comparable transactions);
- comparable company value;
- multiples of revenues and earnings;
- stock price history;
- option value of investment.

Some of these approaches will now be discussed.

13.5.1 Cost Approaches

Cost approaches include book value or historic cost, with the value of a company computed as the sum total of its past investments in assets minus depreciation. Another approach is that of replacement cost—the value of the assets at the price of replacing them today.

There are several disadvantages to the cost approach, including inadequate correlation of cost with value. For example, not all development costs lead to successful inventions or products. But some successful developments are worth a lot more than the cost of creating them.[110] The advantages are that the historic numbers are available to accountants and have a certain "hardness," and are thus less susceptible to manipulation. (This does not apply to the replacement cost methodology.)

13.5.2 Income Approaches

In economic terms, a company can be valued by the income streams that it generates. That, after all, is what most investors seek. Technically, the incomes are discounted so as to include future earnings in a present valuation. Discounting also incorporates the risk factor. The measure of value is the asset's earnings as related to the imponderables inherent in the business situation. This includes risks of economic, technology, and politics. Such overall risk is reflected in the discount rate of the asset.

The formula for discounted present value is $NPV = \sum_{t=1}^{T} \frac{CF_t}{(1+r)^t} - CF_0$, where T equals the life of the asset, CF_t equals the cash flow in period t, and r is the discount rate, the investor's required rate of return, for investments with comparable risk. CF_0 is the investment in period zero itself.

The income approach is suited for intangible assets too. It can be used in for the appraisal of contracts, licenses, royalty agreements, patents, trademarks, copyrights, and franchises.[111]

13.5.3 Multiples Approach

One could compare a company whose value is being sought to one whose value is known. In real estate, the value of a house is often based on "comps"—comparable properties that have sold. But what are comparable companies? One way to deal with this question is to make use of the accounting ratios that were described earlier. One takes the financial ratios, and so on, for other companies that are traded in the stock market and hence have a known value based on the collective wisdom of the market, and extrapolates to compute the value of a non-traded firm. Examples of these metrics include the P/E ratio, the ROI, value per subscriber, cash flow multiples, ARPU (average revenue per user) multiples, revenue multiples, and so on. For example, suppose one wants to estimate the value of Company A in Industry X. A is not traded in the stock market. A has earned, on average over the past three years, $25 per share per year. The average P/E ratio R in the industry X is 10. Then a share of A should be worth, *Ceteris Paribus*, P = E × R = 25 × 10 = 250.

A similar approach can be used for an extrapolation of revenues, subscribers, or ARPU.

Other methodologies include that of looking at the share price of a company over a longer period, and using this as the yardstick for valuation of such a company. This would be most useful where some external shocks or speculation have left that share price temporarily at an atypical level, either very low or very high, for reasons that have little to do with the company itself. Another valuation approach is that of options pricing. That approach is discussed in ▶ Chap. 4 Technology Management in Media and Information Firms and ▶ Chap. 7 Intellectual Asset Management.

13.6 The Balance Sheet

The balance sheet consists of three main parts: assets, which includes anything of value to the company; liabilities, which include bank loans, mortgages, and bonds the company has issued; and shareholders' equity.

109 De Figueiredo, John M. "Finding Sustainable Profitability in the E-commerce Continuum." *Massachusetts Institute of Technology*. July 15, 2000. Last accessed July 7, 2017. ▶ http://sloanreview.mit.edu/article/finding-sustainable-profitability-in-electronic-commerce/.

110 World Intellectual Property Organization. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 1997. Last accessed July 6, 2017. ▶ http://www.wipo.int/edocs/mdocs/innovation/en/wipo_avi_ph_97/wipo_avi_ph_97_5.pdf.

111 World Intellectual Property Organization. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 1997. Last accessed July 6, 2017. ▶ http://www.wipo.int/edocs/mdocs/innovation/en/wipo_avi_ph_97/wipo_avi_ph_97_5.pdf.

Every balance sheet must balance, by definition. The total value of all assets must be equal to the value of all liabilities plus shareholder equity.[112] Equity has two sources: cash contributed by investors in return for stock issued by the company, and retained earnings, which are profits not paid to shareholders as dividends. The company's "book value" is the value of assets minus depreciation minus all intangible items such as intellectual assets and goodwill, and minus all liabilities.

For not-for-profit organizations, the "statement of financial position" is analogous to the corporate balance sheet. The document identifies net asset value instead of stockholder's equities.[113]

Thus the balance sheet shows how much the company owns, how much it owes, and what stockholders own. This report is presented in the annual report to shareholders and in the reports filed with regulatory agencies—in the USA as part of the well-known Form 10(k). The information is made available through the company itself or through financial information databases such as ► www.SEC.gov,[114] ► www.finance.yahoo.com, ► www.thestreet.com, and ► www.bloomberg.com.

Table 13.12 provides an example of a balance sheet. The company's total assets, at the end of the year 2016, were $15,557,000, composed of total fixed assets of $1,600,000, total current assets of $6,072,000, and cash in hand of $7,885,000 (mostly accounts receivable, that is payment owed to the firm). Liabilities consist of current liabilities of $11,137,000, mostly unearned revenues (basically prepaid services such as subscriptions that must now be performed or delivered by the firm). Also considered a liability is the paid-in capital, including capital reserves. The deficit line (retained losses or earnings) serves to balance total assets with total liabilities (including capital). Where liabilities otherwise exceed assets, this line is negative, and where assets exceed liabilities this line is in surplus and positive (retained earnings). As can be seen, the firm had an accumulated deficit of $2,693,000.

A balance sheet is only a snapshot of a company's financial condition at a particular moment, and it comes with many imperfections and judgment calls that are described below.

One year later, the company was in a similar position. There was a drop of 20% in cash on hand. The amount of current liabilities fell sharply by 36%, mostly from a reduction in "unearned revenues," which are prepaid sales where the product must still be delivered by the company. Also, the invested equity capital declined, suggesting a distribution by the company to shareholders. In consequence, the accumulated deficit had now become an accumulated profit of $1,058,000.

Table 13.12 Example of balance sheet (in $000)

Assets	December 2017	December 2016
Fixed Assets		
Computers	$732	$977
Infrastructure	$625	$569
Office equipment	$243	$118
Total fixed assets	$1600	$1664
Current Assets		
Accounts receivable	$5347	$5472
VAT	-$20	$15
Miscellaneous receivables	$745	$455
Total current assets	$6072	$5942
Cash in hand	$7885	$6328
Total assets	$15,557	$13,934
Liabilities		
Capital		
Reserves	$507	$507
Invested equity capital	$6420	$5038
Deficit	-$2693	$1058
Total capital	$4234	$6603
Current Liabilities		
Creditors	$63	$268
Wage taxes and social securities	$98	$155
Unearned revenues	$9791	$6204
Personnel fund	$438	-$210
Miscellaneous payables	$747	$728
Total current liabilities	$11,137	$7145
Total liabilities	$15,371	$13,748

Table based on Ripe Network Coordination Center. "2002 Balance Sheet." Last accessed July 6, 2017. ► http://web.archive.org/web/20101128052610/http://www.ripe.net/ripe/docs/ar2002/balance-sheet.jpg

To be most useful, balance sheets must be compared with previous ones for the same company, with the methodology held constant, and, also compared, with those of other companies.

13.6.1 Assets

Assets are things that a business owns, for example a building, or has the right to use, for example copyrights. It also includes acquisitions. There are two classes, monetary assets and non-monetary assets.

112 Kennon, Joshua. "Analyzing a Balance Sheet." *About*. 2002. Last accessed July 29, 2011. ► http://beginnersinvest.about.com/library/lessons/nlesson3.htm.

113 Smith, Gordon V. and Russell L. Parr. *Valuation of Intellectual Property and Intangible Assets*, 3rd ed. (New York: John Wiley & Sons, 2000), 515–544.

114 The SEC's EDGAR (Electronic Data Gathering, Analysis, and Retrieval) system provides automated collection, indexing, forwarding, and so on of submissions by companies and others who are required to file forms with the SEC.

Assets that can be converted into cash quickly—such as government bonds, receivables, money owed short term, inventories, and prepaid expenses (such as advertising time bought in advance of a season)—are classified as current assets.

Non-monetary assets are much more difficult to report. They include tangible assets—inventory, land, buildings, equipment, and other items. All of these may have fluctuating and/or unknown value.[115] They also include intangible assets that present still greater valuation issues—trademarks, patents, licenses, franchises, copyrights, brand value, and goodwill.

Assets are typically valued according to *historical cost*, that is, acquisition costs. Acquisition costs are certain, in contrast to fair market values, which are often quite unknown.[116] According to a study of 3500 US companies over a period of two decades, there has been an increase in the gap between book value (acquisition cost minus depreciation) and market value. In 2010, book value was 28% of the market value, while back in 1978, it had been 95%.[117]

The gap is even wider for media and tech companies. Intangible assets can make up 80% or more of a media company's value. But traditional accounting methods do not capture the true value of these intangibles. Balance sheets report only 15% of the true value of such companies.[118]

Entertainment companies themselves (as well as stock analysts) do not rely on their own balance sheet, but rely much more on P&L measures. If a company develops a new software product, costs of development—such as the salaries of the product's creators—are written off as an expense against current revenues rather than capitalized as an asset. When the product starts to be sold, it becomes an income stream without a corresponding asset on the balance sheet. Since there is no asset, there is also no depreciation. Furthermore, development cost is not booked as an asset. These factors cause the market to book value ratio to be higher than if there were assets recorded instead of expenditure. Income is initially lower, since the development cost is an expense; later, it is higher, since there is no depreciation, which would be written off against revenue.[119]

The reason for this restrictive principle of expensing rather than capitalization lies in history. Before the Great Depression, companies could report assets in balance sheets at their perceived value, but when the market crashed there was a general perception that they had "put water" in the balance sheet. This led to an 80-year policy that prevented such accounting in order to protect investors. Beyond investor protection, there was also a conceptual argument made by the leading "fundamental analyst" of the time, Benjamin Graham of Columbia University. Graham advocated this principle: separate fact from speculation. The accountants should report what they know and leave speculative interpretation about values to analysts. For the fundamentalist, accounting serves to value firms and stock prices. It should be developed independently of stock prices, not inferred from them.[120] In the go-go years of the 1990s, traditional accounting was derided as unsuitable for the information age, when much of a company's value came from intangible assets. Accounting authorities resisted this pressure, and when the bubble burst their caution proved right.

There has been much pressure to add intangible assets to the balance sheet, and the prime argument is that the balance sheet is misleading. However, omitting intangible assets such as copyrights and patents from the balance sheet is not necessarily flawed in terms of assessing a firm's value: there is also an income statement, and the value of intangible assets can be ascertained from it.[121] For example, in 2008, Microsoft traded at $25 per share or $228,775 million market capitalization, yet its book value was $36,286 million. Thus, $192,489 million was "missing" from the balance sheet (the P/B ratio was 6.3). Similarly, the computer maker Dell had a market capitalization of $41,200 million at the time, yet the book value was only $3735 million (a P/B ratio of 11). These discrepancies seem to render the balance sheet useless as an information tool. Yet if one also uses the income statement, one could gain a much better picture: Microsoft's reported a net income of $17,681. When such an income stream is transformed into net present value (NPV), that is capitalized from earnings, it results in a valuation that is more similar to that of market capitalization.[122] Thus the missing value of the intangible asset can often be captured through the income statement.

The expensing of R&D rather than its capitalization/amortization makes less of a difference than often thought as long as there is no growth in R&D expenditure. In steady state, recording R&D investment in the balance sheet and amortizing it, or instead expensing it immediately, has the same effect on earnings.[123] There is a difference when R&D is growing, and then earnings are depressed if the R&D expenditure is expensed. The same is true for other intangibles such as the treatment of the cost of creating copyrights and patents.

There are several economics methodologies for the valuation of intangibles utilizing accounting based information, including cost, market, capitalization, real options, and the residual earnings approach. (These are discussed in ► Chap. 7 Intellectual Asset Management) The cost method will rarely correctly estimate the value of an asset. In many cases, the

115 McGrahan, Kathleen and Gordon Shillingaw. *Accounting: A Management Approach*. Homewood, Il: Irwin, 1993.

116 Encyclopedia4u. "US Generally Accepted Accounting Principles." March 30, 2004. Last accessed July 29, 2011. ► http://www.encyclopedia4u.com/u/us-generally-accepted-accounting-principles.html.

117 McClure, Ben. "Intangible Assets Provide Real Value to Stocks." *Investopedia.* 2009. Last accessed July 14, 2010. ► http://www.investopedia.com/articles/03/010603.asp.

118 Baukney, Heather. "Intangible Assets: an interview with Baruch Lev." *ITworld.* April 3, 2001. Last accessed July 6, 2017. ► http://www.itworld.com/article/2797427/enterprise-software/intangible-assets--an-interview-with-baruch-lev.html.

119 Litan, Robert E. and Peter J. Wallison. "Beyond GAAP." *Regulation* 26, no. 3 (Fall 2003): 51.

120 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.

121 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.

122 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.

123 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.

development will be unsuccessful and the value of the "asset" is zero. In other cases, however, the development will yield nice profits, creating a value far beyond the R&D cost, and it would not be reflected in the cost-based value.

The second approach for the valuation of intangibles is market valuation. For how much is the asset bought and sold in the open market? But to use the market-based valuation approach several conditions need to be met: there must be an active public market, an exchange of comparable products, arm's-length transactions, and transaction information available. Since these elements rarely exist, the market approach is not often used for intangible assets.[124] It may exist for commoditized TV series such as game shows, or for general-purpose business software.[125]

The third valuation approach is NPV, which is based on discounted cash flows. A securitization can be used as a technique to capitalize an intangible asset's income stream. Banks and investors may lend against a future stream of cash flows rather than tangible collateral assets, as in the case of music royalties, projected movie revenues, and "hard" long-term telecom traffic agreements. In these examples the future income stream are relatively predictable, rather than "soft" estimates.

A well-known example, mentioned before, was the singer David Bowie signing a deal under which he received $55 million upfront to be paid off by his future royalties. Thus, the value of these royalties was at least $55 million.

The fourth type of valuation is the real options valuation. This method, which is a variation of discounted cash flow, analyzes investment opportunities as options. It also addresses risks, including the right to invest, the upside potential, and the downside risk. It requires, however, to know or estimate several variables that are not easy to come by for an asset, and are outside of traditional accounting-based information.

The fifth approach to the valuation of intangibles is the residual earnings approach, where residual earnings are capitalized. Residual earnings are the funds left over after the expected return from a business's financial and tangible assets has been removed. These are then attributed to intangibles, and the capitalized value of these intangibles can then be calculated. This approach has the advantage of being less subjective than some alternatives. For publicly traded companies, it can be implemented by using publicly available data.

Further decomposing of residual earnings could help to determine what proportion is attributable to different types of intangibles—people, brands, patents—providing an additional degree of precision that would help isolate the earnings contribution of human capital.

An illustration for the residual earnings (also known as the calculated intangible value) method follows. Intel is the example.[126]

- **Step 1:** determine average pretax earnings over three years. For Intel, that average value was $8 billion.
- **Step 2:** identify from the balance sheet the average year-end *tangible* assets over the same period. For Intel, that value is $34.7 billion.
- **Step 3:** for the same period, identify the average ROA for the industry, from various financial databases. The average for the semiconductor industry was around 13%.
- **Step 4:** calculate the earnings attributable to tangible assets by multiplying the industry average ROA (13%) by the company's tangible assets ($34.7 billion). Result: $4.5 billion.
- **Step 5:** subtract this figure from the pretax earnings of Step 1 ($8 billion). For Intel, the excess is $3.5 billion. This figure shows how much Intel earns above the average semiconductor firm.
- **Step 6:** subtract taxes. Multiply the income tax rate by the excess return. Subtract the result from the excess return to come up with an after-tax number. This number is the premium earnings that is attributable to intangible assets. For Intel, it is $2.5 billion.
- **Step 7:** calculate the NPV of this premium, by dividing the premium by an appropriate discount rate, for example the company's cost of capital. Using a discount rate of 10% yields a NPV of $25 billion.[127] This would be the estimated value of Intel intangible assets.[128]

13.6.2 Accounting for Corporate Acquisitions of Assets and Liabilities

There are two basic ways to account for mergers and acquisitions:

1. Merger (or pooling) accounting: adding together the book value of the assets and equities of the combined firms.
2. Acquisition (or purchase) accounting: adding the acquired company's assets at the acquisition price, which is typically higher than book value. Subsequent amortization expenses are then usually larger (and reported income is therefore smaller) than for a pooling of interest. In order to prevent discrepancies between merger methods in the USA, it is now required (FASB Statement No. 141) for all mergers to be accounted for by the purchase method.

124 World Intellectual Property Organization. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 1997. Last accessed July 6, 2017. ► http://www.wipo.int/edocs/mdocs/innovation/en/wipo_avi_ph_97/wipo_avi_ph_97_5.pdf.

125 Lev, Baruch. "Intangible Assets: Concepts and Measurements." *Encyclopedia of Social Measurement* 2, (2005): 299–305.

126 McClure, Ben. "Intangible Assets Provide Real Value to Stocks." *Investopedia*. 2009. Last accessed July 14, 2010. ► http://www.investopedia.com/articles/03/010603.asp.

127 McClure, Ben. "Intangible Assets Provide Real Value to Stocks." *Investopedia*. 2009. Last accessed July 14, 2010. ► http://www.investopedia.com/articles/03/010603.asp.

128 This methodology implicitly assumes that the other semiconductor companies have no intangibles in their own ROA, while Intel does. Thus, further adjustments would be required.

13.6.3 Advertising

Advertising expenditures create probable future economic benefits to the firm and thus meet the economic definition of an asset. But the benefits from advertising are uncertain. As a result, advertising costs are expensed in the periods in which the costs are incurred or when the advertising first takes place. For accounting purposes it is not recognized as an investment. The same goes for marketing promotions. Cable television companies, for example, must report the direct selling costs for acquisition of new subscribers as expenses when incurred.[129] Later in this chapter, we will encounter the use of adjusted consolidated segment operating income (ACSOI) accounting to circumvent this problem.

13.6.3.1 Special Assets in Media

Long-term contracts keep artists, athletes, teams, leagues, or TV stations tied up for years to one company or network. This kind of contract is an asset, and is recorded as an asset valued at the cost of its creation, for example, at the cost of a sign-up bonus. Companies buy and sell such contracts and record them according to the purchase price.

Brands, too, are assets, and for many companies it is their main one. The term "brand value" is similar, for marketing purposes, to what accountants call "goodwill."[130] Goodwill is the price paid by a buyer for a company beyond its book value. Goodwill is the value imputed to a strong brand name, good customer and labor relations, intellectual assets, and proprietary technology. Most companies take the costs of creating and expanding a brand value as a marketing expense, and only a few record it as a capital asset and amortize such brand value. In 1989, the London Stock Exchange endorsed the concept of brand valuation. This led to major branded companies to recognize the value of the brands as intangible assets on their balance sheet.[131] When companies acquire other brands they can record the purchase price minus the other assets as an asset on their balance sheet.

How to value a brand? Here, too, one approach is to capitalize residual earnings, which are the funds left over after the expected return from a business's financial and physical assets have been removed. After they have been capitalized, these residual earnings are then attributed to intangibles as brand value.

13.6.4 Case Discussion

Valuation of Intangibles[132]

Disney's assets include trademarks, licenses, copyrights, patents, and goodwill. These intangible assets were listed as $2815 million in 2004. As a share of all assets, this was just 5.2% in 2004 (total assets were $53,902 million). The reason for this low figure was discussed before, namely the GAAP principle that intellectual creations had to be expensed rather than capitalized, unless they were acquired by purchase.

When Disney acquired the major TV network and station group Cap Cities/ABC, its accountants wrote down ABC's assets and increased ABC's liabilities.[133] This reduced the amount of net assets that was added to Disney's balance sheet. Traditionally, broadcast networks such as ABC did not book the network's commitments to acquire future shows from a producer as a liability. But Disney did so upon its acquisition, and used ABC's $4.1 billion programming commitment to raise liabilities, and to create a loss reserve for the CapCities/ABC acquisition of approximately $2.5 billion. The company could use this loss reserve account to pay post-merger expenses for a while without affecting its bottom line.[134] This raised Disney's earnings and also made them more stable and predictable.

The writedown of ABC's intangible assets and the increase of ABC's contractual liabilities at the time of the merger also generated tax advantages. Disney subsequently gained a $1.2 billion tax benefit when the write-downs and increase in liabilities became tax-deductible business expenses.[135]

13.6.5 Depreciation and Amortization of Assets

A key issue in accounting is determining if the costs are investments or expenses. Classifying the cost as an investment, which is referred to as a capitalization, distributes the expense over the lifetime of the asset, which reduces annual cost and raises profit. It results in more assets relative to debt. In contrast, an expensing of the cost immediately will lower profits for that year, lowers taxes in that year, but raises them in subsequent years.

Amortization is the spreading of the cost of an asset over a period of time, usually several years. Depreciation is a type of amortization, accounting the decrease in the value

129 Kreuze, Jerry G. and Joseph G. Pung. "Advertising Expenditures Can Be Capitalized … Well at Least Sometimes." *The National Public Accountant*. October 1, 1997. Last accessed July 6, 2017. ► https://www.highbeam.com/doc/1G1-20224486.html.

130 Tollington, Tony. "The brand accounting side-show." *Journal of Product & Brand Management* 8, no. 3 (1999): 204–218.

131 Clifton, Rita. "The Financial Value of Brands." In *Brands and Branding*. Ed. Jan Lindemann. New York: Bloomberg Press, 2009.

132 Disneydreaming. "The Walt Disney Company Logo." February 12, 2010. Last accessed July 21, 2011. ► http://www.disneydreaming.com/2010/02/12/the-walt-disney-company-had-flat-2010-quarter-1-profits/.

133 Briloff, Abraham. "Disney's Real Magic." *Barron's*. March 23, 1998. Last accessed July 6, 2017. ► http://www.barrons.com/articles/SB890453320857699000.

134 Walker, Ken. "Disney's Glowing Profits Questioned by Barron's." *Baptist Press*. May 29, 1998. Last accessed June 12, 2012. ► http://www.bpnews.net/bpnews.asp?id=2188.

135 Walker, Ken. "Disney's Glowing Profits Questioned by Barron's." *Baptist Press*. May 29, 1998. Last accessed June 12, 2012. ► http://www.bpnews.net/bpnews.asp?id=2188.

of an asset over time.[136] There are several ways to calculate the depreciation on an asset. Straight-line depreciation spreads the depreciation expense evenly over the years of the asset.

$$\text{Annual depreciation} = \frac{\text{Cost} - \text{Salvage value}}{\text{Estimated Life}}$$

The production method of depreciation can be deployed when the rate of usage varies over time. An accelerated depreciation can be used when the earning power of an asset declines as it ages, but more rapidly at first. There are therefore larger depreciation charges in the early years of the asset's life. A declining balance method sets a fixed depreciation rate (as a percentage of the remaining asset value) to write off the cost.

Tax authorities provide a table of acceptable lives for goods and property that are to be used with the corresponding depreciation method.

The method of depreciation affects the bottom-line of a company. A public company's P&L statement filing therefore contains information on the depreciation rates and method.[137]

13.6.5.1 Amortization of R&D, Intellectual Assets, and Networks

As far as accounting is concerned, R&D activities do not create assets but only expenses. Accounting rules require the immediate expensing of R&D. The justification is that the future benefits of most R&D are too uncertain for them to be called an asset (capitalization). This pushes start-ups, in particular, into the red since they show only expenses and no assets in return.[138] (It should be noted, however, that finance research shows that for publicly traded companies even if the R&D is expensed it adds stock value to the company. The investor market implicitly treats R&D expenses as if they were a capital investment.)[139]

However, when a patent is actually bought from a patent holder, it is then treated as an asset (at the acquisition price plus transaction costs) and can be amortized over its legal or economically useful life—whichever is shorter.

In the USA, the rules, are set in FASB Statement No. 142, which decrees that patents, copyrights, and trademarks with finite lives are amortized over their useful lives, and for not more than 40 years.[140] Thus, although copyrights are granted to the author of a work for the life of the creator plus 70 years—which could easily exceed 100 years—according to the FASB rules the cost of the copyright is amortized for only up to 40 years. Similarly, the cost of creating or acquiring trademarks must be amortized over the period of the benefit, not to exceed 40 years.

The depreciation periods for IT, telecoms, and internet networks are based on the estimated economic useful life of the asset. Domain names have a depreciation period of two to ten years and website development has a period of three to five years.[141] Accounting procedures for the depreciation of IT systems follow the Modified Accelerated Cost Recovery System, where the lifetime of IT investments is five years. The rapid drops in prices of IT equipment leads often to an accelerated depreciation method.[142]

For telecom and cable network companies, the physical plant is a very large asset. It must be carried at original or acquisition cost.[143] It is interesting to note that under a rate-of-return regulation of telecom networks there is often be an incentive for the firm to underdepreciate. This is called the Averch-Johnson effect,[144] and it occurs when the rate of return on invested capital set by regulators exceeds the cost of that capital. This also leads to over-investment, also known as "gold-plating."

For spectrum licenses, which can be very costly but have a finite life, the license cost is amortized over its period (often 20 years).[145]

136 McGrahan, Kathleen and Gordon Shillingaw. *Accounting: A Management Approach*. Homewood, Il: Irwin, 1993.

137 Kennon, Joshua. "How to Calculate Return on Assets or ROA." *The Balance.* Last updated December 30, 2016. ► https://www.thebalance.com/return-on-assets-roa-357592.

138 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts Methods and Uses.* (New York: Dryden Press, 2000), 437.

139 Green, J. Peter, Andrew W. Stark, and Hardy M. Thomas. "UK Evidence on the market Valuation of Research and Development Expenditures." *Journal of Business Finance & Accounting* 23, no. 2 (March 1996): 191–216; Akbar, Saeed and Andrew W. Stark. "Deflators, net shareholder cash flows, dividends, capital contributions and estimated models of corporate valuation." *Journal of Business Finance and Accounting* 30, no. 9–10 (December 2003): 1211–1233.

140 In contrast, intangible assets whose lives are indefinite are not amortized but are tested yearly for impairment. Federal Accounting Standards Board. "FASB Codification." *FASB*. Last accessed July 20, 2011. ► http://www.fasb.org/home.

141 EY. "Internet Accounting Issues: A Summary." May 2001. Last accessed July 6. 2017. ► https://www2.bc.edu/peter-dicarlo/MAY%20Summary%20of%20Internet%20Acctg%20Issues%205-2001.htm.

142 Besaw, Brian. "Depreciating PCs: Learn why accounting methods make a difference." *Tech Republic.* February 21, 2001. Last accessed July 29, 2011. ► http://techrepublic.com.com/5100-6314-1032118.html.

143 Fako, J. "Public Utility Accounting: Is It Really Different? In *Public Utility Finance and Accounting: A Reader*. Ed. J. Berk. (Tenafly, NJ: Financial Accounting Institute, 1986), 15–16.

144 H. Averch and L. Johnson. "The Behavior of the Firm Under Regulatory Constraint." *American Economic Review*. December 1962. Last accessed July 29, 2011. ► http://www.clt.astate.edu/crbrown/averch.ppt.

145 This amortization, which reduces future earnings and taxes, is usually not mentioned in government announcements of the financial benefits brought to the treasury through spectrum auctions.

Case Discussion

Disney Amortization and Depreciation

Disney amortizes the cost of television and film production, as well as multiyear sports rights, over each asset's useful life, by dividing the current period's gross revenues of that asset into the estimated overall revenue that film will generate. Disney takes the cost of the project and amortizes the cost over a ten year period, in a ratio comparable to the amount of profits received during the period. For that ten-year period, Disney will estimate box office receipts, distribution deals, home video sales, cable deals, and other revenue streams. If the film receives 40% of its lifetime revenue in Year 1, Disney will amortize 40% of the production cost in that year.[146]

For television series, gross revenues are estimated as receipts that will be earned within ten years of the delivery of the first episode. As the series continues to run successfully, the number is calculated as revenues to be earned within five years of the delivery of the most recent episode.

In 2005, approximately 42% of Disney's completed and unamortized film and television costs were amortized during that year, which suggests a rapid and accelerated amortization, as well as the short economic life span of the content. Approximately 73% of these costs (excluding acquired film libraries) were expected by the company to be amortized during three years.[147]

In 1996, as mentioned, Disney acquired the major TV network and station group Capital Cities/ABC for $19 billion. The company capitalized the entire acquisition price as goodwill, to be amortized over the next 40 years, at approximately $120 million per quarter using the straight line method of depreciation. According to Disney, the ABC acquisition was expected to hold its value and produce earnings indefinitely, and this method allowed the company to depreciate at the slowest rate allowed by GAAP. By using a slow depreciation rate, Disney would avoid getting a large expense hit on its annual income statements, which could have depressed its stock price.

Even though this was legal and within GAAP, some financial analysts and accounting professors argued that a different accounting treatment of this transaction should have been used and that Disney should have amortized at a much higher annual rate, thus reducing its earnings.

13.6.5.2 Impairment, Write-Offs, and Write-Downs

Often the value of an asset drops, and accounting reports need to deal with this to maintain a realistic description of the company. Impairment is the reduction of asset value carried in the books when the market value of that asset drops below book value.[148] In contrast, a write-off is used to treat uncollectable accounts, such as an insolvent debtor's obligations; and a write-down charges the asset's cost to expense and is generally used for non-recurring items.

For instance, in 2002, AOL Time Warner was forced to recognize an impairment of $54 billion, attributed mostly to the AOL acquisition. Sprint, the wireless and wireline company, posted a $1.9 billion net loss in 2004.[149] It analyzed long-distance business trends and then took a $3.5 billion impairment charge on these assets. Sprint also took a $1.2 billion write-down on its spectrum for use for its Multichannel Distribution Service, a form of microwave video distribution.

Clear Channel Communications, the largest private radio company, in the world, took a write-down of $4.9 billion in 2005. Viacom, the number two radio company, wrote down $18 billion that same year.[150] The telecom firm Qwest wrote down $20 billion in 2002. WorldCom took a $15 to $20 billion write-down, partly to cover its previous misstatement that put CEO Bernard Ebbers in prison. Sony took a $1 billion write-down in 2017 for its movie division. A similar amount was taken by Seven West in Australia in 2015 for the value of its television licenses.

Case Discussion

Write-Offs and Write-Downs

Compared with its peers, Disney has had a low use of write-downs. Industry write-downs in 2002–2004 included AOL Time Warner with $99 billion, Viacom with $20 billion, and News Corp. with $10 billion. In contrast, Disney's 2004 impairment write-down was just $64 million.

There were several large Disney write-downs in other years, though not of the same order of magnitude. In 2001, the company recorded restructuring and impairment charges totaling about $1 billion, related to the closure of internet portal GO.com and of approximately 70 Disney stores.

13.6.5.3 Inventory

A company's inventory is the items held for sale or for the production for such a sale. For example, books are produced in large batches for sale over a longer period of time. This means that large inventories are held by publishers, wholesalers, and retailers. Since books can be returned by retailers to the publisher, there is an incentive for retailers to have a good-sized inventory, since they are not stuck with excess books but can send them back for full refund.[151]

146 Walt Disney Company. 2005 Annual Report. December 5, 2005. Last accessed July 10, 2017. ► https://ditm-twdc-us.storage.googleapis.com/ar-2005.pdf.

147 Walt Disney Company. 2005 Annual Report. December 5, 2005. Last accessed July 10, 2017. ► https://ditm-twdc-us.storage.googleapis.com/ar-2005.pdf.

148 FASB. "Statement of Financial Accounting Standards No. 53- Financial Reporting by Producers and Distributors of Motion Picture Films." December 1981. Last accessed July 10, 2017. ► http://www.fasb.org/summary/stsum53.shtml.

149 Gross, Grant. "Sprint Records $1.9 billion loss on impairment charge." *IDG News Service*. October 19, 2004. Last accessed July 29, 2011. ► http://www.networkworld.com/news/2004/1019sprinrecor.html.

150 In part, these write-downs were initiated due to new SEC reporting guidelines. Viacom. "2006 Annual Report." March 1, 2007. Last accessed July 10, 2017. ► http://ir.viacom.com/secfiling.cfm?filingID=1193125-07-43859&CIK=1339947.

151 Nairn, Andrew. *Valuing Publisher's Stocks: the Accounting Problem*. London: Accountancy, 1979.

One goal of inventory accounting is to match inventory costs with the revenues received from the sale of goods from that inventory, so that one can calculate profit.[152] This is complicated because the prices of the goods vary over time. Often the cost of inventory increases over time owing to inflation. There are several methods to deal with this issue: specific identification, average cost, first in, first out (FIFO), and last in, first out (LIFO). Different methods can have different effects on the balance sheet, income statement, and taxes. A company must choose one method and stick to it.[153] If a firm uses the FIFO method in an inflationary period, it will sell the inventory that was bought or produced early, before prices rose. This makes a company look more attractive to an investor or a bank because the company's asset value is relatively higher.

If a company uses LIFO it will first sell the inventory it produced or bought last at the higher prices. The advantage of this is the tax benefits of paying lower taxes since income will be lower.[154] LIFO can result in lower taxes but also reduce a company's value, since its reported income is lower. The reverse is true for products subject to a price *de*flation, which may often be the case for electronic devices and components. FIFO will reduce asset value, while LIFO will raise reported income and tax obligations.

It is also useful for investors to look at the percentage of inventory in current assets. For example, if 70% of current assets are in inventory, it may indicate excessive or obsolete inventory, and that a write-down is needed.

13.7 Liabilities

Liabilities are a company's obligations to its creditors. Liabilities include accounts payable (amount due for goods and services purchased by the company), bank loans, notes and bonds payable, and wages and salaries due. Current liabilities are short-term debts which have to be paid within one year. Long-term debt includes mortgages and business loans.

Problematic issues of accounting liabilities in the media and information sector include stock options, pension plans, and off-balance sheet financing.

13.7.1 Stock Options

A popular method of providing tax-favored compensation to employees in the high-tech and new media industries is the granting of stock options.

There are two types of stock option: incentive stock options (ISOs) and employee stock purchase plan (ESOs).[155] ESOs are designed mainly to benefit rank and file and middle employees, by allowing all eligible employees to purchase the company's stock at a discount over market price, for example 15%. An employee is not subject to income tax on the benefit of the discount until the stock is sold off, at which point the proceeds are considered a capital gain, but taxed at a lower rate than ordinary income. In contrast, ISOs are created to attract high-ranking executives and key employees. Companies issue stock options to employees to raise productivity or to attract new talent by giving them a chance to get in on the ground floor.[156] In companies where cash is scarce, options are a good way to keep employees invested in the company. There are tax incentives to ISOs and ESOs. The rise in share value is considered a capital gain and is therefore taxed at a much lower rate than regular income. For example, in 2016 the capital gain would be taxed in the USA at a maximum rate of 20%, while ordinary income would be taxed at up to almost 40%.

Typically, a company treats employees' compensation such as wages as an expense item. But when high-tech companies extended stock options as a form of compensation they typically did not expense them. This reduced their reported compensation and made them look more profitable. For example, the expensing of stock options would have reduced reported earnings in the semiconductor manufacturing industry in one year by an average of 40%.[157] Cisco received a tax benefit of nearly $2.5 billion from its use of ESOs. As a result the company paid little or no federal income taxes, while reporting $2.67 billion in profits on its financial statements. There is a tax benefit at the time the option is executed. Basically, the company can claim as an expense for tax purposes the higher value when the options are redeemed, not the value at the time they were issued. But they need not report the higher value in their P&L statement. For example, suppose the radio satellite firm Sirius XM granted in 2009 its CEO stock options of 1 million shares at $0.30 a share (the price at the time) to vest in 2015. When the CEO redeems them at the 2015 market price of $2.00, Sirius XM can claim a $2 million "compensation" on its tax return as an expense, even though it did not actually spend $2 million. However, the company does not have to put the $2 million into expenses in its financial report but rather only $300,000 in 2009, so the company looks more profitable and it also gets a tax break.[158]

This became a controversial issue. Opponents of high compensation for top management regard this practice as

152 Carmichael, D. R., O. R. Whittington, and Lynford Graham. *Accountants' Handbook*, 11th ed. Vol. 1. (Hoboken, NJ: John Wiley & Sons, Inc., 2007), 20.2–20.36.

153 The specific identification method means that each item sold from the inventory must be specifically identified and recorded. This system is usually used by businesses that deal with large ticket items such as automobiles, works of art, or custom-built items. For companies that deal with large inventories, administering this system is too costly. The average cost method treats the cost of all similar items in the inventory in the period and averages it.

154 Dopuch, Nicholas and Morton Pincus. "Evidence of the Choice of Inventory Accounting Methods: LIFO vs. FIFO." *Journal of Accounting Research* 26, no.1 (Spring 1988): 28–59.

155 Cavitch, Zolman. "Business Organization with Tax Planning (10–133), Part 21 Taxation of Executive Compensation, 10–133 Business Organizations with Tax Planning §133.01 Appeal and Limitations of Stock Options." New York: Matthew Bender & Company, Inc., 2004.

156 Glassman, James K. "Running an Option." *National Review Online*. Nov. 7, 2003. Last accessed July 10, 2017. ► http://www.nationalreview.com/article/208523/running-option-james-k-glassman.

157 Morgenson, Gretchen. "Litmus Test for Ethics: Options." *New York Times,* March 21, 2004. Last accessed July 10, 2017. ► http://www.nytimes.com/2004/03/21/business/market-watch-litmus-test-for-ethics-options.html.

158 Kocieniewski, David. "Tax Benefits from Options a Windfall for Business." *New York Times*. December 29, 2011. Last accessed July 10, 2017. ► http://www.nytimes.com/2011/12/30/business/tax-breaks-from-options-a-windfall-for-businesses.html.

a way to transfer much wealth to top executives without it showing up as an expense, and for these managers to avoid paying their fair share of income taxes.

In America, the FASB rules now require companies to treat options as an immediate expense, which reduces reported profits. However, it is difficult to value stock options accurately in order to expense them when there is no market price.

Another variable of stock option compensation involves their backdating. Companies select favorable dates on which to base the options price. Backdating options involves granting an employee a stock option that is dated prior to the actual date that the company has granted them. This is advantageous to the recipient when stock prices drop, because the future capital gain will look lower. When stock prices are rising, a main reason why companies engage in backdating is to reduce the amount of deductions against the company's earnings, by deducting the earlier, lower price. The act of backdating, in itself, is not illegal. But altering dates on the financial statements and reports is illegal.[159] In 2007, nearly 170 high-tech companies were investigated for "backdating" options. The investigations included Jim Balsillie (RIM, maker of the BlackBerry). The CFO of Comverse pleaded guilty to securities-fraud charge. Several top executives at Monster, an employment website, were charged with securities fraud after it was discovered that they were granted options dated at highly favorable times.[160]

13.7.1.1 Case Discussion

Stock Options

Disney provided stock options worth more than of half a billion dollars between 1995 and 2000. If this company had counted these payouts as executive compensation it would have significantly reduced its reported earnings.[161] Between 1991 and 1995, Disney CEO Michael Eisner earned $234 million. In 1998 his overall compensation had increased to $570 million, mostly through stock options that were awarded early in his tenure that had become exercisable. Overall between 1998 and 2000, Eisner earned more than $680 million from the exercise of stock options.[162]

Disney did not count the stock options it granted executives as an expense, claiming that they were not executive compensation but merely rearrangements of the corporate financial structure.

Disney was not charged with improper backdating of stock options, but when it bought Pixar in 2006 it also acquired Pixar's backdating problems. That company had granted its employees backdated options after 1997, totaling $323 million. Disney, as Pixar's new owner, was liable for $33.5 million. Steve Jobs, Pixar's CEO and subsequently Disney's largest shareholder, had granted these backdated options to other employees and claimed that he did not know the legal and accounting ramifications. Jobs himself received such options at his other CEO job at Apple. For those transactions, he got off the hook without being charged for securities law violation, but Apple's CFO Fred Anderson and in particular General Counsel Nancy Heinen were charged with falsification of documents, pleaded guilty, and were convicted.

13.7.2 Pension Plans

According to accounting rules, employers must consider the cost of retirement benefits as an expense in determining company net income. However, the question is when to recognize these expenses: while employees still work or when they actually get their benefits. If the company operates on the matching revenue principle, it should recognize these costs during the employee's working years because it is the labor service in those years that generates revenue.[163] When this is not done but is deferred, pension obligations can be ticking time bombs for some companies. Large scale layoffs or longer life expectancies have led to some companies not being able to meet their pension requirements.

When Lucent Technologies, for many years the world's largest telecom hardware maker, fired 54,000 employees between 2001 and 2002, it used $800 million in the assets that had been set aside for pensions, in order to pay the termination benefits instead. The Lucent pension plan went from having $5.5 billion more funds than was legally required in 2001 to being $1.7 billion underfunded in 2002. Lucent also withdrew $1.2 billion from its pension assets to pay for retirees' medical expenses.[164]

The risk exposure of a firm is much higher when pension plans have defined benefits, which pay out benefits based on a preset formula rather than on the performance of investments. Usually the formula is based on the employee's salary at the time of retirement. Given the uncertainty of defined pension plans, companies have been restructuring their plans to avoid being overextended and end up unable to pay for their employees' benefits. They have therefore shifted to defined contribution plans in which they contribute to a pension fund or match the employee's contribution.

Investors and creditors need to be able to check on a firm's pension liabilities, and be cautious if a firm does not report the funding status of its pension and benefit plans on its balance sheets.

159 Regan, Keith. "Take-Two in SEC Crosshairs." *E-Commerce Times.* April 5, 2007. Last accessed July 29, 2011. ► http://www.technewsworld.com/story/gaming/56727.html.

160 Bandler, James and Mark Maremont. "Monster's Founder Quits Board Amid Options Probe." *Wall Street Journal.* October 31, 2006. Last accessed July 29, 2011. ► https://www.wsj.com/articles/SB116221682918507772.

161 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

162 Hodgson, Paul. "Incentivizing Michael Eisner." *Forbes.* April 1, 2004. Last accessed July 10, 2017. ► http://www.forbes.com/2004/04/01/cz_ph_0401opiniondisney.html.

163 Stickney, Clyde and Roman Weil. *Financial Accounting: An Introduction to Concepts Methods and Uses.* (New York: Dryden Press, 2000), 411–450.

164 Schultz, Ellen. "Firms had a hand in Pension Plight." *Wall Street Journal.* July 10, 2003. Last accessed July 29, 2011. ► http://www.globalaging.org/pension/us/private/plight.htm.

13.7.2.1 Case Discussion

Pension Plans

In 2001, Disney listed $2.45 billion in pension plan assets and $2.13 billion in pension fund obligations.[165] The pension asset value had dropped from 2000 by over $300 million owing to a dismal year in the stock market. In 2004 Disney's pension plan was somewhat underfunded. It had assets of $2.4 billion and obligations of $2.8 billion.[166] Disney explained this deficit by pointing to temporarily depressed stock prices in 2002 and 2003. Seen in that light, Disney's pension plan is roughly balanced. The actual benefits paid in 2004 were $96 million, which constitutes only 3% of total plan assets.

In some cases firms acquire other companies and are now responsible for an extra set of employees and pension plans. When Disney acquired ABC in 1997, it kept separate the pension plans for its old employees and the new employees it acquired through ABC. It took until 2012 for these two programs to be consolidated. There was also a difference in the treatment of existing and new hires employees. New employees were no longer entitled to a defined-benefit retirement plan. Instead, the new employees were part of a defined-benefit contribution with a matching program. These actions aimed to lower pension costs or at least make them predictable. Disney's CFO told investors after the announcement of these changes that the company hoped to cut costs to its pension plan by 25–30%, or nearly $400 million, over five years. He claimed that this would not really reduce benefits to Disney's employees but rather curb the inefficiencies associated with its pension plan.

13.7.3 Off Balance Sheet Financing

Off balance sheet financing is a way for companies to raise money that does not appear on the balance sheet as a liability, unlike loans, debt, and equity.[167] For example, off balance sheet liabilities can occur when a company engages in joint ventures and partnerships with other companies. It may commit itself to the full debt of the partnership even if it is only one of several partners.

It can also occur when a parent company has a minority stake in a subsidiary which it controls otherwise. Loans that are guaranteed by the parent firm can also be used as off balance sheet financing. For example, Williams Energy Co. (an oil and pipeline firm) created a subsidiary named Williams Communications in order to enter the telecommunications business. It spun off the new company with its substantial debt, but guaranteed that debt. With off balance sheet accounting, parent firms can transfer risk and finance a new venture without diluting existing shareholders' stakes or adding debt. GAAP allows these off balance sheet entities to be excluded from the parent's financial statements, but typically they must be described in footnotes.[168]

One off balance sheet technique is leasing. Many companies lease their equipment rather than buying it on credit and incurring a liability. This allows them to save in capital investments and keep pace with technology. There are also accounting advantages. Lease payments do not show up as debt on the balance sheet, and thus the company's obligations seem smaller, which enables it to borrow more.

Another advantage is that companies can transfer risk to companies that are able to bear them more cheaply. It is also possible to transfer tax benefits from highly taxed to lighter taxed parties. Some such companies are just corporate "shells," legally domiciled in countries with lower taxes, better accounting rules, and more advantages qualifications for government subsidies.

13.7.3.1 Case Discussion

Off Balance Sheet Liabilities

Disney was able to co-finance many of its capital-intense projects such as specific film projects, new theme parks, or hotels with the aid of separate corporations. These firms financed projects and borrowed from banks, but the debt did not appear on Disney's balance sheet.

Guaranteeing loans on behalf of special purpose entities allowed Disney to borrow money without having to disclose the liability. In 1998, one of Disney's ventures used this kind of financing to create Spyglass Entertainment. Disney guaranteed the line of credit for the enterprise, and promised to distribute and market 20–25 of its movies over five years via Buena Vista Distribution, a subsidiary of Disney.

Disney also used foreign accounting rules to take negative figures off its corporate books. Its theme park subsidiary Euro-Disney in France was over $2 billion in deficit, with $2.5 billion in debt and only $69 million of shareholder equity. But through a spin-off of the subsidiary, Disney was in the black for the venture, with a debt of only $1 billion and shareholder equity of $1.1 billion.

Disney also purchased various non-cancellable and very expensive broadcasting sports rights. If Disney had "bought" these rights upfront, they would qualify as assets, and whatever they had to borrow to pay for them would be debt on the balance sheet. Instead, it expensed them as annual payments on a contract.

In conclusion, Disney used a variety of off balance financing. However, its practices were more conservative than those of other major Hollywood firms.

165 Walt Disney Company. "2001 Annual Report." November 7, 2001. Last accessed July 10, 2017. ► https://ditm-twdc-us.storage.googleapis.com/2015/10/2001-Annual-Report.pdf.
166 Walt Disney Company. "2004 Annual Report." December 9, 2004. Last accessed July 10, 2017. ► https://ditm-twdc-us.storage.googleapis.com/ar_2004.pdf.
167 Smith, Lisa. "Off Balance Sheet Entities: The Good, The Bad, and The Ugly." *Investopedia*. Last accessed July 10, 2017. ► http://www.investopedia.com/articles/analyst/022002.asp.
168 Smith, Lisa. "Off Balance Sheet Entities: The Good, The Bad, and The Ugly." *Investopedia*. Last accessed July 10, 2017. ► http://www.investopedia.com/articles/analyst/022002.asp.

13.8 Income and Profit Statements

13.8.1 Profits

The income statement is also referred to as the P&L Statement or as the earnings statement.[169] It may well be the most important financial statement a company issues. P&L is important because it gives an investor or observer an idea how profitable the company is overall. Via P&L one can also look at the company's margins and other financial and operating ratios to see how well it does in terms of generating profit, and compare this to other players in the industry (Table 13.13).

We must understand that the concept of income can be expressed in a variety of ways. The most common ones are, as described earlier:

- revenues (sales);
- gross profit (and margin);
- EBITDA;
- operating income (and margin);
- net profit.

We will now look at these components.

The first line on any income statement is total revenues (total sales). Companies often break up revenue into different categories according to divisions, or activities, or geography. For start-up companies, investors turn to revenue and its growth as an indication for future potential.

Gross profit is the total revenue generated minus the cost of creating that revenue, typically subtracting the cost of goods sold. COGS includes inputs and production expenses but not expenses such as salaries, taxes, and distribution cost.

Gross profit is used to calculate gross margin, which can be found by dividing gross profit by sales revenue. It is a measure of a company's efficiency.

Operating income measures the money generated from its operations (without income from investments in other businesses).

Operating margin is the ratio of operating income and total operating revenue. It can be used to compare the quality of a company's operations to that of its competitors.

Net income is the total profit made by a business for the period. The net profit margin is the profit that a firm generates from every dollar it earns.

Earnings per share (EPS) is the profit gained on every share. It is calculated by dividing net income by the shares outstanding.

Table 13.13 Profits, sales, and margins of major media and media-tech companies (2016)

	Net Profit (in millions)	Gross Sales (in millions)	Net Profit Margin %
AT&T	12,976	163,790	7.9%
Comcast	8695	80,403	10.8%
Disney	9391	55,632	16.9%
E.W. Scripps	67	943	6.7%
Facebook	10,445	27,638	36.7%
Gannett	61	3047	2.1%
General Electric	8812	119,690	7.0%
Google	19,478	90,270	21.6%
Intel	10,316	59,380	17%
Lee Enterprises	36	600	6.0%
McClatchy	–34	977	–14.4%
Meredith Corp.	96	1701	5.8%
Microsoft	16,768	85,680	19.5%
New York Times	29	1555	1.6%
News Corp	−363	8198	−18.3%
Oracle	8820	37,232	23.5%
Time Warner	3926	29,318	13.2%
Verizon	13,127	125,980	10.3%
Viacom	1438	12,488	11.5%

169 Kennon, Joshua. "How to Calculate Return on Assets or ROA." *The Balance*. Last updated December 30, 2016. ► https://www.thebalance.com/return-on-assets-roa-357592.

The number of outstanding shares can vary since the company can increase the number of shares through the issuance of stock options, convertible bonds, or secondary stock offerings. Therefore a related measure for profits, diluted EPS, shows EPS if all diluted shares outstanding (converted stock, stock options, etc.) were included.

Financial statements of not-for-profit organizations are similar to the income statements of for-profit companies. Instead of profit, they might show an excess of income over activity expenditures. Such surplus must be retained within the organization or spent on its purposes. It cannot be paid out as a dividend to the nominal owners such as trustees.

To calculate income, companies have two basic accounting methods available: the cash method or the accrual method. The cash method recognizes income and expenses when money is actually received or paid. But for financial reporting, the GAAP principles require firms to use accrual based accounting, where revenue is recorded when it is earned, not when the money is actually received. The tax code requires companies to use this method of accounting for tax filings.

13.8.2 Non-Cash Revenues

One question is how to value revenues if they are not received in cash but in kind, or in other services, or in stock. In such situations, income may be determined on some rational basis such as comparable marketplace prices or transactions.[170] But this still leaves a lot to discretion. For example, the cable company Adelphia received stock in companies whose interactive services it carried. This was a common practice in the industry. It booked the share value as income. But when the shares dropped in value when the dot-com bubble burst after 2000, Adelphia still booked the original value of the shares as revenue received.

Some companies boosted their revenue by swapping network capacity with each other. Company A sold network capacity to Company B, and Company B sold some capacity to A. This could have been for the same route. This swap was booked as revenue on each company's financial statements, making both companies' sales look good. To prevent this, GAAP has rules against exchanging non-monetary assets, which preclude such "round tripping" of reciprocating sales. Yet, as mentioned, in 2000, $660 million out of $15 billion of the revenue of telecom company Qwest and 20% of the revenues of Global Crossing, another carrier, came from swapping telecom capacity with each other.[171] The SEC imposed a hefty $250 million fine on Qwest. TV stations often compensate the suppliers of a syndicated TV program by taking the program with already inserted advertising time slots and then broadcasting them. This is known as barter syndication." Such swapping of advertising airtime for products or programs is accounted for according to rules on non-monetary transactions.[172] The revenue is recognized at fair value. Fair value is determined by evaluating historical records that show how much money was received for similar advertising from unrelated buyers.[173]

In the internet industry, similarly, many companies swap online ads for equity, investment, or equipment. Such compensations are counted as sales revenue by a company since it typically wants to show rising revenues. These trades are complex and it is difficult to assess their true value as income.[174] For example, during the dot-com boom, the then giant internet service provider, AOL, gave advertising space and promotion on its portal to internet start-ups in exchange for shares in these companies. When these deals were announced, the shares of the smaller start-ups would soar owing to the halo-effect of AOL, and thus also the value of the shares held by AOL. The value of these shares was recorded as income. However, income from these agreements was not recurring, and the value of most of these shares soon collapsed in the dot-com bust. AOL repeatedly came under government investigations for misleading investors by not accounting for this income properly.[175]

13.8.3 Long-Term Contracts

When should income be recognized if a firm is engaged in a long-term contract? Front-loading all of a contract's promised future income means booking all of the expected revenue upfront, which would make the company look good in the short run but raise its tax obligation. In several accounting scandals during the 2000s, companies estimated expected future revenue and credited it to the earlier reporting period. These scandals forced the accounting profession to create standards for revenue recognition. Usually a sale is recognized as revenue when the customer pays. But reporting revenue only when the contract is finished and payment is received, while the firm incurs cost for the activity that results in that income later, makes performance look in worse shape than it really is. Intermediate approaches are to allocate revenue by the percentage of completed cost, or by the percentage of completion of the job, or by time period. For example, if a firm expects $500 million in earnings from a specific project, when the project is 50% complete the firm

170 EY. "Internet Accounting Issues: A Summary." May 2001. Last accessed July 6. 2017. ► https://www2.bc.edu/peter-dicarlo/MAY%20Summary%20of%20Internet%20Acctg%20Issues%205-2001.htm.

171 Kahn, Jeremy. "How telecom's bad boy did it." *Fortune*. March 4, 2002. Last accessed July 10, 2017. ► http://archive.fortune.com/magazines/fortune/fortune_archive/2002/03/04/319116/index.htm.

172 Federal Accounting Standards Board. "FASB Codification." Last accessed July 20, 2011. ► http://www.fasb.org/home,

173 EY. "Internet Accounting Issues: A Summary." May 2001. Last accessed July 6. 2017. ► https://www2.bc.edu/peter-dicarlo/MAY%20Summary%20of%20Internet%20Acctg%20Issues%205-2001.htm.

174 Kirkpatrick, David. "AOL's Inventive Barter Deals Draw Scrutiny of Investigators." *New York Times*. August 12, 2002. Last accessed July 10, 2010. ► http://www.nytimes.com/2002/08/12/business/aol-s-inventive-barter-deals-draw-scrutiny-of-investigators.html.

175 Lieberman, D. and M. McCarthy. "AOL's Deals with Monster, Vivendi Under Scrutiny." *USA Today*. April 23, 2002.

can assess $250 million of earnings in that year. But the revenue projection for this method can be highly subjective.[176] For those reasons many companies use accrual accounting and only record sales revenue when it is actually earned.

For films and television programs, income can be calculated for each taxable period by using the formula

$$\text{Forecasted Income} = \text{Cost of Property} \times \frac{\text{Current Year's Income from Property}}{\text{Total income anticipated from property (10 years)}}$$

So if a film costs $100 million and the current year's net income is $150 million, with a total anticipated income of $500 million, than it is $100 million × 0.3= $30 million.[177]

13.8.4 Income Smoothing

The goal of income smoothing is to dampen variations in the firm's earnings. It might be tempting for a firm to show a stellar year, but if the next year is merely good, investors and the press will be disappointed. Investors and creditors generally perceive the business to be riskier if its income is volatile. They like predictable dividend payments. Income smoothing may also lower tax burden.

Company income can be smoothed by various means[178]:

- Depreciation and amortization—changing the method of depreciation/amortization, the average age of asset, the period of amortization, and/or the estimated salvage value.
- Treatment of uncollectible accounts, loans receivable, and so on.
- Classifying expenses as extraordinary or non-recurring. Companies have some discretion about how to classify good news and bad news. They can classify good news as stemming from continuing operations, while bad news is classified as being the result of discontinued operations or extraordinary items.
- Write down of assets and inventories.
- Deferral or delay of income tax payments where possible.
- Using reserves. A firm might create a reserve balance in good years for negative contingencies, for sales returns, litigation costs, and product warranty costs, for example.
- Selling products with price discounts in order to generate sales during the desired period.
- Non-matching of cost and revenues of a transaction in a given period. Companies book revenues in one year but shift some of the cost to another.
- Switching accounting methods,[179] for example from the accrual method of income recognition to that of the cash method.
- Creating a "big bath" in one year, and taking for that year a big write down of assets, inventory, and accounts receivable. This gets rid of a lot of negative numbers in one year, and makes it easier subsequently to be on a smoother course. Such an accounting action might be taken in a year that is bad for the entire economy, thus downplaying management's responsibility.

13.8.5 EBITDA and Other Profit Definitions

There are other metrics for earnings performance. EBITDA stands for "earnings before interest, taxes, depreciation,and amortization." It reports how much a company would have made if it did not have to pay interest on its debt, pay taxes, or did not take depreciation and amortization charges.[180] EBITDA is a popular but controversial measure because it can make unsuccessful firms look good. It does so by omitting these often substantial elements of cost. The legendary investor Warren Buffett summed it up," EBITDA would only make sense if capital expenditures are funded by the tooth fairy."[181] (EBITDA is also not well suited for TV or internet companies which use barter for part of their transactions, as this may not show up as income.)

However, EBITDA can provide a relatively good "apples-to-apples" comparison between companies and between time periods because it eliminates the accounting decisions that are somewhat within management discretion, tax payments that are based on a variety of income and expense statements and whose timing can be somewhat juggled, and depreciation that can be treated in a variety of ways, such as being accelerated or front loaded. EBITDA can be, in particular, a useful measure for firms with low or long-lasting capital equipment. In such a situation, depreciation and amortization is fairly steady.[182] But EBITDA is a poor measure for firms in an industry with big technological change, where capital assets are large but short-lived, or where significant upgrade investments are needed to stay up to date. In these cases, EBITDA would project a rosier picture than reality.

The cable TV company Cablevision had an EBITDA of $5.7 billion in 2002 while it spent $3.8 billion on upgrades and $1.6 billion on interest. Incorporating these items into the calculation would have wiped out earnings. Presenting

176 Jensen, Bob. "Electronic Commerce Issues Dealt With by the Emerging Issues Task Force (EITF)." *2003 Trinity University.* March 29, 2004. Last accessed August 1, 2011. ► http://www.trinity.edu/rjensen/ecommerce/eitf01.htm#Introduction.

177 IRS. "Overview of Depreciation." Last accessed July 10, 2017. ► https://www.irs.gov/publications/p946/ch01.html.

178 White, Gerald, et al. *The Analysis and Use of Financial Statements*, 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc., 2003.

179 White, Gerald, et al. *The Analysis and Use of Financial Statements*, 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc., 2003.

180 Kennon, Joshua. "How to Calculate Return on Assets or ROA." *The Balance.* December 30, 2016. Last accessed July 10, 2017. ► https://www.thebalance.com/return-on-assets-roa-357592.

181 MacDonald, Elizabeth "The Ebitda Folly." *Forbes*. March 17, 2003. Last accessed July 10, 2017. ► https://www.forbes.com/global/200.3/0317/024.html.

182 McDonnell, Sharon. "*EBITDA* ComputerWorld." *ComputerWorld.* January 8, 2011. Last accessed July 29, 2011. ► http://www.computerworld.com/s/article/55895/EBITDA.

the company's performance in the EBITDA way is perfectly legal, and potential investors and business journalists thus needed to analyze income beyond EBITDA. Once they did and realized that the company's FCF was dwindling as it was spending on upgrades and interest, Cablevision's stock dropped 78%.[183]

For the first quarter of 2011, Telecom Italia's EBITDA was €2.9 billion, up 3.6% from the first quarter 2010, which seemed a strong performance. However, approximately €2.4 billion was spent on taxes, depreciation, and amortization for normal business operations. Therefore, net profit was actually only €549 million, a much more modest figure.

The French media conglomerate Vivendi Universal reported $7.9 billion in profit for the three years ending 2002, not accounting for interest and related expenses. If those had been included, its income would have been negative by $6.5 billion.[184] Getting nervous, Vivendi's board called in the investment bank Goldman Sachs to go over the company's financials. According to media mogul Barry Diller, "When Goldman came out with its report, the board members all said, 'Oh my God.'" The board had been focused on the increase of EBITDA and did not realize the full income picture, or so its members later claimed.

A still more aggressive way to report earnings in such a way is ACSOI (adjusted consolidated segment operating income), a relatively new metric.[185] It measures operating profits, but it treats a company's marketing and acquisition expenses as an investment in an asset which is being amortized over several years. Such capitalization reduces the deduction against earnings and hence makes them look larger. This is not acceptable under GAAP which calls for a full expensing in the year they are incurred, not spread over several years. The companies argue that gaining customers and market share through marketing is an investment that will bear fruit long into the future and should be treated just as investment in machinery or buildings. Groupon, a large online coupon firm, recommended in its 2011 initial public offering filing that investors use ACSOI to determine its performance. With ACSOI, Groupon showed a profit of $60 million for 2010, and of $81 million for Q1 2011. The company then faced criticism by the investor community and dropped ACSOI, with the result that it showed losses of $420 and $117 million.[186]

The company Demand Media went one step further and created a measure called "Adjusted OIBDA," standing for operating income before depreciation, and amortization. It excludes stock-based compensation (i.e. options), as well as the financial impact of acquisition and realignment costs, and any gains or losses on certain asset sales or dispositions. Here, too, the results make the company look better than it would with these items included in costs.

Driving these creative ways of reporting is the equally creative business energy of start-up entrepreneurs, who feel that traditional stodgy accounting conventions are just another establishment obstacle they must overcome with new ways. And they are not entirely wrong. Gaining a customer whose subscription will be generating income for years is an investment and asset. And why should R&D be expensed rather than amortized as an asset? But the problem is that such adjustments are not balanced in both directions; they pick and choose among the weaknesses of conventional accounting, and their net result, and indeed goal, is to make the company look good. Though the companies argue that they are just trying to be transparent, the result is actually often the opposite, namely obfuscation.[187]

13.8.6 Case Discussion

Disney Income Statement

This income statement for 2004 shows Disney's performance (Main headings are bolded) (■ Table 13.14). Its revenue from all of its operations total was $30.8 billion, or about $31 billion when including revenue from investments. This was offset by the cost of operations and other items such as taxes, which totaled $28. 8 billion. Its net income after taxes was $2.345 billion, but Disney's EBITDA was $5.5 billion, more than twice as high. It omits the impact on earnings of depreciation costs of its hotels, theme parks, copyrighted films, satellite transponders, and so on. Compared with the preceding year, 2003, Disney's net income rose from $1.3 billion to $2.3 billion, an increase of 85%. EPS was $1.12 in 2004 versus $0.65 in 2003, almost a doubling.

183 Wayman, Rick. "EBITDA: The Good, The Bad, And The Ugly." *Investopedia*. February 6, 2002. Last accessed July 10, 2017. ► http://www.cs.uml.edu/~pkrolak/InvestmentTool/020602.asp.htm;
MacDonald, Elizabeth, "The Ebitda Folly." *Forbes*. March 17, 2003. Last accessed July 10, 2017. ► https://www.forbes.com/global/2003/0317/024.html.

184 MacDonald, Elizabeth. "The Ebitda Folly." *Forbes*. March 17, 2003. Last accessed July 10, 2017. ► https://www.forbes.com/global/2003/0317/024.html.

185 De La Merced, Michael J. "Abracadabra! Magic Trumps Math at Web Start-Ups." *New York Times*. June 17, 2011. Last accessed July 10, 2017. ► https://dealbook.nytimes.com/2011/06/17/abracadabra-for-internet-start-ups-magic-trumps-math/.

186 De La Merced, Michael J. "Abracadabra! Magic Trumps Math at Web Start-Ups." *New York Times*. June 17, 2011. Last accessed July 10, 2017. ► https://dealbook.nytimes.com/2011/06/17/abracadabra-for-internet-start-ups-magic-trumps-math/.

187 Catanach, Anthony and Edward Ketz. "The 'Beauty' of Internet Company Accounting." *Grumpy Old Accountants*. April 9, 2012. Last Accessed July 10, 2017. ► http://accounting.smartpros.com/x73610.xml.

Table 13.14 Disney incomes (2004)

Revenue from media networks	**$11,778**
Revenue from parks and resorts	$7750
Revenue from studio entertainment	$8713
Revenue from consumer products	$2511
Equity investment income	$372
Total Revenues	**$31,124**
Cost and expenses for media network	-$9600
Cost and expenses for parks and resorts	-$7066
Cost and expenses for studio entertainment	-$8038
Cost and expenses for consumer products	-$2000
Minority interests[a]	-$197
Total Costs and Expenses	**-$26,901**
Net income	$4223
Depreciation	+$1198
Amortization of intangible assets	+$12
Interest paid	+$624
Income taxes paid	+$1349
EBITDA	$5528

[a](Payments due to others from the income of subsidiaries that are majority-owned by Disney, but not 100% owned. Disney is required to include their full revenue, and then has to break out the amount owed to the minority owners, such as. to Hearst for its share of ESPN)

13

13.8.7 The Cash Flow Statement

A company's reported earnings uses somewhat arbitrary accounting treatments, such as when to recognize revenues or how fast to depreciate. It is difficult for a potential investor to look beyond those numbers and evaluate the company's true performance. An alternative way to look at a company's health is to go past the reported earnings and analyze instead the cash flow. The cash flow statement reports the incoming and outgoing money flow over a time period. This is different from its earning. As mentioned, it is like a company's checking account because it tracks the inflow and outflow of its funds. It does not include non-cash items such as depreciation, which are less relevant for determining the short-term viability of a company than its ability to pay its bills and debts. Whereas reported earnings can be overstated, a company cannot easily overstate its cash balance. "Cash is a fact, profit is an opinion."[188] This is important for start-up companies with limited liquid assets. These companies are vulnerable to short-term cash shortages, even when accounts receivable suggest long-term financial health.

Many analysts despair of earnings as a measure of company performance since this can be treated with substantial latitude by the company. Alfred Rappaport, a professor at Northwestern University, argued against evaluating a business's success by profit measures such as price to earnings ratios and earnings per share.[189] Instead, he argued that corporate performance must be evaluated on the basis of the monetary returns it generates for shareholders. This means the cash flow minus the cost of capital.

The importance of cash flow management can be seen from the experience of two film studios that went out of business because they ran out of money. Orion Pictures was a medium-sized and well-respected film studio that produced such hits as *Silence of the Lambs* and *Dances with Wolves* in the late 1980s.[190] Carolco Studio had huge successes with *Total Recall* and *Terminator 2*. However, the worldwide profit from those hits and other films was slow in coming while the movies' budget costs were huge. Both Carolco and Orion went out of business. The cause was poor cash flow management. By the time the substantial profits from these films were made, the companies were already insolvent.

13.8.8 Cost and Expenses

There are several types of costs.

- Cost of goods sold. The expenses a company incurs in order to create and manufacture a product. This includes inputs and materials purchased from others, as well as the wages paid toward production.
- Operating Expenses. The costs that occur over the regular course of a business's life. It includes salaries paid to employees, R&D costs, and other operating charges.
- Capital expenses. These are investments in assets used for production or marketing.

13.8.8.1 When Cost is Recognized: Expensing Versus Capitalization

One of the key issues in accounting is how to treat a cost item. We have already encountered this issue repeatedly. Should the cost be considered an *investment* in an asset? (This is known as capitalization.) Or is it a one-time expense? (This is known as an "expensing".) If the cost is capitalized, it would be proper to distribute the cost of such an investment over its lifetime. This reduces annual expenses and raises profit. By identifying the item as an asset rather than expense, it also raises the asset/debt ratio, which tends to be a good thing for a company to show. In contrast, an "expensing" means writing off a cost right away, which lowers profits, but also reduces tax payments due. Within rules and accepted practices, firms

188 Rappaport, Alfred. "Creating Shareholder Value: A Guide For Managers And Investors." The Free Press. 1998.

189 Rappaport, Alfred. "Creating Shareholder Value: A Guide For Managers And Investors." The Free Press. 1998.

190 Boxofficemojo. "The Silence of the Lambs." Last accessed July 10, 2017. ► http://www.boxofficemojo.com/movies/?id=silenceofthelambs.htm; Boxofficemojo. "Dances with Wolves." Last accessed July 10, 2017. ► http://www.boxofficemojo.com/movies/?id=danceswithwolves.htm.

have to decide on how to treat their costs, either as investments or as expenses.[191]

In economic and managerial terms, the decision of how to treat the expense should be based on when the benefit from the expense will be realized and for how long. If the benefit of an outlay is reaped entirely in the same period, it should be expensed. But if the outlay is likely to generate benefits in the future, it should be capitalized, and then "amortized", over time.

An example of capitalization is the huge investment by the US telecom firm Verizon in a fiber infrastructure. It used capitalization methods to spread out the expenses evenly in line with the long-term generation of revenues by the new assets, with the added benefit of making its bottom line look better.[192]

An example of the problem is the aggressive building up of its customer base by AOL, the internet and outline service provider, in the 1990s by sending out free diskettes. The costs that AOL incurred for these diskettes were treated as investment expenditures in generating a subscriber base. Consequently, the expenses were amortized as capital assets. This reduced the early cost of this marketing campaign. Without such treatment AOL would not have shown profits from 1994 to 1996. The SEC disagreed with this treatment and forced AOL to restate its balance sheet for that period, including expensing the marketing costs, which resulted in AOL showing a loss.[193]

In film and other media, production costs are often expensed. Why should this be the case? After all, if production costs are expensed all at once, it would create a big drop to the production company's P&L statement. Later, as revenues start to flow in, the company would show a radical recovery. This kind of erratic income volatility seems to provide erroneous economic information. And yet the immediate expensing of production costs is quite common around the world. One reason is the tax angle. The immediate expensing of a film creates a great potential for tax shelters to investors by creating big loss for tax purposes. Under tax codes in many countries, investors are able to rapidly write off the film production cost as expenses, which allows them to offset their income right away while only receiving taxable revenue from the film later. In the USA, the tax reform of 1986 eliminated this tax shelter. But many other countries still have these tax deals in place, to provide incentive for rich taxpayers to invest in films. In Germany, for example, movie investors are permitted to immediately deduct the full amount they invested in the film from their tax payment. This allows Germans who are in the top tax bracket to invest in a movie an amount equal to their total other earnings and pay no tax on it. When they are repaid sometime in the future, the profit is considered "capital gain," which is taxed at a lower rate.[194]

For the cable TV industry, the treatment of outlays as investment versus expenses can vary over the life cycle of a business. Accounting practices in the USA change over the life cycle stages of cable infrastructure construction.[195] During the start-up stage, when upfront investments are very high, the costs of construction, labor, interest, and so on are capitalized.[196] In the pre-maturity period a cable television system is still partially under construction, but already offers service, and subscriber revenue begins to appear. New plant costs continue to be capitalized,[197] but subscriber-related costs and general and administrative expenses must be expensed as same-period costs. Costs for programming (and other items that do not vary regardless of subscriber size) are allocated between current expense and future operations (capitalization). System costs may be partly capitalized and partly expensed. The relative shares depend on the ratio of current number of subscribers to the expected number of subscribers when the system becomes mature. The smaller the relative share of current subscribers is, the greater the share of capitalization. Subscription revenues are recorded as current income. Subscriber installation fees can be expensed only up to the direct selling costs, and the remainder must be capitalized over the estimated average period that subscribers are expected to remain connected to the system. Finally, in the maturity phase, system costs are partly capitalized and partly expensed, and subscription revenues are recorded as income.[198]

Website and software development costs are treated similarly. For websites, during the development stage infrastructure outlays are generally capitalized. But once the website is in the operating stage, costs must be expensed. New functionalities and upgrades, however, are capitalized. Practically speaking, it is often hard to differentiate between the two. The cost of initial graphics, which includes the design and layout of each page, is capitalized.[199] The cost for gaining subscriptions is viewed as an expense.

13.8.8.2 Telecom Cost Accounting

While most private firms try to paint a favorable picture of profitability, it is often in the interest of a regulated firm, in contrast, to overstate its expenses and understate its revenues. This way it can ask for a more favorable regulatory treatment, for example on prices. One of the functions of government is to keep prices below monopoly levels. This can be accomplished by keeping the price of the service regulated. But at what level? This leads to major regulatory battles over accounting. Regulators allow prices that result

191 McGrahan, Kathleen and Gordon Shillingaw. *Accounting: A Management Approach*. Homewood, Il: Irwin, 1993.
192 Rosenbush, Steve. "Verizon's Gutsy Bet". *Business Week*. August 4, 2003. Last accessed July 10, 2017. ► https://www.bloomberg.com/news/articles/2003-08-03/verizons-gutsy-bet.
193 Litan, Robert E. and Peter Wallison. "Beyond GAAP." *Regulation* 26, no. 3 (2003): 52.
194 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
195 Set by FASB Statement 51
196 Obringer, Lee Ann. "How Start-up Capital Works." *Howstuffworks*. January 1, 2003. Last accessed July 10, 2017. ► http://www.howstuffworks.com/startup-capital.htm/printable.
197 Federal Accounting Standards Board. "FASB Codification." Last accessed July 29, 2011. ► https://asc.fasb.org/.
198 Federal Accounting Standards Board. "FASB Codification." Last accessed July 29, 2011. ► https://asc.fasb.org/.
199 EY. "Internet Accounting Issues: A Summary." May 2001. Last accessed July 6. 2017. ► https://www2.bc.edu/peter-dicarlo/MAY%20Summary%20of%20Internet%20Acctg%20Issues%205-2001.htm.

in a "fair" return on the net investment (the rate base) after covering legitimate operating expense. This was discussed in ► Chap. 8 Managing Law and Regulation and ► Chap. 11 Pricing of Media and Information.

Any regulatory system that deals with prices or revenues requires consistent definitions and accounting treatment. In 1987, the US government, through the FCC regulatory agency, created the Automated Reporting Management Information System (ARMIS) for standardizing and collecting financial, operating, service quality, and network infrastructure information from the larger phone companies.[200]

13.9 Managerial Accounting

13.9.1 The Role of Managerial Accounting

The standard financial statements that are provided by companies listed on the stock market to the public give only aggregates. In contrast, the company's managers require much more information to operate effectively.[201] A system of managerial accounting therefore serves managers in their decision-making, policy setting, and internal communication. It is often also called cost accounting, though that term is generally considered a sub-category, focused on analyzing costing and pricing.[202]

On the most obvious level, every company must generate proper records of financial and operational information, and internal controls exist to ensure that the data is correct and timely. Controls include procedures for authorizing transactions and for the recording of separate operations. Typically, financial authorization is separated from the accounts payable department.

Beyond the recording function, managerial accountant must recognize emerging financial problems. For example, if they observe a high debt ratio, it must lead to a close look at imminent loan repayment dates, cash flow, and late payments from buyers. With such information, management can initiate changes to the expense budget, adjust profit/loss projections, cut costs, and perhaps adjust marketing strategies.

Large companies with a typically decentralized structure require a strong monitoring of performance across divisions.[203] For such performance evaluation and for control over cost and revenues, a company creates a number of internal financial reporting levels. This is more complicated than it sounds, because there is a lot of intermingling: divisions and sub-units regularly use corporate-level and group-level overhead functions and products.

Another problem is the global spread of company activities. Multinational companies often have divisions and global locations with different accounting practices. They must coordinate to combine in a company-wide system, yet comply with local laws and practices. Local subsidiaries must keep financial accounting systems that follow local regulations as well as company policies. Another dimension of aggregating financial information is across specific customers, often across national boundaries and product lines. To that purpose companies have implemented forms of global account management, which has proved to be difficult because it involves data flows from numerous subunits of a company.[204]

The system of internal reporting depends on a company's organizational and regional structure. For example, McGraw-Hill, a major publisher of professional and educational books, operates on multiple levels. The business units, such as McGraw-Hill Education Group School (textbooks, etc.), report to a higher management level, where the information is aggregated and reported to the next level (McGraw-Hill Education), and from there to the corporate level CFO and ultimately to the board of directors.[205] The information can be aggregated along several dimensions—division, product line, geography, or customers.

13.9.2 Responsibility Center and Profit Centers

To evaluate the performance of a company's division or project it is segregated financially as a responsibility center. There are three varieties.[206]

Expense centers measure the inputs but not the outputs. An example is the legal department. Costs are the inputs and they are measured to determine the efficiency of the department. Managers might compare the numbers with those of operations elsewhere, and look at the trends over time.

Investment centers calculate an operation's profitability by looking at the assets and the profit they achieve. This requires an allocation of common assets to various operations, which is often difficult.

Profit centers measure both inputs and outputs. As is the case for investment centers, the revenues also include internal contributions by other departments through the allocation of transfer payments, but the internal transfer prices could be arbitrary and affect the results.

13.9.3 Overhead and Indirect Cost

The internal accounting process is complicated by overhead functions that are indivisible and hard to allocate.

200 In 2000, the FCC simplified ARMIS somewhat and consolidated from 296 account categories to 164.

201 Roehl-Anderson, Janice and Steven Bragg. *The Controller's Function: The Work of the Managerial Accountant*, 3rd ed. (Hoboken: John Wiley & Sons, Inc. 2005), 340–365.

202 Webster, William H. *Accounting For Managers*. New York: McGraw-Hill, 2003.

203 McGrahan, Kathleen and Gordon Shillingaw. *Accounting: A Management Approach*. Homewood, Il: Irwin, 1993.

204 Arnold, David, Julian Birkinshaw, and Omar Toulan. "Implementing Global Account Management in Multinational Corporations." *Marketing Science Institute.* 2000. Last accessed July 10, 2017. ► http://www.msi.org/reports/implementing-global-account-management-in-multinational-corporations/.

205 McGraw-Hill Publishing. "McGraw Hill Investor Relations." Last accessed July 10, 2017. ► http://investors.mheducation.com/home/default.aspx.

206 Anthony, Robert N. *Fundamentals of Management Accounting.* Homewood, Il: Richard D. Irwin Inc., 1985.

Examples are interest cost or taxes incurred at the corporate level but attributable to divisional income-producing activities.[207]

The allocation of overhead is important in the measuring of the profitability of projects. To allocate cost, a firm separates project-related costs (direct costs) from non-project-related costs (indirect costs). Direct costs might include the cost of people and materials specifically used for the project. Indirect costs is the overhead, and include costs not directly associated with projects, such as taxes, IT, and maintenance. For a film production, the fixed cost of the studio that is not directly chargeable to a specific film is considered overhead, such as taxes, the salaries of management, or maintenance staff. The studios estimate a film's overhead by using a percentage of a film's overall budget.

13.9.4 Transfer Pricing

When goods or services are supplied by one division or profit center to another within the same firm, the price used as revenue (to the supplying unit) or cost (to the receiving unit) is called a transfer price.[208] Examples would be how much the pay-TV channel HBO, owned by Time Warner Media, would pay the Warner Brothers film studio, also owned by Time Warner, for a TV series which it produced; and similarly, how much one of Bertelsmann's TV channels would pay its Random House book publishing division for the rights to make a film script from one of Random House's books.

A company's top management must set on a policy for transfer prices in varying circumstances.[209] There are several ways to set transfer prices. One is cost based. Others are market based, arm's-length, or regulated by top management. This is discussed in ► Chap. 11 Pricing of Media and Information.

A special problem for media companies, in particular, is that intangible assets often have no defined market value. This allows companies to set prices for their assets to reduce taxable assets in countries with high tax rates.[210]

There can be significant tax consequence to transfer prices, since they can be used to shift profits to low-tax countries. Because of various abuses, the USA has instituted, for tax purposes, a "formula apportionment" (FA) method making it harder for a company to manipulate its international tax status. It requires a company to combine the income of all its subsidiaries into a single taxable income. Income is then apportioned by a formula to the different countries. As a result of this, transfer pricing methods between subsidiaries then ceases to be a factor influenced by taxation. The FA method only works if all the involved parties cooperate. For example, in the United States, an FA system can apportion state taxes, and reduce competition among states to attract transfer pricing of income. But internationally the cooperation by some other countries is often weak. The USA and Canada use the FA method, and the EU has been considering FA.

In addition to using transfer prices to squeeze competitors or to lower taxes, they can also be set up to reward and motivate managers of a division by bonuses based on divisional performance.[211] For this a company must create a fair internal pricing system.[212]

Methods a company can use are to allocate profits to the different subsidiaries proportionally to the revenues generated, to the cost expended, or to the value-added (net of the cost of its contribution).

As an example, suppose a company's Subsidiary A manufactures a DVD for $6. Subsidiary B obtains it at that cost, $6, from A and adds marketing/advertising at a cost of $4. Subsidiary B then sells the DVD to a retailer at a cost of $30.[213]

The total profit on this product is $20. How should the profit be allocated among the two divisions? If the profits are allocated proportionally to the cost expended (i.e. 60:40), Subsidiary A makes a profit of $12 and Subsidiary B makes a profit of $8. But if the proportions of value added are used, then A gets credited nothing as profit ($6 minus $6), whereas B gets credited with a profit of $20. And if revenues are the base for profit allocations A would receive 1/6 of $36, since its revenue share is 6/(6+30) of overall profits ($20), that is $3.33, while B gets 5/6, that is $16.67.

If transfer prices are too high, they may result in inefficient use of resources. Suppose Company C, a telecom network provider, has created a global network where national subsidiaries were charging each other to use their particular territorial networks. If they were higher than those of third-party service providers, the subsidiaries would buy the services externally. As a result, C's network would be underutilized.[214]

Leaving the negotiations over transfer price to divisions to haggle over also creates problems. Suppose Company D has encouraged all its subsidiaries to negotiate prices between themselves. As a result a lot of management time was spent on internal discussions over pricing. Large subsidiaries, strong personalities, and those with skills of internal politics might be able to get better terms. To avoid this leads companies to create objective pricing formulas. Yet these too have problems.

207 Mellman, Martin, Joseph Kerstein, and Steven B. Lilien. *Accounting for Effective Decision Making*. (New York: Irwin, 1995), 298–322.
208 Anthony, Robert N. *Fundamentals of Management Accounting.* Homewood, Il: Richard D. Irwin Inc., 1985.
209 Anthony, Robert N. *Fundamentals of Management Accounting.* Homewood, Il: Richard D. Irwin Inc., 1985.
210 Kind, H., K. Midlefart and G. Schjelderup. "Corporate Tax Systems, Multinational Enterprises, and Economic Integration". *Journal of International Economics* 65, no.2 (March 2005): 507–521.
211 Hyde, C. and C. Choe. "Keeping Two Sets of Books: The Relationship Between Tax and Incentive Transfer Prices". *Journal of Economics and Management Strategy* 14, no.1 (Spring 2005): 165–186.
212 In one survey, 89% of companies reported that they used the same transfer prices for both tax and incentive purposes. However, studies have shown that companies are often creating two different transfer prices. Hyde, C. and C. Choe. "Keeping Two Sets of Books: The Relationship Between Tax and Incentive Transfer Prices". *Journal of Economics and Management Strategy* 14, no.1 (Spring 2005): 165–186.
213 Feinschreiber, Robert. "Transfer Pricing Methods." (Hoboken: John Wiley & Sons, Inc., 2004), 1–61.
214 KPMG. "Transfer Pricing for the Telecommunications Industry." 2006. Last accessed June 20, 2007. ► http://www.kpmg.ca/en/industries/ice/documents/TransferPricingForTelecomIndustry.pdf.

A problem exists when simplistic formulas are used. Suppose Company E has a transfer pricing policy where services sold by one division to another division should be sold at cost, plus a 10% markup. Suppose that its Division 1 sold the service to Division 2, which, after adding items, sold it on to Subsidiary 3, and so on. Each subsidiary added 10% when passing it on. Consequently end prices finish up well above cost plus, which push that division into losses when it tries to compete.

13.9.4.1 Case Discussion

Internal Transactions

Disney uses internal pricing between its TV production companies and its broadcasting and cable arms by adjusting the terms of advertising and distribution pricing contracts between subsidiaries. ABC networks distributes Disney productions. Content is provided to the broadcasting company in return for a number of advertising time slots and other payments. Their value is internally priced as a transfer price. Disney also created an insurance company to insure its own businesses. By adjusting the rates and premiums it charged itself, it could shift profits and revenues from a division or project to the insurance subsidiary or to the overall company.[215]

13.9.5 Tracking Costs

A company must be able to track its costs. This enables the company to compare planned ("budgeted") and "actual" costs, and to determine whether corrective action must be taken.[216] The techniques of cost tracking depend on the nature of a firm's product. Where the product is diverse and discrete, such as a movie, a job (project) costing approach is used, in which direct costs such as materials and labor (plus a share of overhead and indirect costs) are attributed to each project.[217] In contrast, firms with repetitive production of uniform goods use a process costing in which the total cost is divided by the number of units to obtain a unit cost. An example is a cable TV service.

Standard costing is often used to enable rapid feedback on cost. Costs are estimated (standard costs) and are periodically compared with actual costs. Where there are major discrepancies they are flagged for attention and action. This kind of system is used for film production.

For a film project, a production accounting firm is hired by a producer, which puts together a team to work with that production, typically through a limited company (LLC) created solely for that particular production's accounts. A payroll company is hired by the LLC. The accounting company, in theory, is there to represent everything fairly to everybody involved.

It is the production accountant's job to track costs for the project. Daily cost overviews look at the amount spent that day, the accomplished principal photography, and compare them to the amount budgeted for each day, and then determines whether the production is on schedule and on budget.[218] There are a number of software packages to keep track of cost. Such a program lets an accountant enter many detail transactions at the bottom level, and all accounts are totaled to the top level.[219]

There are two types of costs when it comes to films. Above-the-line costs are for actors, writers, directors, and producers, the creative talent. Below-the-line refers to costs of crew, sets, costumes, and food, that is the crafts personnel and the operating costs.[220]

Production managers divide scripts into acts and scenes and determine the number of work days required from each actor and support personnel. Each scene is measured by its page count (measured in eighths of a page).[221] For each scene, the required components are defined, such as whether it is day or night, interior or exterior, or location. Similarly, the required cast, props, wardrobe, extras, stunts, visual and special effects, animals, and vehicles are listed. For an example of the daily cost overview, see ► Chap. 3 Production of Media and Information.

The cost per minute is obtained by dividing the total production cost by the duration of the finished film or TV series. For example, for the last season of the TV sitcom *Friends*, the production cost was $10 million per episode and the episode length was 23–24 minutes. This equates to approximately $417,000 per minute.[222] For major theatrical motion pictures this figure is even higher. *Avatar* cost $237 million to produce, or $1.47 million per minute.

The cost per viewer is calculated by dividing production costs by the anticipated audience. The production cost for the final episode of *Friends* was $10 million and the audience was approximately 50 million, so the production cost per network TV viewer was 20 cents, or about 0.9 cents per viewer per minute. Of course, there are also reruns, syndications, and foreign licensing on top of that with very little extra production cost.

13.10 Capital Accounting and Budgeting

Capital budgeting is the process of selecting and monitoring capital expenditures.[223] It is the planning process a firm uses to estimate and calculate its long-term capital investments. Such investments may include asset purchase, infrastructure and plant, R&D projects, advertising campaigns, and other projects that require capital expenditure and whose cash inflows are in the future.

215 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.
216 Schroeder, Roger G. *Operations Management.* (New York: McGraw Hill, 1981), 339.
217 Wild, Ray. *Production and Operations Management.* (Andover, U.K.: Cengage Learning, 1989), 93.
218 Honthaner, Eve Light. *The Complete Film Production Handbook.* (Boston: Focal Press, 2001), 27–34.
219 2020 Software. "Compare software to find the best fit for your business needs." Last accessed August 2, 2011. ► http://www.2020software.com/software/search.asp.
220 Susman, Gary. "We call it Martian Accounting." *The Guardian.* August 31, 2001. Last accessed July 6, 2017.
221 Honthaner, Eve Light. *The Complete Film Production Handbook.* (Boston: Focal Press, 2001), 55–57.
222 Cyber College. "Costing out a Production." January 29, 2017. Last accessed July 10, 2017. ► http://www.cybercollege.com/tvp007.htm.
223 Garrison, Sharon. "Capital Budgeting." *Self-Paced Overview.* Last accessed July 10, 2017. ► http://www.studyfinance.com/lessons/capbudget/?page=01.

Several interrelated evaluation techniques are used in capital budgeting in order to select projects for investment:[224]

- NPV;
- internal rate of return (IRR);
- return on investment (ROI);
- hurdle rate;
- payback period;
- discounted payback period;
- price/earnings multiples;
- real options.

We discuss these approaches in other chapters, in particular ► Chap. 4 Technology Management in Media and Information Firms, ► Chap. 6 Financing Media, Information, and Communications, and ► Chap. 14 Strategy Planning in Media and Information Firms.

13.11 Tax and Regulatory Accounting

13.11.1 Tax Accounting

Companies use tax accountants and tax lawyers to prepare their taxes in a way to legally minimize the company's tax payments. These professionals research the relevant questions of fact and law, generate preliminary conclusions, and finalize tax forms and returns.[225] Large companies usually have a department to handle their tax issues, and there are often sub-departments for the different categories of taxes.

What is the difference between financial reports and tax reports? Tax accountants typically make several types of changes to their company's financial book figures. First, they adjust for those incomes that are tax exempt or where tax credits are received. When it comes to film, for example, many localities and countries offer substantial tax incentives to attract production.[226] Second and conversely, certain incomes may not be recorded in financial reports but must be included as taxable incomes. For example, in music "swap-outs" or TV "barter syndication," advertisers and syndicators provide broadcast stations with content and in-kind benefits such as concert tickets. These types of compensation need to be reported as income in tax returns but not in financial reports.

Third, tax accountants might adjust the timing of losses or profits. Under financial reporting principles, a company may time its earnings either by backdating or waiting to recognize earnings and losses. For example, it may create a reserve. But in the tax returns, the earnings and losses need to be reported for the exact fiscal period in which they are incurred.

Fourth, and the greatest difference, is the treatment of the cost base of assets. This includes differences in depreciation rates or bases, the valuation of inventory, and the recognition as capital expenditures of certain expenses such as maintenance and repair.[227] Thus a company may use, in its financial accounting aimed at investors, a depreciation rate of 15%, but the tax rules may require the use of an 8% rate. For its tax return, the company must therefore recalculate the value of its assets at the allowed depreciation rate.

Tax issues may require specialized tax lawyers. This is particularly true where international transactions are involved with offshore locations that offer lower tax rates if transactions are properly structured. Other issues for a tax lawyer are the structure of an operation: whether to establish a new venture as a separate subsidiary, and whether the company should buy or lease an asset.

Tax lawyers might also be able to negotiate special tax rates or tax cuts with a government that want to encourage investments and employment.[228]

13.11.2 Case Discussion

Disney Tax Reductions

Disney was able, with the help of its lawyers, to negotiate a Florida tax break worth about $680,000 in the year 2000 alone.[229] Officially, this was for creating jobs in Florida. Along the way, Disney made a $350,000 donation to Enterprise Florida, a non-governmental organization, that recommends which companies should receive breaks. In 2012, it obtained a special tax break in Florida as an economic development tool. In 2010 it got $110 million benefit through a federal tax credit.[230] In, 2011 Michigan paid $40 million to Disney to support the production of *Oz, the Great and Powerful*.

13.12 Information Technology in Accounting

13.12.1 Management Information Systems

Corporate accounting was always at the leading edge of business application of computer technology. This makes sense: there are lots and lots of transactions, major number crunching; fairly well-structured procedures. The major accounting firm Arthur Andersen computerized the payroll of a client, a GE plant, using a UNIVAC I mainframe computer. Thus started the age of business information systems.[231]

The large accounting firms used big mainframe computers to assist their clients. Soon they discovered that such

224 Garrison, Sharon. "Capital Budgeting." *Self-Paced Overview*. Last accessed July 10, 2017. ► http://www.studyfinance.com/lessons/capbudget/?page=01.

225 Vault. "A Day in the Life: Tax Staff Professional (Big Four Firm)." Last accessed July 10, 2017. ► http://www.vault.com/tax-staff-professional-(big-four-firm)/day-in-a-life.

226 Australia Department of Communications, Information Technology, and the Arts. "Fact sheet: Refundable film tax offset for screen production in Australia." Canberra, Australia. March 2007. Last accessed June 17, 2011. ► https://www.arts.gov.au/sites/default/files/pdfs/location-pdv-offset-fact-sheet.pdf.

227 Roehl-Anderson, Janice and Steven Bragg. *The Controller's Function: The Work of the Managerial Accountant*, 3rd ed. (Hoboken: John Wiley & Sons, Inc. 2005), 366–375.

228 Chown, John F. *Taxation and Multinational Enterprise.* (London: Longman Group Ltd., 1974), 1–20.

229 Freedberg, Sydney and Connie Humburg. "Deal Me In." *St. Petersburg Times.* August 27, 2006. Last accessed July 5, 2007. ► http://www.sptimes.com/2006/08/27/State/Deal_me_in.shtml.

230 Ossowski, Yael. "How Walt Disney Cashes in on Corporate Welfare." *Reason.* January 6, 2013. Last accessed July 10, 2017. ► http://reason.com/archives/2013/01/06/how-walt-disney-cashes-in-on-corporate-w.

231 Kee, Robert. "Data Processing Technology and Accounting: A Historical Perspective." *The Accounting Historians Journal* 20, no. 2 (December 1993): 187–216.

services and the associated IT consulting were a highly profitable additional service to their auditing clients. As mentioned, after 2003, in the face of mounting public and government outcry, they had to divest their consulting business from the public accounting services provided to the same companies.

Initially, accounting software focused on automating routine financial transactions such as payroll. Soon it added managerial elements. It became management information systems (MIS). It enabled speedy data collection, aggregation, and the distribution of financial information, which led to faster and better informed decisions.

Global firms can use accounting software that can adapt to national (e.g. France or Germany) standards and requirements, which often vary widely. Many companies are incorporating real-time enterprise software into their information systems.

A major advance in the use of IT to accounting was the introduction of spreadsheet software. Early versions of spreadsheets were written for IBM main frames. VisiCalc software for personal computers was founded in 1979 by Dan Bricklin, a Harvard MBA student with an MIT computer science degree who wanted to simplify the accounting calculation process. Lotus 1–2–3 was created by Mitchell Kapor and Jonathan Sachs in 1981. They added integrated charting and plotting capacity, and database manager (hence the 1–2–3 name). It allowed users to name cells. It quickly became the preferred program, even at the steep price of $495, and it became a "killer app" for the early IBM personal computer.[232] New competitors entered, especially Microsoft with its Excel program.[233] Excel rapidly dominated the market and has faced very little competition since 1992.[234] Lotus was bought by IBM in 1995.

13.12.2 Enterprise Resource Planning Systems

Enterprise resource planning (ERP) software packages integrate business functions. These include accounting for financial transactions (including accounts payable, accounts receivable, cash receipts and disbursements, funds transfer and general ledger functions) inventory control (including material requirement planning (MRP), HR and job cost analysis, and manufacturing control modules of the functions it plans). ERP software offers many options: just-in-time inventory control; job cost analysis; electronic fund transfer (EFT); electronic data interchange (EDI); decision support systems (DSS); executive information system (EIS); data mining; early warning systems; production planning; quality management; and many more.

To meet these goals, ERP integrates the computer functions across a company. Instead of each department having its own software and database, one piece of data (and software) is capable of using a shared data system across many departments.[235]

For example, MGM studios use software from Real Software Systems (RSS) to account to profit participants and royalty recipients. Previously, this took many spreadsheets and many people. MGM also uses SAP, a German company, to manage and handle inventory at major customers such as Wal-Mart in real time, to ensure continuous adequate supply.[236]

To fully implement ERP takes a company between one and three years. This is not only an engineering issue. A company needs to be careful in managing this change, to avoid system and employee confusion, and to integrate proprietary software with the ERP.[237] There are several problems with ERP. It is difficult to modify data that is scattered among different applications. The probability of faults and system failure rises with the number of interacting modules. Also, the wide scope conflicts with the traditional concept of "separation of duties" which helps in the supervision of financial security, integrity, and confidentiality.

The cost of implementing a full ERP system by a large company can easily exceed $100 million.[238] As with all financial system reengineering, the transition is costly beyond direct system cost. A Deloitte Consulting survey indicated that 64 out of the Fortune 500 companies responded that their performance actually decreased after implementing ERP. This may be because of inadequate training or a resistance to change among the employees at those companies. The exact cost of an ERP implementation is hard to calculate, but a rule of thumb is that switching to company-wide ERP totals the cost of the software license plus six times the cost of the license for implementation. This is optimistic.

After the initial implementation, there are also costs for maintenance, upgrading, and so on. One study tried to identify the total cost of ownership (TCO). Of the 63 companies analyzed, the average TCO was $15 million, ranging from $300 million to $400,000. While the size of the company made a difference, the study found a different metric. For every person in a company that used the ERP system often and effectively, the TCO was $53,320.[239] The same study found that the average savings were $1.6 million of direct resources, noticeable eight months after the ERP system was fully in place and 31 months after the start of implementation.[240] The main benefits were better and faster decision-making, not the direct savings in the accounting department.

Problems also arise when consolidating systems results in data summarization. With data becoming more removed from

232 Liebowitz, Stan. "Major Markets-Word Processors and Spreadsheets." In *Re-thinking the Networked Economy: The True Forces Driving the Digital Marketplace.* Ed. Stan Liebowitz. New York: Amacom Books, 2002.

233 Margolis, Stephen and Stan Liebowitz. *Winners, Losers, & Microsoft: Competition and Antitrust in High Technology*. Washington, D.C.: Independent Institute, 1999.

234 Power, D. J. "A Brief History of Spreadsheets." *DSSResources.* August 30, 2004. Last accessed July 10, 2017. ► https://www.cs.umd.edu/class/spring2002/cmsc434-0101/MUIseum/applications/spreadsheethistory1.html.

235 Koch, Christopher. "ABC: An Introduction to ERP." *Enterprise Resource Planning Research Center on Cio.* January 10, 2006. Last accessed July 10, 2017. ► https://www.scribd.com/document/41999156/ABC-An-Introduction-to-ERP.

236 Sweat, Jeff. "Hollywood's New Star Is IT." *Information Week.* Last Accessed June 28, 2007. ► http://informationweek.com/809/hollywood.htm.

237 Koch, Christopher. "ABC: An Introduction to ERP". *Enterprise Resource Planning Research Center on Cio.* January 10, 2006. Last accessed July 10, 2017. ► https://www.scribd.com/document/41999156/ABC-An-Introduction-to-ERP.

238 Koch, Christopher. "ABC: An Introduction to ERP". *Enterprise Resource Planning Research Center on Cio.* January 10, 2006. Last accessed July 10, 2017. ► https://www.scribd.com/document/41999156/ABC-An-Introduction-to-ERP.

239 Study by the Meta Group. See Koch, Christopher. "ABC: An Introduction to ERP." *Enterprise Resource Planning Research Center on Cio.Com.* January 10, 2006. Last accessed June 29, 2011. ► http://www.cio.com/article/40323/ABC_An_Introduction_to_ERP.

240 Koch, Christopher. "ABC: An Introduction to ERP." *Enterprise Resource Planning Research Center on Cio.Com.* January 10, 2006. Last accessed June 29, 2011. ► http://www.cio.com/article/40323/ABC_An_Introduction_to_ERP.

its originating sources verification becomes harder.[241] In other cases, data definitions are incompatible, and inconsistent between different applications, departments, and divisions. Integration of financial data is therefore more than a technical issue.

ERP has been important for data operations within firms. It has also been a step toward the standardization of data collection within and formats across different firms.[242] This started with electronic data interchange (EDI) for the exchange of financial data and documents between computers of different organizations according to standardized rules. EDI permits the exchange of a large volume of data, reducing the paperwork or repetitive inputting of data. It facilitates, for example, export–import transactions that tend to be document intensive.

EDI also simplifies the supply-chain. It helps reduce inventory, which is 5–10% of net tangible assets in the USA, speed up supply, smooth production runs, and lower procurement prices.

Traditional EDI was based on closed networks set up and controlled by large companies with its suppliers and dealers, or by industry groups. It focused on highly repetitive business-to-business transactions. The various EDI systems were incompatible both within an industry and across industries. In time, however, integration took place. EDI specifications were set more broadly by industry associations and key companies for their suppliers/dealers. The main standards are EDIFACT in Europe and ANSI X.12 in the USA.

As an example, automotive EDI was initially company-specific, but in 1998 Daimler, Chrysler, Ford, and GM standardized it, and other automobile firms joined.

General Electric moved 1400 of its suppliers to its procurement network, and claimed that this reduced cycle times up to 50%, procurement cost by 30%, and material costs by 20%. Despite these savings, it also improved relationships with suppliers.

Soon, EDI migrated to the internet, with low-price EDI software packages available.

A further step was the emergence of Extensible Business Reporting Language (XBRL), a web-based universal business data reporting system and format that allows users to extract financial information. Its uniform format permits the easy exchange of financial information within company and suppliers, buyers, and other parties. XBRL was created in 1999 by Charlie Hoffman and introduced to the financial community by AICPA.[243] In 2008, the US securities regulatory agency SEC released rules requiring the use of XBRL by financial institutions.[244] It emerged as the global standard for business and financial data communications.[245] Governmental bodies, such as in China, Italy, Japan, Singapore, and the United States, require companies to submit their business and financial reports in XBRL format. Organizations embed XBRL within their internal processes. Because organizations often have externally (and internally) different transactional and reporting systems. XBRL is helpful to communicate financial and business information seamlessly in a commonly agreed manner. This also helps small businesses. The use of XBRL reduces the costs of compliance by lowering the number of different reporting formats.

XBRL has wide applicability to various software, and it is a collaboratively developed open standard. Contributors have been computer professionals from different fields who aim to establish universal online business reporting. For example, Fujitsu used XBRL to organize data collected by 63 separate reporting systems in an internal reporting center.

13.12.2.1 Case Discussion

Use of ERP

Disney utilizes ERP software to improve its business operations. In 2001, it hired PwC to consolidate its finance, HR, and payroll services onto a single SAP software platform.[246] Tomorrowland was that software project, aiming to put together more than 400 back-end systems on one SAP platform.[247] One year later, IBM bought PwC's consulting arm. In 2005, Disney outsourced all its IT activities to IBM and Affiliated Computer Services (ACS). It signed a seven-year, $730 million IT services contract with IBM and a seven-year, $610 million IT outsourcing contract with ACS. IBM took over the responsibility for the ongoing development and support of key Disney software, including its SAP implementation and nearly 100 legacy applications at Disney theme parks and resorts.[248]

One of Disney's projects was the consolidation of its global merchandising operations into a single ERP system in 2011.[249] This involved the creation of a new data warehouse and a new analytics system. Disney improved its inventory management, sales analysis, and demand forecasts. It reported a strong ROI for this newly established ERP.[250] It can upgrade and consolidate its office business systems globally for $440 million, with the aim to deliver $140 million a year in ongoing savings.[251] Thus the project would be at breakeven after three years. Its ROI would be about 195%, assuming a ten-year investment horizon (10 years x $140 million) and a 10% discount rate.

241 Willis, Mike, Walter Hamscher, and Susan Volin Zimmerman. *PricewaterhouseCooper*. March 2004. Last accessed July 10, 2017. ► http://www.xbrl.org/Business/Companies/PwC_XBRL_Standardization.pdf.

242 Drury, Colin. *Management Accounting for Business*. London: Thomson, 2005.

243 AICPA. "Background of XBRL." Last accessed July 10, 2017. ► https://www.aicpa.org/InterestAreas/FRC/AccountingFinancialReporting/XBRL/Pages/BackgroundofXBRL.aspx.

244 SEC. "Office of Structured Disclosure." Last accessed July 10, 2017. ► http://xbrl.sec.gov/.

245 Willis, Mike. "Corporate Reporting Enters the Information Age." *Regulation Magazine*. (Fall 2003): 56–60.

246 Gilbert, Jack. "Disney utilising ERP software to improve business operations." *Codestone*. April 27, 2013. Last accessed July 10, 2017. ► http://mousepad.mouseplanet.com/showthread.php?167016-Disney-utilising-ERP-software-to-improve-business-operations-Codestone.

247 Simons, Mike. "Disney keeps global SAP roll-out on track by making local executives responsible." *Computer Weekly*. June 2003. Last accessed July 10, 2017. ► http://www.computerweekly.com/feature/Disney-keeps-global-SAP-roll-out-on-track-by-making-local-executives-responsible.

248 Rosencrance, Linda. "IBM sings $730 M IT services deal with Disney." *Computerworld*. June 14, 2005. Last accessed July 10, 2017. ► http://www.computerworld.com/s/article/102483/IBM_signs_730M_IT_services_deal_with_Disney.

249 Brunelli, Mark. "Disney discovers a whole new world of data warehouse 22best practices." *Search Data Management*. April 21, 2011. Last accessed July 10, 2017. ► http://searchdatamanagement.techtarget.com/news/2240035052/Disney-discovers-a-whole-new-world-of-data-warehouse-best-practices.

250 Gingold, Josh. "Mickey Mouse Gets ERP." *Toolbox*. December 3, 2012. Last accessed July 10, 2017. ► http://it.toolbox.com/blogs/ziff-davis-research-report/mickey-mouse-gets-erp-54125.

251 Simons, Mike. "Disney keeps global SAP roll-out on track by making local executives responsible." *Computer Weekly*. June 2003. Last accessed July 10, 2017. ► http://www.computerweekly.com/feature/Disney-keeps-global-SAP-roll-out-on-track-by-making-local-executives-responsible.

13.12.3 Real-Time Accounting

Traditional paper-based systems could produce reports only on a periodic basis—quarterly or yearly. It was too costly and unwieldy otherwise. Electronic systems could provide more frequent snapshots. Taking a further step takes us to real-time accounting (RTA), which is now economically feasible and provides up-to-the minute information along several dimensions. RTA can track and match revenues and costs at the time they are incurred and enables faster monitoring of business activities and performance such as production and inventory. RTA allows management to quickly adapt to opportunities and address problems. However, one must not succumb to hype. Some business processes can be easily monitored in real time but other processes cannot, because they have longer cycles such as big orders and special transactions. Certain cost items are periodic and not in real time.[252] Examples are corporate income taxes.

RTA involves continuous updating of the entire set of accounts such as sub ledgers, the P&L statement, the balance sheet, bank accounts, and customer/supplier accounts. It can also continuously adjust accounts for changes in the currency exchange rates.

It can also enable continuous auditing and serve as an early alarm for internal and external auditors. Another challenge for the linking of a real-time financial picture with real-time managerial responses is that to do so efficiently requires a firm to bring on board and connect its suppliers, partners, and major customers. This requires the creation of trust, alignment of goals, incentives for adoption, and the educating of partners, customers, and suppliers, all of whom may have different systems in place.[253] As part of such co-operation, a large company might provide its smaller partners with RTA services.

Yahoo and NetLedger Inc. combined forces to offer RTA information to Yahoo's merchant customers. Yahoo integrated NetLedger's small-business accounting software with Yahoo Store, providing small merchants with the ability to get a real-time snapshot of their sales information. The services also enabled these merchants to view their invoices and other information about their accounts.[254]

RTA often displays its information in "dashboards" on computer screens. A dashboard is a visual interface that shows a company's major performance indicators in real time. A dashboard displays present, past, and trend predictions. It depicts information in visual and intuitive ways, which helps analytic research and managerial decisions.[255] Its displays include pie-charts, bar-charts, graphs, gauges, and maps. For example, a dashboard may show the effectiveness of different marketing types (e.g. the ROI of a website, direct mail, and discount coupon approaches) and the revenue for different marketing campaigns.

13.12.3.1 Case Discussion

13

Real-Time Accounting

At Disney, RTA is used to monitor project costs and production schedules. It helps manage inventory, allowing the company to respond to store-by-store profitability trends and disparities. Disney retail stores saved time by using the system and avoiding time that was spent on closing weekly or quarterly numbers. It enabled Disney's finance staff to work more closely with operations staff.

Disney theme parks use RTA for revenue accounting, ticket control, and cash control. The benefits of deployment include continuous monitoring of internal control. This also ensures security.[256] The use of RTA helps Disney to improve activities that are profitable or consume the most resources. However, RTA also carries a high cost of implementation, and does properly recognize some major cost items in real time such as depreciation.

13.12.4 Cloud-Based Accounting Systems

In cloud accounting, also known as online accounting, the advanced accounting software, operations, and data storage move from the user to the servers of specialized companies that are at some distance, in the "cloud." Connection may be over the public internet or through more secure private systems. This enables a company to access its business financials from anywhere and using any device. There are many benefits to cloud accounting. In addition to the flexibility of accessing data from anywhere, the firm need not install and support software on any device. The benefits include quick implementation by experts, 24/7 access, lower upfront and maintenance costs, and frequent updates.[257] There is no need for in-house technology infrastructure to buy and maintain. Moreover, security might be better than small businesses and employee laptops can provide. Cloud accounting providers are one of the application service providers who provide software as a service.

252 Rezaee, Zabihollah, William Ford and Rick Elam. "Real-Time Auditing Systems." *The Internal Auditor* 57, no. 2 (April 2000).

253 Sawhney, Mohanbir. "Net Gains- Real-Time Reality Check". *CIO Magazine*. March 1, 2003. Last accessed July 10, 2017. ► http://www.cio.com/article/31744/Net_Gains_Real_Time_Reality_Check.

254 Davis, Jessica. "Yahoo Adds Business APP." *ComputerWorld*. September 9, 2000. Last accessed July 10, 2017. ► http://www.computerworld.com.au/article/80091/yahoo_adds_business_app/.

255 Dundas Data Visualization Inc. "The Dashboard Demystified." 2012. Last accessed June 21, 2012. ► http://www.dundas.com/dashboard/resources/articles/dashboard_demystified.aspx.

256 Infor. "Infor Risk & Compliance." Last accessed July 6, 2017. ► http://www.infor.com/product-summary/efm/risk-and-compliance/.

257 DeFelice, Alexandra. "Cloud Computing: What Accountants Need to Know." *Journal of Accounting*. October 1, 2010. Last accessed July 10, 2017. ► http://www.journalofaccountancy.com/issues/2010/oct/20102519.html.

The applications include just about anything that can be done in-house—tax preparation, bill management, enterprise resource planning payroll, sales tax, and full ERP systems.

But there are issues deserving caution. Can an outside vendor be trusted in terms of security and reliability? What happens if a provider suddenly goes out of business? Or if there is a serious billing dispute and the ASP cuts off access by the client company to its own data?[258]

13.13 Conclusion

13.13.1 Case Discussion

Conclusion on Disney's Accounting Practices

How does our review of Disney's accounting practices add up? Did Disney really do as well financially as management reported? Or did it try to make a beleaguered leadership team look good? Do we find misstatements or major manipulative methodologies that are illegal? Did Disney operate its accounting within industry practices?

Disney engaged in accounting practices vis-à-vis its project investors and participants that could confuse an inexperienced author or actor. But in such deals experience by all partners is expected.

Disney's pro forma statements were trying to point a more positive picture then GAAP-based financial accounting, by almost $6 billion. This was mostly based on a series of one-time events. Interpreting the pro forma would have been difficult for a normal investor.

Disney handled its auditors PwC correctly by severing its non-auditing earlier than most companies. No major disagreements with PwC have been reported. Disney has not been subject to an accounting scandal, like many other media firms, did not engage in a major write-down of assets in the way that other major media companies such as Time Warner, Viacom, and News Corporation had to. Disney was not directly involved in improper backdating stock options, though its largest shareholder, Steve Jobs, and its acquired company, Pixar, were found to be in violation.

Disney shifted some of its debt off its balance sheet, in particular for theme park subsidiaries, film production projects, and broadcasting rights. This debt was not transparent to regular investors but was within the law and industry practices.

Disney deployed managerial accounting in its operations. It uses budgets and financial forecasts to plan costs and allocate resources. Operations are controlled by a variety of qualitative and quantitative metrics, including financial ones, that provide feedback on efficiency and performance.

Disney publishes an excellent annual social accounting report with quantified targets and performance and substantiations.

Legal, but in the category of "accounting to persuade," were the treatments of reserve and amortization of its acquisition of the ABC network the debt of partly owned subsidiaries, and the recapitalization of future earnings.

In conclusion, the accounting figures show Disney performed successfully in financial terms in the period under CEO Eisner, in contrast to its performance in HR management, as detailed in ► Chap. 5 Human Resource Management for Media and Information Firms. Disney's problem was people management, not financial management.

13.13.2 Conclusions on Accounting in Media

In this chapter we have covered:

- how media and media tech companies gather and report financial information to partners, investors, and governments;
- how investors and partners need to analyze financial reports;
- how companies use accounting information to run their business;
- the impact of new IT technology on accounting information and on management control over operations.

The monitoring of economic performance for information products has been especially difficult in the past because of unclear cost, uncertain revenues, disconnect of cost/price, and frequent regulation.

Media managers can use accounting techniques for strategic and planning purposes, and for performance evaluation. They can use it for cost control, for evaluating productivity and overhead, and to allocate compensation and profit.

Accounting is an amazing tool for measuring the state of a complex organization (with numerous operations, people, suppliers, and customers). There is nothing like it. It enables companies to develop new models for their organization, such as expansion, decentralization of operations, and also centralization of control and real-time control.

At the same time, it also enables new models of supervision, surveillance, and control by governmental regulation, using the same tools or requiring access to them. Accounting as a "science" is being strengthened as a result of technological tools (MIS, RTA, etc.), as well as by the increased needs for internal control in complex organizations, by the political pressure fueled by recurring scandals, and by the rising demands for information by institutional investors. Owing to new technology tools, new organizational forms become possible. This raises the role of accounting as a science and puts pressure on accounting as persuasion. The tension is weakest where the activity is steady, predictable, and transparent, such as in water utilities, for example. It is strongest where the

258 DeFelice, Alexandra. "Cloud Computing: What Accountants Need to Know." *Journal of Accounting*. October 1, 2010. Last accessed July 10, 2017. ► http://www.journalofaccountancy.com/issues/2010/oct/20102519.html.

activity is dynamic, volatile, risky, and non-transparent, such as in the film and music industry.

When RTA information is readily available to managers, can it be denied in the long run to investors? When more information on the financial performance and stats of a firm, a division, or a project becomes instantly accessible to managers but is reported only on a highly aggregated basis at long intervals to investors, will such knowledge remain internal? And when information technology is pervading the economy and society at large, companies can measure, and will be measured, by the outside world along dimensions that are not only narrowly financial.

Thus the gap between financial accounting and managerial accounting will narrow, as will the difference between conventional accounting and social accounting. There will be more transparency and the accounting profession will be its guardians and fiduciaries. To reconcile such transparency with effective management is the challenge for managers.

13.14 Review Materials

Issues Covered

In this chapter we have covered the following issues:

- How accounting has developed over the years.
- What function accounting has for companies of different size.
- How the special circumstances of the media and technology sector affect the basics of accounting, and vice versa.
- What the five sets of accounting books are.
- How to define profit.
- How to depress profits by accounting procedures.
- How to apply royalty calculations to books and music.
- How to manage profit participation for limited partnerships.
- How profit participants can protect themselves.
- How to interpret pro forma elements of business results.
- What the role of auditing is.
- How accounting is regulated by the government.
- What the differences between GAAP and IFRS are.
- How to use and read financial documents.
- How to measure a company's ability to pay long-term debts.
- How to use of ratios and metrics to analyze a company.
- How to use non-financial metrics to evaluate company performance.
- How to apply social accounting.
- How to approach valuation of media properties.
- How to read a balance sheet.
- How to evaluate and treat intangibles in accounting.
- How to amortize and depreciate intangible assets.
- How to deal with write-offs.
- How to treat R&D expenditure.
- How to treat stock options.
- What the role of the income and profit statement is.
- How EBITDA and other profit measures are defined.
- How to interpret cash flow statements.
- When to expense and when to capitalize.
- How to apply managerial accounting.
- What the roles and limits of information technology are in accounting.
- How information technology is used in accounting.
- What ARPU is and how it is being used.
- Why start-ups like to use ACSOI.
- The categories of accounting irregularities that have been experienced in media companies.

Tools Covered

We used these tools:

- Balance sheet analysis.
- Income statement analysis.
- Cash flow analysis.
- Liquidity ratios.
- Solvency analysis.
- Royalty calculation and profit participation.
- GAAP and IFRS accounting principles.
- Pro forma statements.
- Investor protection tools and red flags.
- Leverage ratio.
- P/E ratio.
- Operating ratio and operating margin.
- ROA.
- ROI.
- Rate of return methodology.
- Operating ratio and operating margin.
- Social accounting.
- Stock options.
- Valuation of assets.
- Valuation of intangibles.
- Capitalization versus expensing.
- Write-offs and write-downs.
- Depreciation and amortization.
- Depressing of accounting profits.
- Profit accounting.
- P&L statement.
- EBITDA.
- Responsibility and profit centers.
- Overhead allocations.
- Transfer pricing.
- Cost tracking.
- Capital accounting and budgeting.
- MIS, ERP, RTA, XBRL.
- Inventory accounting.
- Accounting for pension obligations.
- Off balance sheet accounting.
- Forward-looking incremental cost models.
- Breakeven analysis.
- The ACSOI approach.

13.14.1 Questions for Discussion

1. How can one value a cable television company?
2. Artists and film studios often argue about profit participation. What are the main accounting issues at stake? What are alternative solutions?
3. XYZ, a TV network, has produced a hit TV show, *My Brother and I*, that it wants to put into syndication. How does the network account for this show? How does it amortize costs?
4. Discuss the pros and cons for using EBITDA to value a film company.
5. Describe the co-ordinating stage of a media company's capital budgeting process.
6. If the tax authority IRS were to end its practice of not charging tax on earnings for which tax has already been paid in other countries, but instead treated such tax as a business expense, what would the effect on media companies be?
7. If it is known that a very high percentage of a company's assets are intangible, what would be the best approach to valuing the company?
8. Compare the LIFO and FIFO approaches to inventory accounting. What would the practical ramifications of a media company using each of them?
9. What factors need to be taken into account in calculating a media companies pension plan costs? Explain how a change in these factors can significantly affect the company.
10. Given Disney's 2007 liquidity ratios below, what can shareholders conclude about the company's management?
11. Explain why some companies, such as Disney, have a high P/E ratio.
12. Discuss the ways media and technology companies differ from other industries in how they amortize their major assets.
13. How would a General Partner in a limited partnership go about depressing its earnings to decrease profit payout? What can the limited partners or profit participants do to protect their interests?

13.14.2 Quiz

1. What is the inventory ratio of a book publisher?
   A. Sales/average accounts receivable;
   B. Sales/average inventory;
   C. Cost of goods sold/average inventory;
   D. Sales/average fixed assets.
2. What is XBRL?
   A. Web-based format that allows users to easily extract financial information;
   B. Computer language companies use to report errors;
   C. Specialized modification of JAVA;
   D. Language used by FASB while they audit companies.
3. Where can you find depreciation in the cash flow statement of a company?
   A. Operating activities;
   B. Investing activities;
   C. Financing activities;
   D. None of the above.
4. Which method calls for a media company to combine the income of all of their subsidiaries into a single measure of taxable income?
   A. Separate accounting;
   B. International consolidated accounting;
   C. Formula apportionment;
   D. World co-operative apportionment.
5. How do a company's employee stock options affect a worker's productivity?
   A. They decrease productivity;
   B. They increase productivity;
   C. They increase and decreases productivity;
   D. They do not affect productivity.
6. What is/are the advantage(s) of using leases?
   A. Selling and then leasing back an asset to gain working capital;
   B. Lease payments do not show up as debt;
   C. Lease payments are tax deductible expenses;
   D. All of the above.
7. Why do net profit participants of films often not receive any royalties?
   A. Studios spend all profits paying for failed movies;
   B. Gross profit participants push up the breakeven point;
   C. Few movies generate profit in general.

8. Which responsibility center is best for decentralizing the organization?
   A. Expense center;
   B. Profit center;
   C. Investment center;
   D. All of the above.

9. What is a pro forma?
   A. A company's statement of cash reserves and credit;
   B. A company's P&L statement;
   C. A company's balance sheet;
   D. A modified balance sheet intended to highlight the positive developments that the company has made in the past quarter;
   E. A modified balance sheet intended to portray the company's real condition by excluding unusual and non-recurring transactions.

10. Intangible assets include:
    A. The firm's reputation;
    B. A firm's borrowing capacity;
    C. Depreciated capital assets;
    D. Manufacturing facilities.

11. The difference between a company's book value and market value is:
    A. Debt;
    B. Long-term assets;
    C. Goodwill;
    D. Shareholders' equity.

12. Some features of ERP include:
    A. Materials management;
    B. Sales and distribution;
    C. Production planning;
    D. All of the above.

13. Which of these would not be included in a market-based evaluation of intangible assets?
    A. An active public market;
    B. Arm's-length transactions;
    C. An exchange of comparable products;
    D. The market index of all assets within the industry.

14. Which of these would not be included in a media company's capital budgeting process?
    A. Monitoring reports of the company's current financial health;
    B. Preparing reports for investors of the company's cash flows;
    C. Co-ordinating interdepartmental budgeting;
    D. Evaluating the viability of a new network infrastructure.

15. What is/are the special aspects of media accounting?
    A. Huge capital investments and depreciation;
    B. Rapid obsolescence and price decline of assets;
    C. Highly regulated;
    D. All of the above.

16. Which of the following is not one of the GAAP's and IFRS's basic principles?
    A. The historical cost principle;
    B. The matching principle;
    C. The full disclosure principle;
    D. The profit ratio principle.

17. It is not always advantageous to employ real-time accounting because:
    A. It becomes harder to monitor business activities;
    B. It is economically unfeasible to maintain;
    C. Certain processes have longer cycles;
    D. It does not give investors sufficient warning.

18. Amortization of cost paid for wireless spectrum licenses usually lasts about:
    A. 5 years;
    B. 10 years;
    C. 20 years;
    D. 50 years.

19. Which cost would not be counted as recoupment that artists have to pay studios?
    A. Equipment rental;
    B. Money advances;
    C. Concert promotion;
    D. All of the above.

20. Disney is considering making a new Hannah Montana CD. Disney determines that the fixed cost to produce the CDs is $400,000 and that it can produce the CDs for $2. It also concludes that a reasonable price for the CD is $10 each. How many CDs must Disney sell in order to break even?
    A. 10,000;
    B. 50,000;
    C. 15,000;
    D. 100,000;
    E. Disney cannot break even with this venture.

21. One of the reasons why a company would use both FIFO and LIFO is that even when prices of the inventory change, both measures yield almost the same values.
    A. True;
    B. False.

22. What is the purpose of managerial accounting?
    A. Provide information for decision makers outside of the company;
    B. Provide information for internal management;
    C. Calculate a firm's tax liability;
    D. Distribution of profits.

23. What of the following is not a measure of media companies to understate profits?
    A. Exclusion of revenue streams;
    B. Allocate high costs to overhead expenses;
    C. Set a low percentage for depreciation;
    D. Charge high internal transfer prices.

24. Which term is not usually used to express "profit"?
    A. Income;
    B. ROI earnings;
    C. Margin;
    D. All of the above.

25. How are assets typically valued?
    A. Acquisition cost;
    B. Appraisal;
    C. Fair market value;
    D. Comparative pricing with similar assets.

26. What is a type of responsibility center that aims to calculate an operation's profitability based on inputs?
    A. Expense center;
    B. Investment center;
    C. Profit center;
    D. Revenue center.

27. Which ratio is used to measure a company's ability to pay current liabilities with current assets?
    A. Debt to Equity Ratio;
    B. Current Ratio;
    C. P/E Ratio;
    D. Operating Ratio.

28. How can profit participants protect themselves from being undercompensated?
    A. Make sure that all contract terms are clearly defined;
    B. Conduct sufficient due diligence on the counter-party;
    C. Obtain all promises in writing and in contracts;
    D. All of the above;
    E. A and C only.

Quiz Answers

1. A
2. D
3. C
4. C
5. D
6. D
7. B
8. D
9. E
10. A
11. D
12. C
13. D
14. B
15. C
16. D
17. C
18. B
19. C
20. B
21. B
22. B
23. C
24. D
25. A
26. A
27. B
28. D

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14.1 Introduction

In previous chapters, we dealt with the optimization of sub-functions of media organizations, such as production, marketing, and distribution. This chapter shows how an information sector firm sets strategy, taking account of all these elements. Strategy, of course, has been a popular topic. But what exactly is it? Strategy is an organization's plan or decision pattern to achieve desirable goals with available means. It is intended to have long-term consequences, in contrast to tactics, which generally have short-term consequences and outcomes that are more limited.

At the end of this chapter, you will have learned about:

- The process of strategy setting;
- Theories and tools of strategy;
- The basic strategy options for information and media sector firms.

14.1.1 What Is Different About Strategy Setting in Information Sector Industries?

Media and information businesses are faced with particular issues. These include, as previously noted:

- Especially high uncertainty;
- Price deflation;
- High economies of scale;
- Network effects;
- Extensive intangible assets;
- Convergence of industries and technologies;
- Fickle consumer demand and a short shelf life of products and processes;
- High failure rate of products;
- Hit dependency/winner-takes-all markets;
- A strong role of government.

Perhaps the main factor for strategy is rapid technological change in this sector. The media and information sector is subject to radical disruption. Joseph Schumpeter, the Austrian economist of the early twentieth century, spoke of "creative destruction"—with innovation bringing about the demise of established companies.[1] The information sector is especially "Schumpeterian" since it is at the leading edge of rapid technological change and its absorption into products, applications, business models, and industries.

In 1965, Gordon Moore, the legendary chairman and chief executive officer (CEO) of Intel, observed that the number of components the semiconductor industry was able to place on a computer chip doubled every one to two years, and would continue to do so into the then foreseeable future.[2] This widely known prediction, known as Moore's Law, affects all electronic technology, including media technology at the user end and the production segment. The capability of electronics and other products is increasing while the cost to produce them is decreasing. As a result of rapid change and high uncertainty, the media and information sector has been full of blunders. Tactical misjudgments abound, with 60–80% of books, music, or films ending up as financial failures, and only 10% being even modestly successful. But more significant are the strategic misjudgments, many of which have been fatal.

When Western Union, then the world's largest private corporation and the dominant telegraph company, was offered in 1876 the patents to the telephone by Alexander Graham Bell for a mere $700,000, it turned down the deal as too expensive. It never recovered from its short-sightedness.

When television broadcasting emerged, Darryl Zanuck, the famed studio chief of the Hollywood studio Twentieth Century Fox, opined: "[Television] won't be able to hold on to any market it captures after the first six months. People will soon get tired of staring at a plywood box every night."[3] It was Zanuck's own media industry, however, that people were getting tired of. Hollywood went into a tailspin. Fox's revenues declined by 80% within a few short years.

When pay-TV emerged, it was widely argued throughout the TV industry that it would never be a profitable business, given all the free television already being offered to the public.[4]

When computers started to become smaller than room-sized mainframes, Ken Olsen, President of Digital Equipment Corporation (DEC), at the time the world's second largest computer maker and the leader in mini-computers, declared that "There is no reason anyone would want a computer in their home." But of course the use of personal computers rose enormously a few years later while mini-computers faded. Olsen's company, near bankruptcy, was acquired by a rival.

Just as business leaders were mistaken even about their own industry, distinguished academics were far off the mark. We observed earlier how one eminent physicist (Sir Ernest Rutherford) spoke of those scientists expecting a splitting of the atom as "talking moonshine" while another (John von Neumann) went in the opposite direction, predicting a future where nuclear-generated electric power was "too cheap to meter." More recently (2007), Clayton Christensen, the academic business guru and author of the bestselling book *The*

1 Schumpeter, Joseph A. *Capitalism, Socialism, and Democracy*. Philadelphia: Taylor & Frances, 2003. (Original edition, 1942).

2 Intel. "50 Years of Moore's Law." Last accessed July 11, 2017. ► http://www.intel.com/content/www/us/en/silicon-innovations/moores-law-technology.html.

3 Pogue, David. "Use it Better: The Worst Tech Predictions of All Time." *Scientific American*. January 18, 2012. Last accessed July 13, 2017. ► https://www.scientificamerican.com/article/pogue-all-time-worst-tech-predictions/.

4 Sánchez-Tabernero, Alfonso. "The Future of Media Companies: Strategies for an Unpredictable World." In *Strategic Responses to Media Market Changes. Media Management and Transformation*. Ed. Robert G. Picard. Jönköping, Sweden: Jönköping International Business School LTD., 2004.

Innovator's Dilemma, commented on Apple's soon-to-launch iPhone: "But the prediction … would be that Apple won't succeed with the iPhone. History speaks pretty loudly on that, that the probability of success is going to be limited."[5]

Yet in 2011 the iPhone had a market share of 15% in the world-wide smartphone market, with a compound annual growth rate of 18.8% in the subsequent four years. Apple brought in over 50% of all global profits in the handset market.[6]

14.2 Case Discussion

Comcast-Overview

Comcast is the world's largest cable company. In 2017 revenues were $84.5 billion and its net profits were $22.7 billion. It has approximately 29.3 million cable as well as broadband internet subscribers. The company's headquarters are in Philadelphia, and it is controlled by the Roberts family. In 2003, when Comcast was still medium sized and regional, it acquired the much larger AT&T Broadband. Comcast's largest division is its cable division, which offers video, internet, and phone services. Comcast provides services for about 26% of the US cable television market. US government regulations cap the permissible market share at 30% of cable services. Comcast is the third largest telecommunications provider in America, using its cable TV distribution network to provide phone services too. In 2011, it bought NBC Universal with its TV and cable networks and Hollywood movie studio. In contrast, the second largest cable multiple system operator (MSO) around that time, Time Warner, had a strong content role, which included the well-established cable TV channels CNN, TNT, TBS, HBO, Cinemax, Cartoon, and others. But in 2009, Time Warner spun off its cable distribution arm into an independent company, Time Warner Cable. It also split off its magazine, music, and telecom operations, and became essentially a pure content company in films and TV. Similarly, Viacom, which had formerly been a major cable TV distribution firm, had sold off its cable platform assets for a largely content-based role.

Comcast, however, went the opposite way, and aimed to become a major vertically integrated platform and content company. In 2004, it made a bid for Disney, but this attempt failed. In 2009, Comcast bought NBC Universal, which owned the "big four" TV network NBC. The merger was approved in 2011 after considerable regulatory controversy.

Thus, Comcast became in the USA the number one cable MSO (market share 26%), the number one broadband ISP (over 25%), as well as a top broadcast TV company (12.8%), and the number three provider of cable TV channels (11.4%), of telecom voice service (5.6%), and of theme parks (operating in eight countries). It ranks third as TV program and film producer and distributor (9.8% and 10.4% respectively).

Comcast was not done, however. In 2014, it announced the acquisition of Time Warner Cable, the second largest cable firm in the USA. The deal was opposed by a number of activist groups as anti-competitive, and eventually Comcast gave up in 2015. But it had signaled its ambitions for expansion.

In 2018, it made an unsuccessful bid for much of Rupert Murdoch's media empire, 21st Century Fox, topping Disney's initial rival offer. It would have acquired and shared Fox's film studio, TV network, global satellite broadcasting operations, and share in the online platform Hulu. It would have become the world's largest media content company, with $112 billion in annual revenues. As the next move, Comcast tried to buy control of Sky, Murdoch's UK-based satellite broadcaster. Europe's largest pay-TV provider.

What then should Comcast's strategy be for the next decade? How should it identify opportunities in content, platforms, technology, globalization, diversification, and marketing? How should it deal with threats such as satellite TV, cord-cutting, online video, and mobile video?

According to the *Wall Street Journal*, Comcast has been "torn between two groups of shareholders – those who like management's ambitious plans to conquer new markets, and those who want the company to return more cash to investors through dividends and stock repurchases."[7]

These, therefore, are the questions for discussion. How does a company such as Comcast structure its decision process to define and refine its strategy? What are Comcast's main generic strategy options? What is the thinking process that must go into identifying its options and selecting the best?

14.3 Theories and Tools of Business Strategy

Business strategy has become a trendy yet vague topic. It is important yet difficult to analyze a company's optimal path in a "hard" or quantitative way. Because there are few analytic models and fewer testable hypotheses, this field has been full of contending schools of thought, some of them conceptual, others numbers-driven, and still others simply spouting the latest buzzwords.

Management is caught in the middle. How does one determine the best strategy for an organization? The basic problem for strategy theory and application is that there are so many variables in the real world. Managers, however, want simple rules of thumb for decisions. This has led to a plethora of single-factor strategic rules, which emphasize, respectively, one of the following:

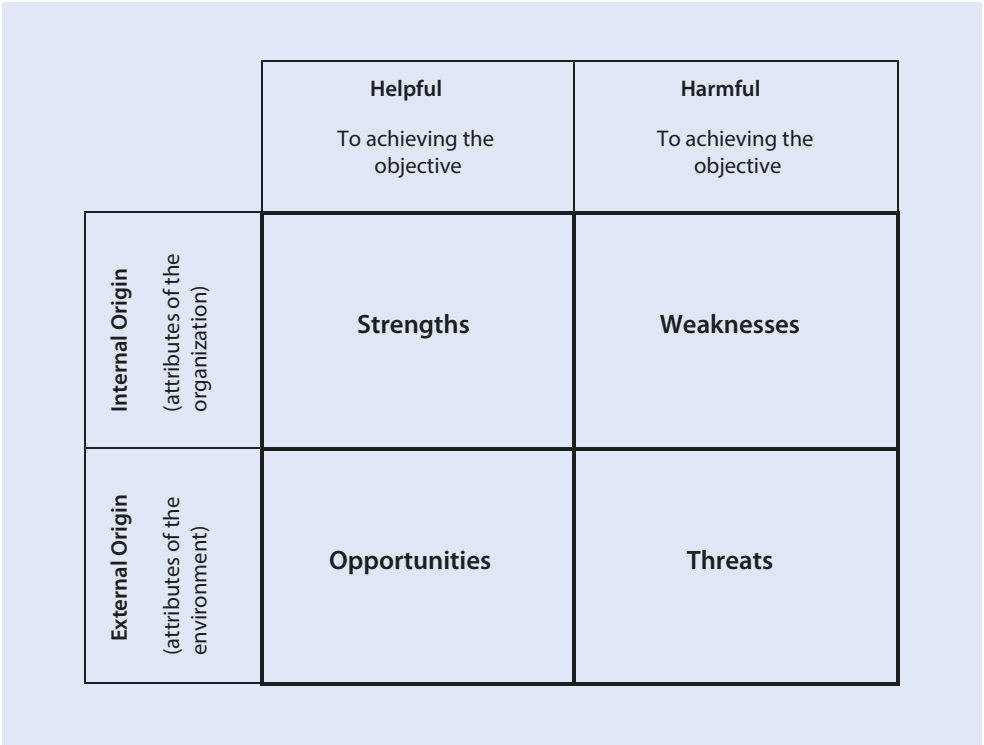
- Cost reduction;
- Innovation;
- Quality;
- Export orientation;
- Core strengths;
- Barriers to entry;
- Avoidance of commodification;
- Scale;
- Ability to learn and adapt;
- Investing in people;
- Integration across the value chain.

5 McGregor, Jena. "Clayton Christensen's Innovative Brain." *Business Week*. June 15, 2007. Last accessed July 11, 2017. ► https://www.bloomberg.com/news/articles/2007-06-15/clayton-christensens-innovation-brainbusinessweek-business-news-stock-market-and-financial-advice.

6 The Economist. "Blazing platforms." February 10, 2011. Last accessed July 11, 2017. ► http://www.economist.com/node/18114689.

7 Anders, George. "Comcast Wins Skirmish, Girds for War." *The Wall Street Journal*. February 20, 2008. Last accessed July 11, 2017. ► https://www.wsj.com/articles/SB120346320004678295.

Fig. 14.1 SWOT analysis



All these factors are correct under the right circumstances, and some may be achieved jointly. But there is no easy way to test the consistent importance of one factor or cluster over another.

14.3.1 Basic Strategy Perspectives

A number of theories and approaches have therefore arisen to help managers make strategic choices. There have been several stages of business strategic thought.

14.3.1.1 The Business Policy Approach to Strategy (1950s–1960s)

The business policy approach to strategic thinking originated at Harvard Business School in the late 1950s.[8] It combines strategy and corporate responsibility, from the perspective of the general manager as the leader. The main thought leader was Kenneth Andrews, supported by a mandatory MBA Business Policy course, a capstone course rather than a foundation class, which then spread to many business schools. The fundamental questions of the business policy approach were:

- How do firms behave?
- Why are firms different?
- What is the value added of the headquarters unit?
- What determines success in international competition?

The approach has no theoretical analysis but includes several descriptive tools, in particular the SWOT analysis (strengths, weaknesses, opportunities, and threats).[9] There is nothing particularly revelatory in this matrix (Fig. 14.1) or in many other similar tools, but it provides a way to systematize the choices that a management team faces.

A SWOT analysis identifies in a simple way strengths and problems. Factors are ordered in two dimensions. The vertical distinguishes external and internal factors. These can be either helpful or harmful, as categorized by the horizontal axis. Where an internal factor is helpful it identifies an organizational strength. Where it is harmful it describes a weakness. External factors are those that are less under the firm's control, such as the market, government, and technology trends. They are either opportunities or threats (Fig. 14.2).

14.3.1.2 Case Discussion

What Are Comcast's Strengths? Weaknesses? Opportunities? Threats?

The matrix does not identify a particular strategy for Comcast but it organizes its opportunities—which are enormous and whose magnitude could be estimated—as well as the strengths it has at its disposal to seek out at least several of them. It also identifies threats and weaknesses, both of which might also identify a strategic priority that must be taken to alleviate them or to turn them around into an opportunity and strength. The limitation of the SWOT analysis is that it is basically a list, not a methodology. But it functions as an external scan and internal self-analysis, and it helps to identify priorities and barriers.

8 Evans, Philip. "Strategy: The end of the endgame." *The Journal of Business Strategy* 22, no. 6 (November/December 2000): 12–16.

9 Stewart, Matthew. *The Management Myth*. New York: W.W Nolan & Company, 2009. This thoughtful and informative book has been an important source for this chapter.

Fig. 14.2 Comcast SWOT analysis

Strengths	Weaknesses
• Strong balance sheet • Diversified revenue streams • Strong management • Cable services/operations • Low churn • Success in broadband • Vertical integration with content	• CAPEX requirements • No mobile presence • Limited international presence • Not a tech company
Opportunities	**Threats**
• Online migration of media and commerce • Demand for faster connectivities • National and rural programs for network upgrade • Internet of things • Data mining applications • Tele-commuting, tele-medicine, e-education, and other applications	• Market saturation • Competition from other platforms and content providers • New product innovation • Consumer migration to online cloud services • Merger opposition • Cord-cutters and cord-nevers • Net neutrality regulations • Privacy regulations • Set-top connectivity regulations

14

14.3.1.3 Game Theory (1960s)

Also during the 1960s, analysts developed a very different style of strategic analysis: game theory. Originally this approach was adopted by military strategists, in particular for conceiving Cold War nuclear responses. Soon it was also being used for corporate strategy, to analyze the behavior of rival firms in an oligopolistic market as a set of moves and counter-moves. Among the tools of this approach are the Zero-Sum Game, where one party's gain is another party's loss; the Prisoner's Dilemma, which describes a situation where in the absence of collaboration everyone loses; and the Battle of the Sexes, in which co-ordination is sought in the absence of communication. This is further discussed below, as well as in ► Chap. 11 Pricing of Media and Information.

14.3.1.4 Competitive Analysis (1970s)

The competitive analysis approach is associated with Igor Ansoff, Bruce Henderson, and Michael Porter. It focuses on a company's competitive position versus its peers along various metrics, and helps management to determine its competitive edge. Igor Ansoff, an American-born mathematician and business analyst, grew up in Russia, and once back in the USA ended up working for the defense contractor Lockheed. In 1965, he published the book *Corporate Strategy*, which quickly became a classic. To assist planners in selecting the appropriate mix of products and markets, Ansoff supplied a set of strategic planning tools. These tools included graphic "eye candy": matrices, charts, pie charts, radar charts, *x*–*y* or *z* charts, Venn diagrams, time lines, boxes, and organizational charts.[10]

One tool analyze a firm's strategy is the Ansoff Matrix, which classifies a company's strategic approach according to whether it faces new markets and new products. In Fig. 14.3 the southwest quadrant is one in which the firm finds itself with existing (old) products in an existing (old) market. Its growth strategy is therefore one of gaining sales in a saturated market through "market penetration," in which it increases its marketing efforts, lowers its price, and so on. In contrast, a firm in the northwest quadrant targets an existing product in a new market. This requires a "market development," which would work if the firm's strength is based on the product rather than on geography. The riskiest strategy is the northeast corner, where the firm must develop both a new product and a new market. Here, it needs to reduce

10 Stewart, Matthew. *The Management Myth*. New York: W.W Nolan & Company, 2009.

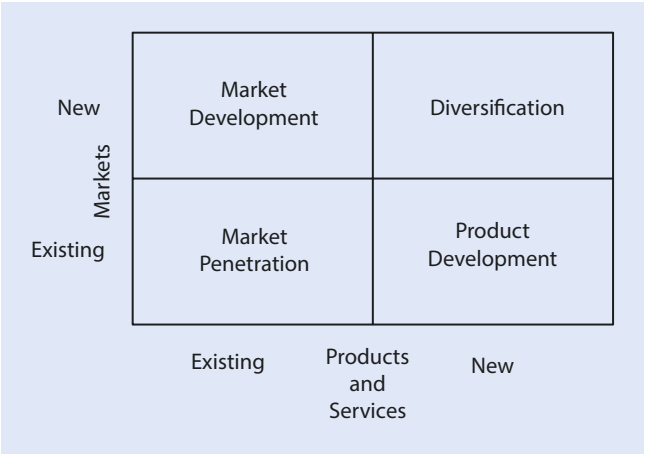


Fig. 14.3 Ansoff Matrix

risk by a diversification with more predictable markets and products.

Following Ansoff's exhortations, hundreds of firms formed strategic planning departments. Consultancies sprang up, exemplified by the Boston Consulting Group (BCG). The tiny firm's partners met to discuss their future, and brainstormed for a way to differentiate themselves from large established consultancies. As Matthew Stewart relays the story, at a certain point in the discussion, Bruce Henderson, the founder, suggested a focus on "business strategy." When others objected that this was too vague, Henderson replied. "That's the beauty of it, we'll define it."[11] BCG grew from 12 consultants in 1965 to 6200 in 2017. BCG became known for its 2x2 matrix that categorizes operations into "stars," "dogs," "cash cows," and "question marks." (This will be discussed further below.)[12] To meet BCG's competition, the established consulting firm McKinsey reinvented itself as a "strategy consultancy" firm.

Intellectual leadership in strategic management analysis was next provided by Michael Porter. As a cross-departmental doctoral student, Porter noticed that his Harvard Business School professors had no formal approach to strategy but relied on a case-study approach without useful generalizations. On the other hand, his professors in the economics department used generalizations and theoretical models, but in the wrong direction, as Porter concluded. They aimed to help make markets more efficient, which meant that there would be no profits above a "normal" (i.e. low) rate. Porter's sub-discipline of economics was industrial organization (IO), which deals with the behavior of firms in imperfect markets. A prominent figure in IO research in the 1950s was the economist Joe S. Bain. Bain explained excess profits by the existence of market imperfections, such as barriers to try and scale economics. Bain's main conclusion was for government to reduce these barriers.[13]

Porter now upended economics and called it "strategy." Instead of seeking public policies to reduce market imperfections that caused excess profits, he advocated that firms precisely create and defend such market imperfections in order to generate excess profits. This provided an analytical approach to strategy. In his 1980 book *Competitive Strategy*, Porter laid out a framework of five forces that determined the competitiveness of an industry sector. They are the classic economic dimensions of rivalry among existing firms, threat of new entrants, threat of substitute products, bargaining power of buyers, and the bargaining power of suppliers.[14] To a great extent, the first four are synonyms for competition. The stronger these forces, the more competitive the industry. Firms need to counter these forces. A company with protection by market imperfections has a sustainable advantage. Porter identified four generic strategies, essentially following Joe Bain in reverse. They boil down to two basic strategies:

- Trying to prevent the entry of competitors;
- Differentiating the product and the market.

There are general steps a company can take to pursue these strategies, create a competitive advantage, and establish and defend market power:

- Invest in research and development to create patents and other proprietary know-how.
- Engage in marketing activities, to generate a "lock-in" that makes it difficult for its customers to seek alternatives.
- Create economies of scale that enable low cost production.
- Focus on differentiating brand reputation, visibility, and often quality.
- Develop strong government relations with the aim of making competitors entry harder.
- Stand ready to cut prices to deter rival entrants.

14.3.1.5 The Core Competencies Approach (1980s)

The competitive analysis approach of Porter and his followers was challenged in the early 1980s as not being sufficiently explanatory. Japan's competitive success, for example, could not be explained with that perspective, which advised

11 Stewart, Matthew. *The Management Myth*. New York: W.W Nolan & Company, 2009.
12 While the "BCG Box" is popular with managers, academic studies are skeptical as to its advantages. One study of 129 firms that used the model found they had below average shareholder returns. Slater, Stanley F. and Thomas J. Zwirlein. "Shareholder Value and Investment Strategy Using the General Portfolio Model." *Journal of Management*. December 1, 1992. Last accessed July 11, 2017. ► http://journals.sagepub.com/doi/abs/10.1177/014920639201800407.
13 Stewart, Matthew. *The Management Myth*. New York: W.W Nolan & Company, 2009.
14 Rodriguez, Walter. "IS Theory & Practice: Effects of IT on Competition." *Florida Gulf Coast University*. Last accessed July 11, 2017. ► http://itech.fgcu.edu/cis/frames/apchapter03/sld001.htm.

a firm to seek market advantages either by low price or by high quality, but not by both. Yet Japanese car manufacturers created a production system that reduced waste and inventory, resulting in high quality and low-cost cars. A main critic of the Porter analysis was Henry Mintzberg of McGill University.[15] Mintzberg, by background a mechanical engineer, looked at firms as they concretely operated, not as an economist's abstract black box. What are their strengths and weaknesses? His core competencies approach advocated the development of skills, knowledge, assets, and technologies, and then to combine these elements in seeking opportunities. This approach suggested a transition away from Porter's market structure orientation in favor of developing internal strengths. MIT professor Birger Wernerfelt introduced a related approach called resource-based view (RBV) in 1984. Resources are the assets of a firm, which are valuable, rare, and hard for competitors to match.[16,17] A core competency can then be bundled with other elements where the firm has no particular competitive advantage.

In media industries, core competencies may lie in a number of areas: the creation of content; the distribution platforms; the access to financing; the mastery of advanced technology; superior design; effective marketing; or the proximity to government. For many years, a core competency that gave Sony sustainable competitive advantage in consumer media devices was its strength in miniaturization. Since the 1950s, Sony built whole categories of products based on miniaturization skills: pocket-sized portable AM radios, Walkmans, and Discmans.[18]

For another large company, Disney, core competency is to create unique and likable cartoon characters and to market them in multiple ways. *The Lion King* is an example of how Disney managed to extract value from the character in film theaters, home video, music soundtrack, musical, product merchandising, and theme parks. For Disney, revenues from toy sales for *The Lion King* were two to three times larger than film revenue.

A company can develop core competencies by[19]:

- Identifying its key abilities and leveraging them;
- Benchmarking itself with other companies;
- Understanding what its customers truly value;
- Encouraging core capability development throughout the company;
- Protecting core strengths, especially as the company expands;
- Outsourcing or divesting non-core capabilities, and focusing on activities that deepen core capabilities.

The problem with the core competencies approach is that in the dynamic environment of media and technology it is difficult to sustain a non-imitable and unusual capability in any resource. Moreover, such an analysis is less applicable to start-ups without a track record and without rivals for comparison. The approach is also criticized as tautological—the firm is valuable because its resources are valuable. Yet the resources rarely have inherent value. They derive their value from their application by the firm. A media firm's creative teamwork is not like that of an energy company that has found a major oil field.

14

14.3.1.6 Case Discussion

Comcast Core Competencies and the Resource-Based View, What Are Comcast's Core Competencies?

Comcast's competitive advantages and disadvantages can be ranked by the relative importance of the attribute and by the relative strength or weakness of the firm in that attribute. This can then be graphed (Fig. 14.4). The analysis is hypothetical. The *X*-axis identifies the strategic importance (1 = no relevance; 5 = fairly relevant; 10 = crucial importance.) The *Y*-axis shows the company's relative strength compared with competitors (1 = competitive disadvantage, 5 = parity, 10 = competitive advantage). The company's key strengths and weaknesses can then be identified (Table 14.1).

The analysis shows Comcast having key strengths in content acquisition (C2) (importance 10; strength 10). This is based on Comcast having acquired NBC Universal. Also strong are diversified revenue streams (C11), and the domestic cable distribution network (R3). Key weaknesses are TV content production (C4) (importance 6, strength 4). This is based on Nielsen ratings where among the four major networks NBC came in third. Another weakness is spectrum (R5) where Comcast is stretched with no ability to readily expand, and in foreign cable platforms (R6). However, these are held to be irrelevant in the short term. A superfluous strength (strong but less important) is R&D (importance 2, strength 6), because technology, while important, can be acquired from vendors. With its acquisition of NBC Universal, Comcast's brand ownership expanded significantly.

15 Evans, Philip. "Strategy: The end of the endgame." *The Journal of Business Strategy* 22, no. 6 (November/December 2000): 12–16 ; Mintzberg, Henry. The rise and fall of strategic planning. New York: Free Press, 2004; Mitntzberg, Henry. *Managers, not MBA's. A hard look at the soft practice of managing and management on development*. San Francisco: Berrett-Koebler, 2005.

16 Gary Hamel and C.K. Phahlad extended RBV in their 1990 article "The Core Competence of the Corporation." A good core competence should be difficult for competitors to duplicate. Ideally, it would be complex, hard to identify from the outside, durable, and non-substitutable. Hamel, Gary and C.K. Prahalad. "The Core Competence of the Corporation." *Harvard Business Review*. May–June 1990. Last accessed July 11, 2017. ► https://hbr.org/1990/05/the-core-competence-of-the-corporation.

17 Petts, Nigel. "Building Growth on Core Competences – a Practical Approach." *Long Range Planning* 30, no. 4 (1997): 551–561.

18 Boyd, Charles. "Assessing Strengths and Weaknesses: Doing an Internal Analysis." *Columbia Institute for Tele-Information*. Last accessed July 11, 2017. ► http://www.citi.columbia.edu/B8210/read29/Boyd.pdf.

19 Rigby, Darrell K. and Barbara Bilodeau. "Management Tools and Trends 2013." *Bain & Company*. May 8, 2013. Last accessed July 11, 2017. ► http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

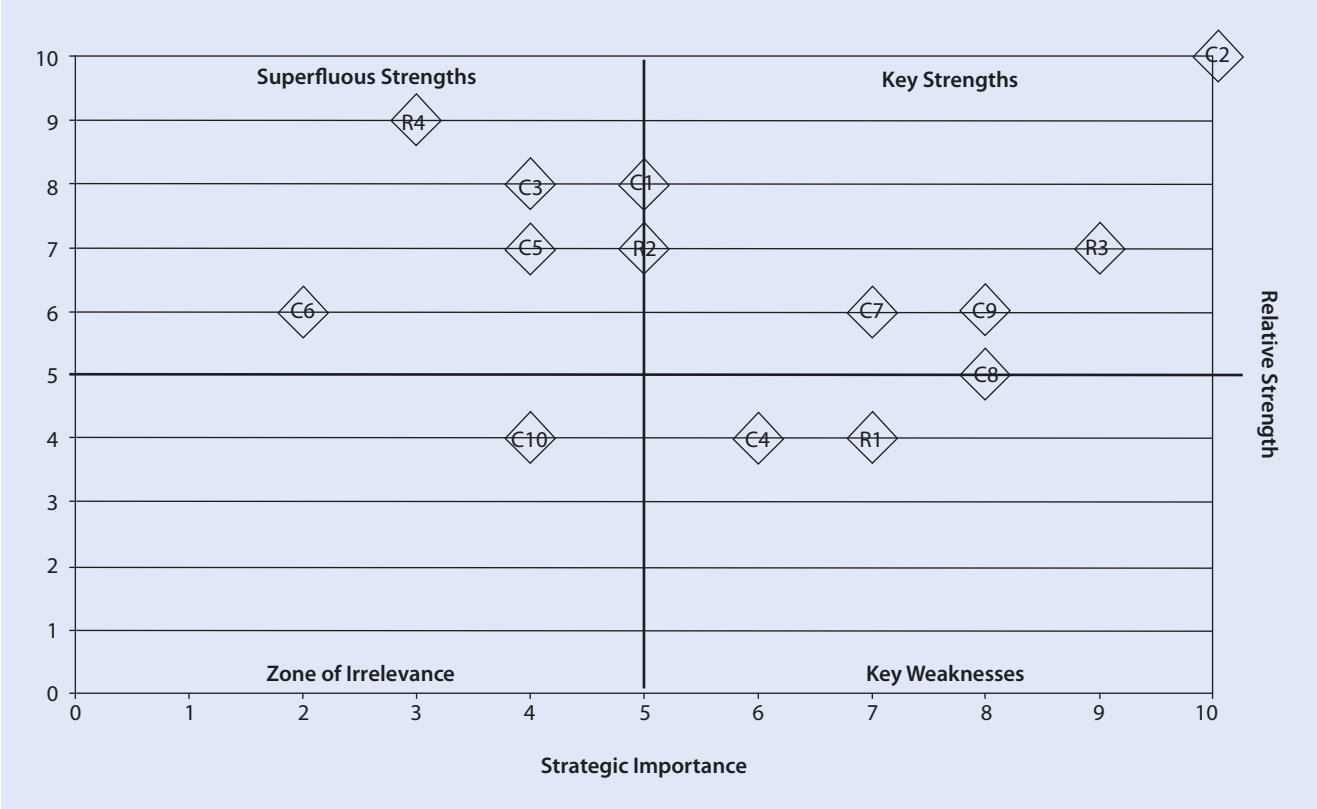


Fig. 14.4 Appraising Comcast's resources and capabilities (schematic)

Michael Porter contributed to the analysis of internal effectiveness by an approach that enables identification of core competencies through the concept of the value chain, which breaks down a firm into its major activities and seeks the elements that contribute most to value creation. A value chain analysis can help identify where the firm is strong and where it is weak. Where it falls short, it might then partner with another firm or outsource. Elements of a value chain may include, for example, a sequence of product design, inbound supply management, production, marketing, distribution, and customer service. Each of these elements in turn has sub-elements. In parallel, they are also secondary value-added activities of internal process, such as R&D and human resource management.

A value chain analysis works better in concept than in actual operations based on numbers.[20] To identify value chain performance, the firm must conduct an internal analysis of the cost of each activity. These costs are then compared with those of competitors. The firm must then determine what makes its product different from those of competitors in the eyes of consumers, and what value each step generates. Practically speaking, value chains are rarely as neat in reality as they are in theory or on a graph. The stages are not clear and separable but interactive and overlapping. Furthermore, one cannot easily come up with hard numbers. How much value is created by the design? The marketing pitch? The distribution? One way to seek quantification is by a conjoint analysis, which decomposes some of the product elements in terms of value. (See ▶ Chaps. 9 Demand and Market Research for Media and Information Products and 12 Distribution of Media and Information.

14.3.1.7 Adaptability Approaches

Many strategy theories do not reflect dynamic change sweeping an industry. Where change is rapid, the traditional priorities of control and planning become less important than adaptability. Good management, as Clayton Christensen observed, is no guard against "disruptive technologies" that are introduced by new entrants. This realization has led to strategy theories that emphasize adaptability. Instead of seeking a controllable environment, risk has to be embraced, speed matters more than accuracy, and innovation is more important than control. To do so, a successful organization is an adaptive organization.[21] Peter Senge of MIT popularized the idea of the "learning organization." Jack Welch, the celebrated former ex-CEO of General Electric who was picked by *Fortune Magazine* as the "Manager of the Century," proclaimed that General Electric's sole competitive advantage was its ability to learn. The approach of adaptive adjustment, called by some "strategic morphing," is the organizational equivalent of biological evolution.

20 Fleisher, Craig S. *Strategic and Competitive Analysis: Methods and Techniques for Analyzing Business Competition*. Upper Saddle River, NJ: Prentice Hall, 2003.

21 Evans, Philip. "Strategy: The end of the endgame." *The Journal of Business Strategy* 22, no. 6 (November/December 2000): 12–16.

Table 14.1 Appraising Comcast's resources and capabilities

Appraising Comcast's resources and capabilities	Analysts' judgment of importance	Analysts' judgment of Comcast's relative strength
Resources		
R1. Financial resources and access	7	4
R2. Network quality	5	7
R3. US cable distribution network	9	7
R4. Brands	3	9
R5. Spectrum	7	1
R6. Foreign cable distribution network	3	1
Capabilities		
C1. Content licensing	5	8
C2. Content acquisition	10	10
C3. In-house engineering	4	8
C4. TV content production	6	4
C5. Financial management	4	7
C6. research and development (R&D)	2	6
C7. Marketing and sales	7	6
C8. Government relations	8	5
C9. Strategic management	8	6
C10. Cost performance	4	4
C11. Diversified revenue streams	7	7
C12. Experience in interpreting acquisitions	4	8
C13. Vertical integration platform/content	5	7
C14. Customer lock-in	6	8

14.3.2 The Emergence of the Guru Industry

The celebration of the creators or popularizers of ideas for business strategy goes back to the early twentieth century, to the prominent figures of Frederick Taylor and Elton Mayo. Taylor's principles of "scientific management" were influential not only in the USA but also in the Soviet Union. Mayo was celebrated for exploring organizational behavior. Both Taylor and Mayo were later revealed to have been scientific charlatans when it came to the data they generated and interpreted. But their theories were eagerly accepted at the time by business leaders (and Soviet industrial commissars) because of management's desire to act "scientifically" and to deal with potential worker unrest.

In the early 1980s, Tom Peters, an associate at the consulting firm McKinsey, was tasked to find the best management styles. He visited business schools, corporations, and factories. In 1982, in collaboration with Robert Waterman, he used his observations for the bestseller *In Search of Excellence*.[22] Peters and Waterman identified eight fundamental attributes of successful companies:

- A bias for action;
- Staying close to the customer;
- Autonomy and entrepreneurship;
- Productivity through people;
- Hands on, value driven;
- Stick to the knitting;
- Simple form, lean staff;
- Simultaneous loose–tight properties.

These eight attributes of excellence could be subsumed under a single insight: "treating people—not money, machines, or minds … as natural resources may be the key to it all."[23] This is a sensible observation, but does not

22 Peters, Thomas J. and Robert H. Waterman Jr. *In Search of Excellence*. New York: Harper & Row, 1982.

23 Stewart, Matthew. *The Management Myth*. New York: W.W. Norton & Company, 2009.

explain the book's success. But perhaps the most significant aspect of the Peters/Waterman book was not its content but its reception. Previous books on management strategy sold a few thousand volumes. This book, however, sold 6 million.[24] It benefited from being issued in the midst of a US recession as Japanese firms were riding high. Peters became a celebrity and a sought-out speaker to millions of people around the world. In time, his management strategy talks took on a quasi-religious style. His speeches and those of some other business gurus became motivational sermons of self-realization and empowerment.

This propelled business strategy thinking to move beyond being a field of inquiry and research to one full of admired persons with great authority. A "guru industry" emerged, based on business school academics and consultants.[25] They capitalized on the great interest in the USA and Europe in recapturing competitiveness, and in Asia in gaining advantage. The management strategy consulting industry became a multibillion dollar business. Its books and ideas became global, connecting the world's managers by the same concepts, insights, buzzwords, and fads.

An example is Michael Hammer, a computer science professor at MIT, who, with business consultant James Champy, introduced "Business Process Reengineering" (BPR) in the 1990s.[26] Their book quickly became a bestseller and sparked a trend of corporate reengineering and reorganizations.[27] Companies were advised to take a "blank sheet" and unsentimentally approach all of their existing processes. They would identify unproductive layers and activities and could design cross-functional organizations. Information technology (IT) such as enterprise resource planning (ERP), enable a firm's different operations to interact electronically and made reengineering possible.[28] In total, 2.5 million copies of the book were sold, and it remained on the *New York Times* bestseller list for more than a year. *Time* magazine named Hammer as one of America's 25 most influential individuals in its first such list. *Reengineering the Corporation* was ranked among the "three most important business books of the past 20 years" by *Forbes* magazine. Business process reengineering turned from zero use by companies in 1993 to 65% in 2000, but then back down to 35% in 2003 and 30% by 2013. As one of its creators wrote in 1995, "reengineering's enduring lesson is that the bigger the hype the greater the chances of failure…" BPR took the classic route for popular management ideas: from academic research, via a management consultancy's marketing, into the business press, a bestselling book, a brief shining moment as the solution for companies' problems, before giving way to the next Great Idea.

One well-known strategy consultancy, Bain and Co., periodically publishes surveys of companies' use of various management tools, ideas, and techniques. It gives them weights according to popularity of adoption and of effectiveness, as rated by the satisfaction of the surveyed managers. It also measures the rate at which these concepts get dropped ("defections") (Fig. 14.5).[29]

It seems that ideas on management strategy and techniques are as subject to fashion as music styles or popular culture, going through a life cycle of creation, popularization, and disenchantment. Their cycles have been pronounced enough to make the study of management fashion itself to be fashionable.[30] Such research has shown that the lifespan of a strategy concept has decreased over the years.[31] The average lifespan of these management techniques has dropped enormously. From the 1950s to the 1970s, the timespan between the initial idea and the peak of its popularity was 14.8 years. It fell to 7.5 years in the 1980s and to 2.6 years in the 1990s.[32] There are several causes for these swings. They include the larger number of would-be gurus who want to achieve attention and opportunities. There is also an acceleration in dissemination. Business magazine editors, too, operate in a competitive environment and seek to position their publication at the cutting edge of management innovation by an early identification of a "new" idea or technique.[33] There is also a greater rapidity in adoption as businesses try to gain advantage. But this is equally followed by a frequently rapid disenchantment when the new approach fails to deliver. This creates a high and often invisible cost in confidence and morale.

Which of the numerous theories and approaches to business strategy is then best suited for adoption? This cannot be readily answered. In a scientific inquiry, the validity of a theory is measured by its predictive power. For example, one could test Porter's generic success strategies by measuring, predicting, and then checking the performance of companies that use these strategies with companies that do not. Most

24 Stewart, Matthew. *The Management Myth*. New York: W.W. Norton & Company, 2009.

25 Crainer, Stuart and Des Dearlove. "The Short History of Great Business Ideas." *Business Strategy Review*. 2006. Last accessed July 11, 2017. ► http://www.citi.columbia.edu/B8210/read29/Crainer.pdf.

For discussions of this sector, see:

- Hoopes, James. *False Prophets: the gurus who created modern management and why their ideas are bad for business today*. New York: Basic Books, 2003.
- Khurana, Rakesh. *From higher aims to hired hands: the social transformation of American business schools and the unfulfilled promise of management as a profession*. Princeton, NJ: Princeton University Press, 2007.
- Mckenna, Christopher D. *The World's Newest Profession: Management Consulting in the Twentieth Century*. New York: Cambridge University Press, 2006.
- Pfeiffer, Jeffrey, and Christina T. Fong. "The End of Business Schools? Less Success Than Meets the Eye." *Academy of Management Learning & Education* 1, no. 1 (September 2002): 78–95.
- Waren, Daniel A. *The History of Management Thought*, 5th ed. New York: Wiley, 2004.

26 Stewart, Matthew. *The Management Myth*. New York: W.W. Norton & Company, 2009.

27 Crainer, Stuart and Des Dearlove. "The Short History of Great Business Ideas." *Business Strategy Review*. 2006. Last accessed July 11, 2017. ► http://www.citi.columbia.edu/B8210/read29/Crainer.pdf.

28 Rigby, Darrell K. and Barbara Bilodeau. "Management Tools and Trends 2013." *Bain & Company*. May 8, 2013. Last accessed July 11, 2017. ► http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

29 Source: Bain & Company's management Tools & Trends survey, 2013. Used with permission from Bain & Company. http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

30 Clark, Timothy. "The Fashion of Management Fashion: A Surge Too Far?" *Organization* 11, no. 2 (2004): 297–306.

31 Carson, Kerry David et al. "Management Fad Adoption: An Exploration of Three Psychogenic Influences." *The Journal of Behavioral and Applied Management* 3, no. 2 (Winter 2002): 174–189.

32 Crainer, Stuart and Des Dearlove. "The Short History of Great Business Ideas." *Business Strategy Review*. 2006. Last accessed July 11, 2017. ► http://www.citi.columbia.edu/B8210/read29/Crainer.pdf.

33 Clark, Timothy. "The Fashion of Management Fashion: A Surge Too Far?" *Organization* 11, no. 2 (2004): 297–306.

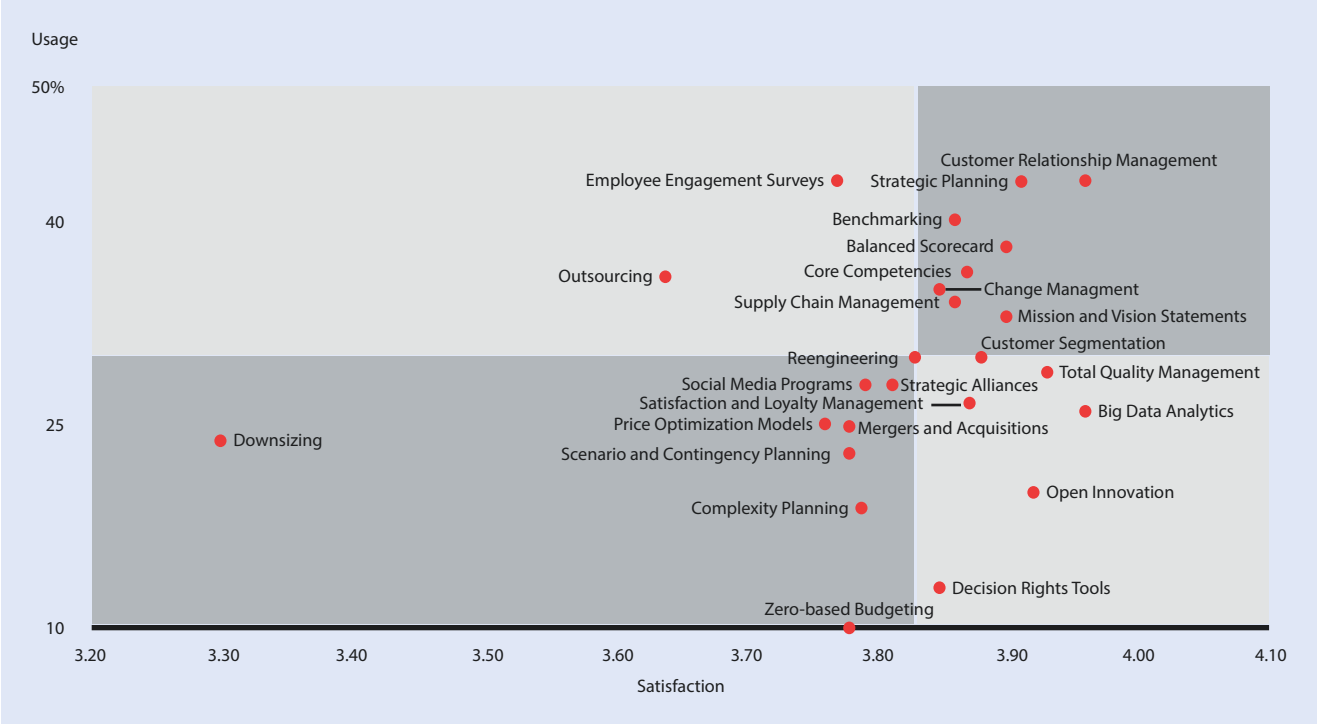


Fig. 14.5 Management strategic tools—usage and satisfaction (2013)

strategy gurus, however, do not use analytical and statistical methods. They are based on anecdotes and case studies; they are based on explaining the past and have a low predictive value. Mintzberg, in his 1990s article on the resource-based view, presented the Japanese electronics manufacturer NEC as a model; yet NEC soon stagnated in innovation and financial performance. Hamel and Prahalad, in their 1994 book, celebrated General Magic, but that company soon failed. Hamel also presented Enron as America's most innovative company.[34] Shortly afterwards, Enron cratered in one of the greatest bankruptcies in American business history. According to Bill Gates, "The authors are two smart guys. They're probably as good as there is in the field … Every example they gave, with the exception of Hewlett-Packard, was a total joke."[35]

Of Tom Peters' "42 highly successful companies," most declined soon after being extolled as exemplars.[36] Wang Laboratories went bankrupt. Eastman Kodak lost out against Japanese competitors, missed out on digital technology, and went under. Boeing lost much of its dominance to Airbus. Amdahl lost out in innovation to IBM and was acquired by Fujitsu. RayChem was acquired by the conglomerate Tyco, which broke up in a criminal corporate scandal. Data General collapsed. National Semiconductor faltered and was acquired in 2011 by Texas Instruments. Delta Airlines went through a Chapter 11 bankruptcy reorganization in 2005 before it recovered.

While there is an undeniable element of faddism in the strategic theories, many if not most also hold major grains of truth. Therefore, once one abandons the notion of a single-factor, silver bullet theory, one can blend them into an effective combination. The most persuasive perspective is that of a "portfolio of adaptable competencies": a firm creates a set of competencies across its various functions, with the flexibility to adjust to changing circumstances. Together these several competencies make the firm a strong performer. This is the "build the best ship" approach. It does not have a preconceived rigid strategy, but it will sail to wherever the future mission will require, with a decent chance of success.

14.4 The Strategy Process

Perhaps more important than picking the "best" theory or the tool for strategy is the process of strategy analysis and planning itself. Such an activity forces the firm to take a long-term view with respect to its market, its competitors, its technology, and so on. The review and planning process is just as important as the plan itself.

To engage in strategic planning has several components:

- Organize the strategic process;
- Examine the external environment;
- Review the internal capabilities;
- Identify, analyze, and select the best options;
- Develop a plan;
- Implement the plan;
- Review the performance.

These elements will now be reviewed.

34 Stewart, Matthew. *The Management Myth*. New York: W. W. Norton & Co., 2009.
35 A few years later, HP, too, was on the ropes.
36 Stewart, Matthew. *The Management Myth*. New York: W.W. Norton & Co., 2009.

14.4.1 Organization of the Strategy Process

In many cases a firm's strategy is simply to do what it already does but better. In other cases, a firm will seize upon new opportunities without much of a plan. However, many companies will try to do better than that and formulate some plan for the near or medium future.[37] This could be triggered by new leadership, or an emergency, or an important disruption by new technology or by a new and effective competitor. Though one would expect such planning to be an obvious thing to do, there are often constraints. Start-ups may get going with an idea that is pursued with energy but on an entirely uncharted course. For them, careful planning would often be futile. In more established organizations, strategy setting is often a sensitive process. A strategic review of a company's direction, strengths, and weaknesses can elicit defensive responses and the protection of home turf. The outcome of strategic plans can have significant impact budgets and affect careers. Partly for that reason, strategic plans are often drafted by outside strategy consultants.

14.4.2 Who Engages in Strategic Planning?

Strategic planning can be undertaken by an organization's board of directors, the CEO, specialized strategy staff, corporate sub-divisions, outside experts, and others. This will now be discussed.

14.4.2.1 Stockholders' Role in Strategy

In general, shareholders do not manage the corporation. What shareholders do is to elect directors who will then represent their interests. They also approve fundamental transactions such as the dissolution of the company resulting from a merger. But there are instances in which shareholders exert their voice for strategic change. For example, in 2005, an influential Time Warner shareholder, the financier Carl Icahn, organized shareholder pressure on management to divest assets and to split the company into four parts. The shareholder resolution was defeated, but Time Warner management soon embarked on just such a course of action. It spun off its cable TV, ISP, telecom, and magazine operations.[38] (Once it had shrunk in such a fashion, however, it itself became a target for acquisition, first by Comcast and then by AT&T.) Similarly, there has been an emergence of "activist funds," which differentiate themselves from other funds by taking the initiative in pushing management to take actions the funds deem necessary. They exert pressure through proxy battles, shareholder relations, publicity, and litigation.[39]

14.4.2.2 Directors' Role in Strategy

Ultimately, the board of directors is responsible for strategy. Directors review and approve corporate strategy and policy based on recommendations, typically provided by senior management. The board can also initiate a strategic review, even independently of the CEO and management. With greater emphasis put on the independence of directors, we are likely to see more of this.

An example for a board-controlled strategic process was the online company Yahoo. The board, dissatisfied with the direction of the firm, created its own committee to plan company goals and strategy. That committee worked with top management to develop and implement these plans and oversaw the CEO's own strategic process.

14.4.2.3 The CEO as Strategy Setter

In small or young organizations, the CEO is generally the owner and/or founder of the company. Their vision shapes the firm's strategy. In large and established firms, CEOs can be more in the nature of a chief administrator, or a charismatic leader and agent of change. One of the early strategy gurus, George Steiner, postulated that CEOs should expend no more than 18% of their time on items that come due in the next six months, and 67% on the things that take at least two years to happen. In contrast, low-level group supervisors should devote 98% of their time to plan tasks that take place within six months or less, and no time at all to anything one year or more in the future. Yet in responding to a McKinsey survey, only 8% of managers said that the CEO of their organization was primarily engaged in long term strategy.[40] They get bogged down in the daily grind.

14.4.2.4 Strategy Setting by Top Management

In most large firms, then, strategy setting is a collaborative effort of the top level of management, each member contributing their experience and perspective.[41] But top officers are also often protective of their area of responsibility. They are also mindful of implications for their careers.

14.4.2.5 Middle Management as Strategy Setters

Another alternative to a top-down strategic approach is to rely on continuous improvement run by middle management. That approach is strong on operations but often without a conceptual strategy, whereas the top-down approach is strong on strategy but often vague in its implementation.[42] Some companies have tried to combine the two. The diversified manufacturing company

37 Strategy is either prescriptive or emergent. Prescriptive strategy is a roadmap which is defined in advance. In contrast, emergent strategy is developed along the way.

38 Farrell, Maureen. "Icahn was right about Time Warner…7 years later." *CNN Money.* March 8, 2013. Last accessed July 14, 2017. ► http://buzz.money.cnn.com/2013/03/08/icahn-time-warner/.

39 Examples for such funds are those managed by Daniel Loeb (Third Point Management); the California and Florida State Employee Retirement funds; and William Ackman (Pershing Square Capital).

40 Stewart, Matthew. *The Management Myth*. New York: W. W. Norton & Co., 2009.

41 Pauker, Benjamin and Joel Whitaker. *Strategic Intelligence: Providing Critical Information for Strategic Decisions*. Washington, DC: Corporate Strategy Board, 2000.

42 Irvin, Jill, Laura Pedro, and Paul Gennaro. "Strategy From the Inside Out: Lessons in Creating Organic Growth." *Journal of Business Strategy* 24, no. 5 (2003): 10–14.

Ingersoll-Rand is an example. Periodically it assembles a core team of several dozen mid-level managers who have been pegged as future leaders. That group then identifies business opportunities and designs a strategy. As the next step, the team members must also help implement it, by returning to their business units with a strong commitment to the plan and to the other team members across the company. This raises the likelihood that the strategy will take hold.

14.4.2.6 Strategic Planning by Outside Experts

Well-known consultancies focus on strategic planning. Examples are Bain & Company, BCG, Booz and Co., and McKinsey. In Europe, they include Roland Berger, CapGemini, Bearing Point, LEK, and Qvartz, and in Japan examples are Abeam and JMAC. Such consultancies have experience and talented individuals. On the other hand, they often have no intimate knowledge of the firm or the industry and they are expensive. At times their function is to legitimize the direction already chosen by the CEO, and to take the blame if things go wrong.

14.4.2.7 Dedicated Strategy Staff Group

Companies often create a specialized strategy group. Such a unit typically reports directly to the CEO. The downside of this approach is the distance from the actual experiences of divisions and functional areas. A related approach is a multifunctional task force, where experts are pulled in from the functional areas (finance, marketing, R&D, etc.) and the major operating divisions of a company. The downside is that these experts, too, may be motivated to protect their groups instead of taking a company-wide perspective. One way for a staff group to proceed is to create "war game exercises" that play through various scenarios of market developments, new entrants, different governmental environments,[43] and disruptions, and how to deal with them.

A corporate strategy unit typically has several components. The corporate development department identifies opportunities and assesses potential M&A. A strategic planning group co-ordinates and integrates plans and initiatives by business units. It also prepares and updates multiyear plans. A management issues group focuses on societal, business, and other trends for the form. An economic analysis group deals with the macro-economy and with investment analysts. A budgeting and planning group deals with implementation of strategy. It monitors business units' compliance and performance, drafts the annual budget, prepares for the annual shareholder meeting, and works with or within other functional areas, such as human resources (HR).

The opposite of such a top-down system is a decentralized bottom-up approach, where each division does its own planning. In such a system, "every tub is on its own bottom" with clear responsibilities to take care of itself. At General Electric, this was the main approach to strategy under its legendary CEO, Jack Welch.

Strategy setting by divisions does not place centralized decision-making at corporate headquarters. In the pure case, each division creates an autonomous strategy. The advantage is that the decision-makers are closer to the market they are trying to reach. On the other hand, this framework may create conflicting plans. In consequence, companies often use a mixed approach. Strategy that is long term and fundamental in nature is handled at the corporate level, while medium-term strategy is run on the divisional level, and short-term and narrowly targeted planning is done by the product groups.

For example, at the Spanish telecom company Telefonica, the top corporate level defines a fairly general multiyear strategy, such as dominating the cloud marketplace. Then regional managers work with their own strategy department to develop a more detailed strategy for their main geographic regions. Even within this regional strategy there is a good deal of room for lower-level divisions, such as wireless and wireline, to set more detailed plans for how to accomplish the higher-level goals.

At Microsoft, there are three parallel planning processes (◘ Table 14.2).

An example for the pitfalls of the corporate strategy process is Disney, a company we have encountered repeatedly in this book. In 1985, the Disney Strategic Planning Group had five employees. The group was responsible for evaluating external risks and competitive threats. It was instructed to "try to put numbers against subjective decisions." Soon, however, there were more than 100 employees in Strategic Planning. Roy Disney, a dissident director, charged that the Strategic Planning Group had grown, "octopus-like, into every corner of the company." But "strategic planning is NOT strategic thinking,"[44] and it was hindering creativity and innovation. According to Roy Disney, the Strategic Planning Group staff did not share in Disney's corporate culture. He viewed the strategic planners as mostly young, inexperienced, brash outsiders. After the forced retirement of Michael Eisner, under shareholder pressure, strategic planning was radically decentralized, with Disney's four business segments taking over responsibility. The remaining Corporate Planning Group focused only on the development of the five-year plan, acquisition opportunities, and emerging businesses.[45]

43 Pauker, Benjamin and Joel Whitaker. *Strategic Intelligence: Providing Critical Information for Strategic Decisions*. Washington, DC: Corporate Strategy Board, 2000.

44 Disney, Roy E. "Just What IS Strategic Planning, Anyway?" *SaveDisney*. June 3, 2004. Last accessed July 14, 2017. ► http://web.archive.org/web/20040603123356/www.savedisney.com/news/essays/rd052704.1.asp.

45 The Walt Disney Company. "The Walt Disney Company To Reorganize Strategic Planning Division." March 25, 2005. Last accessed July 11, 2017. ► https://thewaltdisneycompany.com/the-walt-disney-company-to-reorganize-strategic-planning-division/.

Table 14.2 Microsoft parallel planning processes

Planning process	Responsibility	Deliverables	Characteristics
Long term (beyond 10 years)	Chief technology officer	Long term "hard" problems. What will the technology environment of the future be like?	Supported by CEO and board. Unencumbered by business units.
Medium term (two components: 3–5 years and 5–10 years)	Product groups	Product and services strategy.	Funded by CEO and R&D planning.
Short term (1–3 years)	Product groups	Revenue plan.	Highly formalized process domestically. International units appear to have some latitude.

14.4.2.8 Case Discussion

Organizational Structure of Comcast's Strategy Setting

At the corporate level, Comcast has three top executives engaged in strategy as their titles recognize: a senior vice-president for external strategy and new business opportunities, a senior vice-president for corporate strategy, and a vice-president for intellectual property strategy. The Strategic and Financial Planning Group, reporting to the chief financial officer (CFO), is responsible for forecasting business trends and developing long-range plans. It also identifies new growth opportunities.

On top of this, many of the company's divisions also have their own strategic groups. NBC Universal had a special group mainly occupied with its the post-merger integration. It was responsible for identifying synergistic opportunities between Comcast, NBC, Universal Studios and Parks, and the cable channels. Beyond transition issues, NBC Universal also has an executive vice-president for strategy and operations, entertainment, digital network, and integrated media, who leads the strategic development and operational initiatives across the division's assets.[46] A division's sub-divisions, in turn, often have strategists. Thus, NBC Universal's sub-group, the Entertainment Division, has an executive vice-president, brand planning and strategic insights. Similarly, the Ad Sales Division has a strategy vice-president.

These executives and their staffs play significant roles in Comcast's strategy. And yet there is no doubt that the major strategic decisions have been made by the major owners whose control was cemented by a system of super-voting Class B shares. They were, for a long time, the co-founders Ralph Roberts, Julian Brodsky, and Dan Aaron, and then CEO and heir Brian Roberts.

14.4.3 The Strategic Plan

Strategic plans vary greatly. Their main components are

- A vision and mission statement that defines the aims and objectives of the organization.
- An external analysis of market technology, competitors, and government trends.
- An internal analysis of resource and capabilities.
- An analysis of strategic opportunities and threats.
- The identification of strategic choices.
- A decision process that sets directions and priorities.
- An outline for implementation, with roadmaps, budgets, and an investment plan.
- A plan for subsequent evaluation and feedback.

14.4.3.1 The Vision and Mission Statement

A mission statement defines the company's business and its objectives. A vision statement spells out the desired future position of the company. The two are overlapping and are typically combined in a statement about the company's purposes, goals, and values.[47]

14.4.3.2 The External Assessment

The role of an external assessment for strategy is influenced by Michael Porter's focus on a firm's competitive position in a market, as discussed above. External assessment includes a review of market structure, demand, competitors, technology trends, and the environment in which the company is operating, both government and societal.

Assessing the Market

To assess the market, it is necessary to define it, assess its size, growth, direction, the technology trends that affect it, the major players within the market, as well as entry barriers. For an analytical look at market growth and the position of the firm in it, a growth-share matrix is useful (Fig. 14.6). It was popularized by Boston Consulting Group.

46 These assets include Telemundo, Bravo Media, Oxygen Media, Style, DailyCandy and Swirl, Fandango, iVillage, Television Without Pity, as well as the partially owned networks ExerciseTV, Sprout, and TV One.

47 Rigby, Darrell K. and Barbara Bilodeau. "Management Tools and Trends 2013." *Bain & Company*. May 8, 2013. Last accessed July 11, 2017. ► http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx.

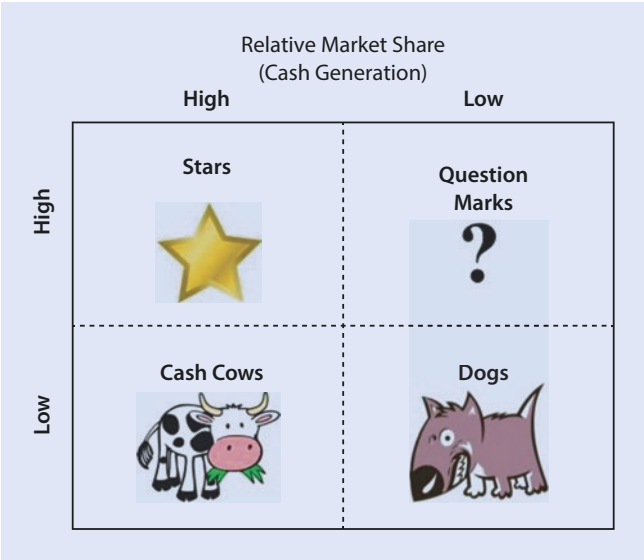


Fig. 14.6 The growth share matrix

A company or its activity that is being analyzed will fall into one of four quadrants based on market growth rate (vertical axis) and market share (horizontal axis). There are four basic scenarios.

1. *Star*: the company's activity has a high market share in a high-growth market. An example is Google's YouTube. For a Star operation, the strategic decisions typically support investments to hold (or gain) market share.
2. *Dogs*: a small market share in a low-growth industry. In most cases the company would exit this activity or try to gain leadership, for example by combining with other firms. An example of a Dog is Castle Rock, a small independent film studio which was eventually acquired by Turner and Time Warner.[48]
3. *Cash Cows*: the company has a high market share in a low-growth industry. An example is Sony's consumer electronics division after 2000. Such a company's strategy is typically to harvest returns on past investments. Strategic decisions should be focused on maintaining innovation within the company to reverse that gradual decline.
4. *Question Mark*: the company has a small share in a high-growth industry. The proper strategic response is not clear: it can be to exit by selling out, to invest and expand in order to become a Star, find a market niche where its share is high, or create an alliance with the market leader. Even staying in place will require investments. An example of a Question Mark is the online music streaming service Rhapsody. Rhapsody bought the original music file-sharing company Napster and rebranded itself under that name. It claimed 4.5 million users in 2017.[49]

Case Discussion

What Scenario (Stars to Dog) Fits Comcast?

14

In assessing its potential for growth, Comcast would first survey its core products.

Stars: Xfinity high-speed internet service. It has a high subscriber count in a high growth market, that of the broadband ISP industry. While subscribership has become saturated, usage and speed have been rising. Competition is moderate (Comcast has about a 64% share[50] in its service territory, against the regional telecom incumbents and satellite TV providers).

Cash Cows: of these, Comcast has a good number: cable TV platforms, local TV stations and TV networks, several cable channels, theme parks, voice telephony wireline service, film production.

Question Marks: the video cloud industry's growth rate is very high. However, Comcast's presence in that segment is, in particular, through the TV industry's consortium Hulu, which does not have a large market share. Another Question Mark is Telemundo, a Hispanic video channel with a market share of about 28% of Spanish-language TV, compared with rival Univision's 78%. But the growth rate of the market segments as a whole is high.

Dogs: Focus Features (the artsy film production subsidiary of Universal) generates about $25 million annually in profit, but with a declining tendency. Despite the prestige of its films such as *Brokeback Mountain*, it is a low-return business. In contrast, Universal Pictures is focused on producing mass-appeal movies. While the downsides are small, the market is limited, as is the growth potential and the profit potential. Another Dog used to be NBC's small and declining radio broadcasting business, where may years ago it was the undisputed market leader. Those radio stations and networks were sold off.

Another Dog is Universal Networks International (UNI). Specialty channels are not a growth business, and UNI's market share is small relative to rivals Viacom, Time Warner, Disney, and Discovery. With its specialty cable TV channels Syfy, Diva, Studio, Universal Channel, 13th Street Universal, Movies 24, Hallmark, and KidsCo, UNI has not produced much by way of compelling content, and is known for showing reruns of once-popular shows. This collection of channels does not demonstrate a growth potential.

Comcast's overall deepening strategy should focus on the Stars and Cash Cows while divesting the Dogs and being selective about the Question Marks.

48 If the market were redefined as "small artsy films," Miramax's market share would be larger, but it is still a slow-growth market. At best, it would be a Cash Cow.

49 Ingham, Tim. "Over 100 million people now pay for music streaming, beating the number of Netflix subscribers for the first time." *Business Insider.* January 17, 2017. Last accessed July 11, 2017. ► http://www.businessinsider.com/midia-report-music-streaming-subscribers-overtook-netflix-subscribers-the-first-time-2017-1?r=UK&IR=T.

50 Assuming Comcast's share in its franchise areas is the same as the national average of the cable industry.

Assessing Users and Customers

Demand analysis requires the evaluation of several parameters:

- Identifying potential buyers;
- Determining their willingness to pay;
- Determining their price sensitivity;
- Assessing what product features are valued;
- Weighing the demand for competitive products.

There are several steps to determine consumer demand. First, there is data gathering through interviews, surveys, focus groups, expert surveys, controlled and uncontrolled experiments, electronic sampling, online cookies, point-of-sale data collection, traffic measurement, self-reporting, and so on.

Second, the data is then analyzed in a variety of ways often referred to as market analytics or data mining. This includes regressions, correlations, statistical hypotheses testing, clustering and associations, conjoint analysis, and other techniques. A more detailed discussion about these factors is provided in ▶ Chap. 9 Demand and Market Research for Media and Information Products.

Analysis of Competitors

Competitor analysis requires the estimation of several factors. First is to determine who the competitors are and who they might be in the future. This, in turn, requires the definition of the market. Defining the market is easier said than done. For example, who are the automaker Porsche's main rivals? Lamborghini? BMW? Yes, to some extent, but according to the Porsche's CEO, a major rival is the watchmaker Rolex. Both companies compete in the market for the disposable income of high-income, prestige-seeking, middle-aged males, and for those who wish to give them expensive gifts.

Determine what information is required about these rivals, and build a competitor analysis capability to obtain such information.

14.4.3.3 Identifying Competitor Strengths

There are various steps to gathering information about competitors. With online data in plentiful supply it has become easier to collect what companies say about themselves and what others report. Companies discuss their plans, successes, and products through advertising, press releases, conference presentations, and analyst calls. Company representatives are quoted or write in trade and in professional magazines. They publish technical papers, apply for licenses and patents, and are subject to litigation that generates court records. Companies issue annual reports and prospectuses. They are covered in articles and interviews, consultant reports, court documents, and press releases.

The information collected will tend to be extensive. It needs to be presented to managers in an accessible format such as comparison grids and radar charts.[51] One example is a radar chart (also known as a web or spider chart), which allows the presentation of several quantitative variables on several axes.

On this radar chart, ◘ Fig. 14.7, we observe that the established firm has strength in sales, marketing, and dividend payouts (and thus investor satisfaction and presumably access to low-cost capital). In contrast, the start-up firm has strength in product development but weakness in dividends, sales, and marketing.

Competitor strength grids allow a qualitative assessment of various capabilities by company in one chart. Such a grid for music company marketing, ◘ Fig. 14.8, shows that the Warner Music Group is strongest in artists and sales force. It is well behind Sony in online videos and music tools as well as tools for exposure, sales, and promotion. None of the three firms are particularly strong in social media presence, but Warner is doing more than its rivals.

14.4.3.4 Competitive Advantages

A typical media operation has several major stages in its value chain. They are:

- Development and creation;
- Wholesale distribution, marketing, and packaging;
- Retail distribution.

The strategic imperatives for success are different according to the stage. For development and creation, and for packaging and wholesale, they are efficiency. For retail distribution, they are regional dominance. They are also different for different categories of media. For discrete, or non-continuous, media products such as films, books, or consumer electronics devices, the factors are somewhat different from those for continuous media products.[52] Examples of continuous media products are newspapers and magazines, TV channels, telecom services, and cable subscriptions. They tend to have higher economies of scale. The strategic imperatives are specialization or localization in content, and the protection of local distribution power.

In practice, the distinction between continuous and discrete is fluid. Media firms often bundle discrete content products into continuous packages, such as TV series, channels, or web portals. Indeed, a primary function of major media companies is to transform discrete products

51 Fleischer, Craig S. *Strategic and Competitive Analysis: Methods and Techniques for Analyzing Business Competition.* Upper Saddle River, NJ: Prentice Hall, 2003.

52 Greenwald, Bruce. "Economics of Strategic Behavior." *Columbia Business School.* Spring 2013. Last accessed July 11, 2017. ▶ https://www8.gsb.columbia.edu/courses/emba/2013/spring/b7203-001.

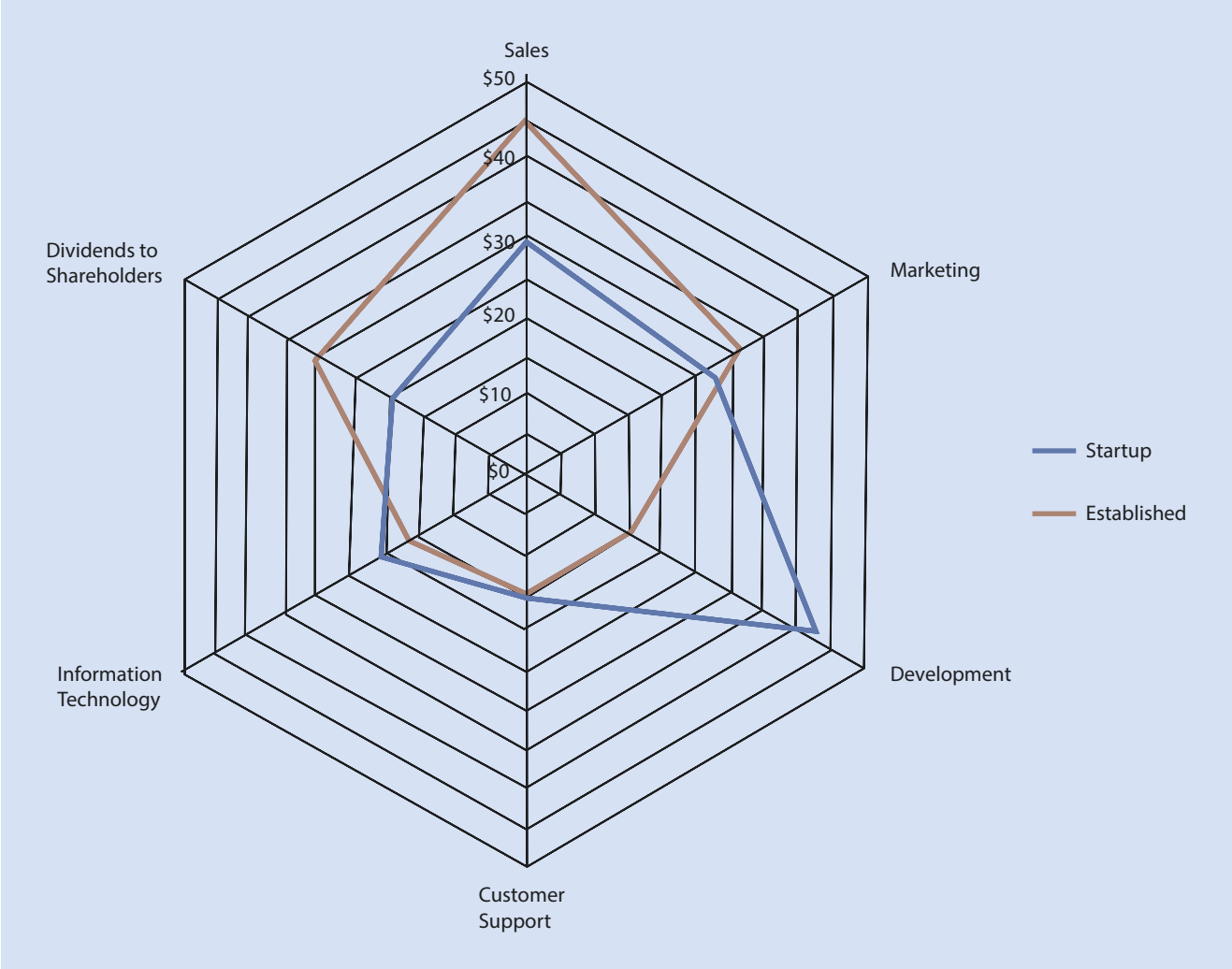


Fig. 14.7 Radar chart

Fig. 14.8 Competitor marketing strength grid for music groups (schematic)

	Sales Force	Catalog of Artists	Music Tours	Social Marketing Reach	Music videos	Retail Outlets
Universal	●	◕	◕	○	○	○
Sony	○	◕	●	○	●	○
Warner	●	●	◑	◔	○	○

into continuous streams—that is, to take on an integrator function. Whereas barriers to competitors, such as customer captivity, proprietary technology, capital requirements, and economies of scale, are typically low for discrete products, they tend to be higher for continuous products. Shifting a product from discrete to continuous mode therefore raises entry barriers and the competitive advantage of incumbents.

14.4.3.5 Analyzing Competitive Dynamics—Oligopoly Analysis

When it comes to market concentration, perfectly competitive markets are relatively easy to analyze, as are pure monopolies at the other extreme of market concentration. But much of business is really somewhere in-between, with markets dominated by a handful of competitors partly competing and partly co-operating. Such oligopolies have different dynamics; a move made by one player brings about a direct response by the others. Augustin Cournot, a French economist, philosopher, and mathematician, was an early contributor to oligopoly theory. Cournot believed that oligopoly firms collaborate to charge one price and jointly get monopoly profits, with the firms then splitting the monopoly profit. This type of oligopoly analysis was continued by the developers of game theory (also mentioned in ► Chap. 11 Pricing of Media and Information), which analyzes behavior within an oligopoly as a series of strategic moves and counter-moves.

Game theory requires management to understand other players' motivations, look for opportunities to co-operate, retaliate against firms that do not co-operate or deviate from an agreed strategy, and provide for a resumption of co-operative behavior. In 1994, three game theorists won the Nobel Prize for Economics.[53]

The problem with game theory is that most real circumstances deal with multiple players, which call for a more complicated analysis of potential outcomes that is thus often impractical. The analysis works best for two- or three-player scenarios. This has hampered the development of game theory as a management technique for strategy,[54] but it can sharpen management thinking. Game theory forces a firm to give systematic consideration to its own strategic alternatives. A firm needs to assess how each competitor perceives its own self-interest.

The classic example of game theory is the Prisoner's Dilemma, mentioned before. This demonstrates how two people co-operate or do not co-operate when their interests are at stake. Two suspects are put in the position where they must choose either to betray the other or remain silent. Both prisoners depend on each other's decision and needs to consider what the other might do. One of the problems with the game is that even a "win–win scenario" among competitors does not include the consumer. A collusion among competitors is not what a government would generally consider a social optimum. Governments generally oppose the co-operation of companies that should be competing.

Case Discussion

Comcast and Game Theory

In some areas of the country, Comcast's main video competitor is the satellite TV platform DirecTV network, owned by AT&T. The two companies can both choose to charge subscribers a high or a low price. If both companies choose high prices for video service, they will both earn $10 billion in revenue. (All of these numbers are hypothetical). If both companies choose low prices, they will both earn only $5 billion in revenue. If one company chooses a high price and the other chooses to underprice it, the company with high prices will lose business and earn $1 billion in revenue, and the company with low prices will get most of the business and earn $15 million in revenue.

Therefore, the company with the initially higher price would quickly lower it, and both firms would end up at $5 billion. This would be the competitive (i.e. non-co-operative) equilibrium price.

The optimal strategy would be for both companies to set the high price, maximizing their revenues. But how to keep the other firm from undercutting the high price in order to gain market share, thus requiring a counter-move?

Knowing this and knowing that its rival knows it leads both firms to engage in a tacit agreement in which both firms set prices high and avoid price competition. This is the essence of game theory: when deciding on a strategy, a company must take into account the effects of its own behavior on the behavior of other companies. The situation becomes more complicated when multiple rounds and companies are considered.

53 One of the winners was John Nash. Nash defined an equilibrium point at which "no player can improve their position by changing strategy."

54 Crainer, Stuart. "Not Just a Game." *Management Today* 66, no. 28 (July 1996): 66.

14.4.4 Assessing Society and Government

To design a strategy, a company must examine the broader societal environment. Factors include demographic and economic trends, political tendencies, and generational shifts in taste and style. Otherwise the firm might miss its market or face a competitor better at reading the signs.

Beyond the broad trends is also the concrete presence of government. Given the public importance of media, almost any strategic move by a major media company leads to some interaction with government. A company therefore needs to understand government priorities and shifts that could affect the industry. This needs to go beyond political news and incorporate an understanding of forces, drivers, and players. Global companies have to understand this outside their home country too. Policy changes are not started by faceless bureaucrats but normally require a certain socio-cultural intellectual environment, as well as a stakeholder constellation, from which they then spread.[55] A good example is the emerging "information activism" movement, discussed in ▶ Chap. 7 Intellectual Asset Management. That movement includes groups that advocate open source, net neutrality, privacy protection, unlicensed spectrum, municipal free wi-fi connectivity, and much more.

Beyond the strategic importance of such big picture understanding, it also helps a company compete with a rival by navigating the political, regulatory, and legal environment more effectively. It also helps in identifying tactical allies. Some advocacy groups might become allies on certain issues. When Comcast sought to acquire NBC Universal, it brought several citizen activist groups onto its side by promising to offer a low-cost broadband internet service to poor households with children for less than $10 per month, at an 80% discount.

14.4.4.1 Case Discussion

Comcast: Threats from Legislation and Regulation

The list of regulatory issues facing Comcast and its subsidiaries, beyond those faced by every business company, is long.

- Net neutrality regulation of ISPs';
- À-la-carte pricing for cable channels;
- Anti-trust restrictions on mergers, ownership ceilings, and cross-media ownership rules;
- Franchise license requirements by local and state government;
- Interconnection and unbundling rules on telecom network providers;
- Trade restrictions on films and TV imports by many countries;
- Interoperability requirements for set-top boxes;
- Requirements to provide cable channels to rival providers;
- Privacy rules;
- Taxes and contributions to affordable universal service.

55 Sigma. "SIGMA Global Sensor." March 31, 2005. Last accessed July 11, 2017. ▶ http://www.sigma-online.com/en/SIGMA_GlobalSensor/.

14.5 Internal Assessment

14.5.1 Core Competency and Competitive Advantage

Complementing the external approach of competitive advantage with its market structure orientation is the approach of an internal assessment—the core competency-/resource-based view discussed earlier.

There are several ways to assess core competencies.

1. Look at a firm's successful core product, and work backwards to identify the factors underlying the success.
2. Benchmark the best practices by competitors and best-in-class companies and compare them to the company's own operations and activities. The superior performance by others can be analyzed for its causes and therefore for how to match that performance.[56]

14.5.2 Internal Assessment: Leadership Resources

A key resource for a successful organization is leadership at the top. Any strategic plan must center on the ability of the leadership team to deliver it. A company's strategy has to be congruent with the strengths of its leaders. Effective leaders must possess many essential attributes: experience, judgment, integrity, determination, ability to learn, ability to inspire and influence others, to gain trust, to trust others, and to set an example,[57] to take calculated risks, to assume responsibility, and to grow in the job.

Leaders in the media and information industries need to have experience in the several fields and locations in which they operate: content production centers, such as Hollywood or Broadway; financial markets, such as London and New York; technology clusters, such as Silicon Valley; marketing centers, such as Madison Avenue; and political and bureaucratic capitals, such as Washington and Brussels. They must have an artistic appreciation of content, a visionary perspective on technology and familiarity with it, be good with numbers, efficient in operations, and sensitive to their numerous sub-audiences.[58]

56 Rigby, Darrell K. and Barbara Bilodeau. "Management Tools and Trends 2013." *Bain & Company*. May 8, 2013. Last accessed July 11, 2017. ▶ http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx; Deephouse, David L. "Media Reputation as a Strategic Resource: An Integration of Mass Communication and Resource-Based." *Journal of Management* 26, no. 6 (2000): 1091–1113; Chan-Olmsted, Sylvie M. and Jaemin Jung. "Strategizing the net business: How the U.S. television networks diversify, brand, and compete in the age of the internet." *International Journal on Media Management* 3, no. 4 (2001): 213–225.

57 Lynch, Richard. *Corporate Strategy*. (Upper Saddle River, NJ: Prentice Hall, 2003), 371.

58 Sánchez-Tabernero, Alfonso. "The Future of Media Companies: Strategies for an Unpredictable World." In *Strategic Responses to Media Market Changes. Media Management and Transformation.* Ed. Robert G. Picard. Jönköping, Sweden: Jönköping International Business School LTD., 2004.

There are no individuals alive who possess all of these qualities. In that sense, all leaders are imperfect. What they can provide, in particular, is a vision of a future. Media and media tech business visionaries—the people who created organizations—have included, over the years:

- David Sarnoff, architect of RCA and of the model of private broadcasting;
- John Reith, guiding spirit of the BBC and of public service broadcasting more generally;
- Theodore Vail, creator of AT&T's Bell System;
- Ted Turner, pioneer of satellite-delivered cable channels;
- Gordon Moore and Andrew Grove, pioneers of microelectronics production;
- Irwin Jacobs, creator of packet-based mobile communication;
- Steve Jobs, pioneer of microcomputers and of mobile media devices;
- Bill Gates, creator of operating system software for microcomputers;
- Rupert Murdoch, who established the world's first global satellite TV presence;
- Jeff Bezos, originator of wide-scale e-commerce.

14.5.2.1 Case Discussion

Comcast: Leadership

Brian Roberts, son of the company's cofounder, became president of Comcast in 1990, CEO in 2002, and chairman in 2004. Roberts maintains a low national profile. In terms of performance, since 1990 Comcast revenues grew from less than $1 billion to $69 billion. Roberts has been an aggressive dealmaker. In 2001, he helped Comcast acquire AT&T broadband for $72 billion. In 2013, Comcast bough NBC Universal for $46.7 billion. Failed merger efforts include Disney (2005), Time Warner Cable (2014), and 21st Century Fox (2018). Roberts has been at the forefront in his field, foreseeing changes in technology and positioning the company accordingly.[59]

14.5.3 Internal Assessment: Human Resources

HR is discussed in ▶ Chap. 5 Human Resource Management for Media and Information Firms. Issues to consider are leadership resources, professional development, compensation and advancement, creative resources, relations with unions and constraints, and culture. The future of media and tech companies is dependent on hiring creative and productive people and training and encouraging them. Such people are the primary asset. They are connected to each other and to the organization through a specific culture. A strategy that clashes with its culture will be ineffective.

14.5.3.1 Case Discussion

Comcast: Human Resources

Does Comcast possess the internal HR to deal with a strategic decision that would, for example, move it into areas in which it has not been active before, in particular mobile communication, and international cable and video distribution?

Comcast is an entertainment/TV distribution firm, not a tech company. However, its network operations and requirements increasingly require tech-savvy people. This skill set would be needed much more if the company chose to enter mobile communications and integrate it with its cable/ISP functionalities.

In the past, Comcast has not had much international involvement. This changed with the acquisition of NBC Universal, which had marketing involvements and partnerships around the world. Approximately 12% of Comcast's workforce is Hispanic,[60] partly because of its ownership of the Telemundo video channel. Thus, Comcast is likely to have the foundation in HR to expand into international video distribution, in particular in the Spanish language markets.

Comcast also has a union issue to deal with. In 2002, only 2% of Comcast's workers were unionized. At the acquired division NBCUniversal on the other hand, there were many crafts unions for actors, directors, stagehands, and so on. The largest unions involved with Comcast are the Communications Workers of America and the International Brotherhood of Electrical Workers. In its network platform operations, Comcast moved to treating its cable installers as independent contractors rather than as full-time employees.[61] This suggests that cost-savings measures through staffing reductions might be harder to implement in content-production segments of the company.

14.5.4 Internal Assessment: Financial Resources

A strategy is likely to require investments, whether to fund, for example, an acquisition, an expansion, new products, or marketing. An exception might be strategies to outsource activities, but even here a process needs to be created for which resources must be allocated. A strategy needs to be budgeted over a period of several years, and the net cost must be within the financial resources available to the organization. Such resources may come from retained earnings, additional investments from the outside, bank loans, and the sale of assets. This

59 Lee, Edmund and Alex Sherman. "Comcast CEO Roberts Emerges from Malone Shadow as King of Cable." *Bloomberg News*. February 15, 2014. Last accessed July 11, 2017. ▶ https://www.bostonglobe.com/business/other/2014/02/15/comcast-ceo-roberts-emerges-from-malone-shadow-king-cable/9BvpCcYbf93ZFJBi1LjxTP/story.html.

60 Comcast NBC Universal. Comcast Diversity & Inclusion Report 2014. 2014. Last accessed July 11, 2017. ▶ http://corporate.comcast.com/images/Comcast_Diversity_Report_060214.pdf.

61 Sole-Smith, Virginia. "Consider the Cable Guy." *Slate*. April 15, 2016. Last accessed July 11, 2017. ▶ http://www.slate.com/articles/business/the_grind/2016/04/more_cable_and_internet_installers_are_independent_contractors_and_the_hours.html.

is discussed in ► Chaps. 6 Financing Media, Information, and Communications and 13 Accounting in Media and Information Firms. Factors to consider are debt and debt ratios; the cost of capital; the capital structure; access to funders such as banks, venture capital firms, angels, private investors, and public equity; and access to governmental financial support. Also to consider are risk profile and the portfolio of projects, and the impact on the market valuation of the company.

14.5.4.1 Case Discussion

Comcast: Financial Resources

Comcast was $40 billion in debt after the acquisition of NBCUniversal in 2012. It also had a major need for increased capital expenditure upgrade its cable infrastructure.

Comcast's debt to enterprise value ratio (a measure of the company's debt over a theoretical value of what it would cost to acquire the company) was 25.9%.[62] In comparison, these ratios for Comcast's peer companies were AT&T 34.8%, Charter 50%, Verizon 37.3%, Time Warner Cable 53.5%, and Liberty Media 23.4%. For the cable and satellite industry as a whole, the average is around 37.5%. Comcast is thus well below the industry average, which would indicate an ability to take on additional debt. Comcast, given its enterprise value, could afford to borrow an additional $22 billion and still remain at the industry average. If it were to go up to the debt level of its rival Charter, this number would be doubled.

A second major avenue would be to finance through equity. Comcast could issue more stock, but its shareholding structure has already been quite complex: control has been held by the Roberts family with a small minority of the shares issued, through super-voting Class B shares. In terms of share offerings to the public, Comcast has actually gone in the opposite direction, by using its corporate cash to launch in 2014 and an $11.5 billion share repurchase program. It could reverse course and issue that stock to the market. This treasury stock accounts for approximately 15% of the entire shares outstanding. A rapid selling would therefore yield probably $21.5 billion. But it would depress the share price and affect shareholders including top management and the Roberts family, as well as diluting their control.

In conclusion, it may be noted that Comcast has the ability to raise significant money for strategic initiatives through debt. Added debt would still leave Comcast below the industry average. Financing through equity is also possible but would lower share price and reverse its policy of the repurchase of shares.

14.5.5 Internal Assessment: Technology Resources

A business strategy needs to consider the technology requirements and resources. This is discussed in ► Chap. 3 Production Management in Media and Information. Strategists can do an internal assessment of company technology by reviewing:

- The patent portfolio of the company and of its rivals;
- The trends of technology;
- Management's strategy for protecting its technologies;
- The company's competitive technological advantage;
- Financial requirements for further R&D.

14.5.5.1 Case Discussion

Comcast: Technology Innovation Resources

Comcast's public statement is that "Technology and innovation are at the core of everything Comcast does." But is Comcast a tech company? Can it be a leader in technology? Actually, Comcast's potential weakness is that it is not a tech company, and that it has no strong tech presence in a business that is technology driven.

In response, Comcast created the Comcast Labs where, it reports thousands of engineers work on future technologies. This is intended to create a start-up-like climate to foster innovation, especially in the field of end user devices. But a headcount of Comcast Labs staffing does not indicate a major in-house resource commitment. The labs have 40 PhDs and ten Distinguished Fellows out of about 135,000 Comcast employees in total. Compared with its competitors, this figure is low. For example, there were about 700 researchers at Bell labs, and there once had been 25,000 employees during AT&T's heyday.

Yet this does not mean a lack of innovation. Comcast was the first of the large US ISPs to introduce the new-generation internet protocol IPv6 to end users. But IPv6 was not developed by Comcast and was not an exclusive technology but wide open. Products developed by Comcast Labs are the X1 Platform for interactive TV experience. It enables the delivery of video on demand, together with digital video recorder (DVR) service and live viewing. Viewers can use a smartphone as a remote control via voice, motion, and touch commands. The system integrates social media websites, weather, and texts on the same television screen.

Comcast was also leading in the development of PowerBoost technology. PowerBoost, officially, makes excess network

62 Data on debt from company annual reports; and Debt of $49 billion, on Enterprise Value from YCharts. "Comcast Enterprise Value." Last accessed July 11, 2017. ► https://ycharts.com/companies/CMCSA/enterprise_value.

capacity available to customers to raise their connection speed above the speed they are paying for. But it also enables the company to throttle down speed available to heavy users or certain types of content providers (this created major controversies). Flux Scout is a tool that helps to improve video and audio quality. Its introduction put Comcast into third place on the list of the most innovative telecommunication companies, according to an *InformationWeek* ranking.

Comcast's NBC subsidiary was historically a technology leader in broadcasting, typically through its then parent company, the technology firm RCA, though not so much in recent years after RCA's absorption into General Electric. Comcast's film studio, Universal, has significant content creation capability for computer-generated graphics for films. Universal's special effect films include *Jurassic Park*, *King Kong*, *Jaws*, and *The Mummy*.

Comcast increasingly put resources into R&D. Its new headquarters building, Comcast Tower 2, includes an Innovation and Technology Center. That said, internal technology resources are likely to remain a constraint, and the company will often have to go outside to solutions by vendors or commission proprietary developments. The question then is whether Comcast should devote more resources to technology R&D, and if so for what kind of products.

14.5.6 Internal Assessment: Intellectual Assets

Intellectual assets are key for the media and IT sectors. Strategies to create and monetize them are discussed in ► Chap. 3 Production Management in Media and Information. Issues are patent and copyright portfolio, license requirements and dependencies, and strength of protection. To conduct an internal assessment analysis of its intellectual assets, a company must first identify these assets, find any gaps, and dispose of any unneeded assets. A patent audit map and other tools are discussed in ► Chap. 7 Intellectual Asset Management.[63]

14.5.6.1 Case Discussion

Comcast: Intellectual Assets

Comcast received 350 US patents over 20 years, that is, about 17 US patents per year. Comcast's patents are mostly in the fields of electric digital data processing (140 patents). For example, Comcast owns patent no. 7,012,916 for the method and apparatus for accessing communication data to a target identified by a number string. Comcast also owns patent no. 8,204,046 for the method to map telephone numbers to identifiers needed for call routing. Both patents are relevant for call-routing over phone lines and the internet. In 2014, Comcast sued Sprint for infringing on the patent and won $7.5 million in damages.

In contrast to its limited patent portfolio, Comcast holds a vast number of copyrights for its films and TV shows. NBC grants licenses for use of its content (outbound licensing), and acquires licenses to content by others (inbound licensing). In an example of outbound licensing, NBC Universal licensed BSkyB with NBC's TV rights in the UK and Ireland.[64] The contract also allows BSkyB to air Universal films after they end their UK theatrical runs, for an exclusive window of about a year until they also become available on other subscription services, such as Netflix.

Through 2010, Universal received about $22 million per year from Netflix through its licensing contract. That figure grew to $275 million per year in 2011. Also in 2011 Universal entered into a movie-licensing contract with Amazon.com. Amazon paid NBC Universal $50 million for the license to 2000 movies and 7000 TV episodes to be made available to Amazon Prime subscribers over the course of the agreement.[65]

Inbound licensing is costly but important to the TV network and its stations. The NBC networks must often obtain license shows produced by others. Also significant are licenses for sports events. This was reported in detail in ► Chap. 7 Intellectual Asset Management.

Football: for 2006–2013, NBC paid an annual fee of $603 million for its NFL package. NBC's contract was renewed for the seasons 2013–2022 for an annual fee of $1.05 billion.

Soccer: in 2012, NBC acquired the rights to broadcast English Premier League Soccer in the USA for 2013–2014 for $250 million. With this deal, NBC became exclusive English- and Spanish-language media rights holder for all 380 Premier League matches across all platforms and devices in the USA. Its aim was, in particular, to reach the Latino audience there.

Olympic Games: this has long been NBC's signature programming event and part of its brand. NBC bought the rights to carry in the USA the six Olympic Games from 2022 to 2032 on all current and future distribution platforms. It paid $7.75 billion, that is $1.12 billion per event (summer as well as winter games, with the latter less valuable). This was vastly higher than in earlier years. Its payment accounts for 62% of the overall broadcasting revenues received by the International Olympic Committee.

63 Kline, David and Kevin G. Rivette. *Rembrandts in the Attic*. (Cambridge, MA: Harvard Business Review, 1999), 68.

64 Szalai, Georg. "U.K.'s BSkyB Extends NBCUniversal Movie Deal with Exclusive Window." *The Hollywood Reporter*. November 6, 2012. Last accessed July 11, 2017. ► http://www.hollywoodreporter.com/news/uk-bskyb-nbcuniversal-movie-tv-deals-exclusive-netflix-lovefilm-386837.

65 Letzing, John and Nathalie Tadena. "Amazon, NBCUniversal Reach Licensing Agreement." *Wall Street Journal*. July 28, 2011. Last accessed July 11, 2017. ► http://online.wsj.com/article/SB10001424053111904800304576474363664306294.html.

14.6 Strategy Options

14.6.1 Generic Options

In principle, there are innumerable strategic options, far too many to be discussed individually. Most can be categorized within three fundamental strategy types and about two dozen basic sub-options or mixed options. The three basic types of media and tech strategies are:

- Product strategies;
- Marketing and distribution strategies;
- Scope strategies.

14.6.1.1 Product Strategies

Product strategies focus on the design, quality, and production process:

- Product creation and innovation;
- Production cost leadership;
- Content and quality;
- Product differentiation.

14.6.1.2 Marketing and Distribution Strategies

Marketing and distribution strategies focus on reaching buyers and placing the product. They include:

- Branding;
- Advertising and promotion
- Pricing;
- Customer relations;
- Distribution platforms.

14.6.1.3 Scope Strategies

Scope strategies deal with the scope of the firm's products. They are separated into two dimensions, widening and deepening.

Widening Strategies

Widening strategies focus on:

- Economies of scale;
- Product line expansion;
- Globalization;
- Mergers & acquisitions;
- Diversification;
- Vertical integration;
- Alliances and collaboration.

Deepening Strategies

Deepening strategies, on the other hand, focus on:

- Specialization;
- Differentiation;
- Customization.

Case Discussion

Comcast: Scope Strategies

Comcast, with its extensive resources, has many avenues open for its future. At the same time, it is being closely watched and constrained by government regulators. Among the most likely strategy for Comcast is to expand its product offerings to include mobile communications. This would-be part of adding the element of mobility to its existing "triple play" of video, voice telecom, and internet. Providing quadruple-play helps recruit and keep customers. It raises the cost of exit by customers and hence reduces churn. It can use Comcast's existing infrastructure. However, this means to move outside Comcast's existing geographic cable footprint. It would be entering entirely new territories if it wanted to be a national rather than a regional mobile service provider, or it would have to enter into alliances with other cable and mobile companies. It would also require the acquisition of spectrum licenses from the government. This raises regulatory problems and is costly. How would Comcast go about entering mobile service? What are its options?

Acquisition of an existing mobile carrier. Comcast could buy out one of the two smaller mobile companies such as sprint or T-Mobile, who themselves seek to merge. AT&T offered $39 billion to buy T-Mobile in 2011. In 2013 Softbank paid $20 billion to buy Sprint. (Dish Network offered $25.5 billion.) In addition, Comcast would have to make major further investments for spectrum and infrastructure. Thus, this is a very expensive option.

Partnerships. A cheaper option would be to partner with one of the two smaller mobile companies to compete with AT&T and Verizon in the wireless telecom market. It would have to make concessions to its partners. There is some mutual advantage in that the partnered mobile operator would zoom ahead and become a solid #3 market participant. However, Comcast would not have full control over the operations of the new company.

Create a new wireless company and enter the market. Comcast could start its own mobile network. But that would require major investments and might not be successful. It is a risky undertaking. While Comcast could support it with its own infrastructure sales organization in its service territory, it would have to create a presence in the rest of the country.

Joint venture with other cable industry partners. Alternatively, Comcast could partner with other cable providers such as Charter to create a new national wireless company. However, to be the fifth and newest wireless provider is difficult.

"Mobile-light" strategy. Comcast could provide wi-fi based wireless service. It launched an app called "Voice2Go" which uses any cell phone carrier's 3G/4G network or available wi-fi connections to make free calls and to send free messages. However, this is only possible for Comcast voice customers in its own franchise areas. This would reduce the potential market.

MVNO (resale). Comcast could start its own mobile virtual network operator (MVNO), reselling other mobile operators' service under its own name, by buying out minutes and data from well established companies such as Verizon. It would have to make major marketing investments to create a brand recognition, especially outside its cable footprint. Alternatively, Comcast could buy out an existing MVNO such as H2O or Cricket.

Strategic Alliance. This would go beyond a co-operation in mobile communications and mesh Comcast's wider activities with those of another company. For example, it could join with Verizon in a way that makes it an MVNO using Verizon's wireless network, while contributing its

NBC Universal and Hulu content channels to Verizon's own multichannel provider FiOS, and collaborating with Verizon's telecom and ISP operations to form a national wireline footprint. A logical conclusion might then be for the firms to take the next step and seek a megamerger.

Conclusions on Comcast's Diversification into Mobile Service

The market for wireless services is already competitive and it would be difficult to successfully compete with the more established companies, especially Verizon and AT&T. But Comcast, without mobile, is at a competitive disadvantage to rivals Verizon and AT&T. The most promising route for Comcast is to offer MVNO services under its own brand name, in a partnership with Sprint or T-Mobile. Meanwhile, it should be watching for buying, merging, or joint venture opportunities with T-Mobile or Sprint.

14.6.2 How to Select among Strategies

Given the proliferation of strategic options, the question now is how to select among strategies. The selection of strategies can be undertaken in several ways: based on intuitive judgments grounded in experience or alternatively based on a rigorous analysis of the costs and benefits of each alternative.[66] Tests for good strategy require at least two rounds: first, to make sure of their general fit, and second, to apply a more rigorous selection. The initial tests for fit include:[67]

1. *Constraints tests:* do the firm's financial, human, technology, and leadership resources permit the strategy? Are there governmental constraints?
2. *Originality test:* does the strategy differentiate the product from rivals or is it a "me-too"?
3. *Purpose test:* does the strategy address the vision of its leader?
4. *Consistency test:* is the strategy consistent with the organization's other activities, its brand image, and culture?
5. *Risk test:* are the risks within the tolerance of the company?
6. *Flexibility test:* does the strategy lock the firm into a fixed direction or does it permit flexibility if the environment changes?

This first-stage selection will probably still leave several options to choose from. Therefore, in a second stage of analysis, a deeper examination must be undertaken.

14.6.3 Methodologies to Select Among Strategy Options

14.6.3.1 Non-analytic Methodologies

Non-analytic selection methods are based on good judgment and experience. Selection can be based on preformulated rules-of-thumb, known as "heuristics," such as "content is king."[68]

14.6.3.2 Soft Analytic Tools

The soft analytic approach uses fairly basic analytical tools, less oriented toward quantification, data, and equations, and more toward a structuring of options to create a disciplined process of evaluation. A classic example is the SWOT analysis described earlier in the chapter.

14.6.3.3 Hard Analytic

The hard-analytic method is based on statistics, finance, operations research, economics, electrical engineering, or computer science models. The quantitative approaches can be superior, in theory, in that they allow for objective comparisons. They are systematic and data based. But there are severe limits to quantitative approaches, given that many success factors are not quantifiable or they require data that is just not available.[69] The quantitative approaches thus may provide a fictitious exactitude. Yet they also provide a disciplined way to organize the analysis; and like the practice of medicine, they combine hard science with good judgment and experience. There are several quantitative methods for comparing strategies, including the financial metrics, return on investment, net present value (NPV), and cost-benefit.[70]

A structured approach to selecting strategies would incorporate several steps. Often a quantification will be difficult; in that case one must make reasonable assumptions. The steps are:

- Define options;
- Screen out options unlikely to meet objectives;
- For the remaining options, estimate the costs of each;
- Estimate the revenues of each option;
- Estimate the investment requirements for each option;
- Calculate the return on investment for each option (it should be about a "hurdle rate"—the minimum rate needed to be earned).[71]

66 Beach, Lee Roy and Terrence R. Mitchell. "A Contingency Model for the Selection of Decision Strategies." *The Academy of Management Review* 3, no. 3 (July 1978): 439.

67 Lynch, Richard. *Corporate Strategy*. (Upper Saddle River, NJ: Prentice Hall, 2003), 24.

68 Beach, Lee Roy and Terrence R. Mitchell. "A Contingency Model for the Selection of Decision Strategies." *The Academy of Management Review* 3, no. 3 (July 1978): 439–449.

69 Liberatore, Matthew J., Thomas F. Monohan, and David E. Stout. "A Framework for Integrating Capital Budgeting Analysis With Strategy." *Engineering Economist* 38, no. 1 (September 1992): 31–43.

70 Thamhain, Hans J. *Management of Technology: Managing Effectively in Technology-Intensive Organizations*. Hoboken, NJ: Wiley, 2005.

71 Philips, Jack, Wayne Brantley and Patricia P. Phillips. *Project Management ROI: A Step by Step Guide for Measuring the Impact and ROI for Projects*. (Hoboken, NJ: Wiley, 2011), 352; Schoeffler, Sidney, Robert D. Buzzell and Donald F. Heany. "Impact of Strategic Planning on Profit Performance." *Harvard Business Review*. March 1974. Last accessed July 11, 2017. ► https://hbr.org/1974/03/impact-of-strategic-planning-on-profit-performance.

There are multiple ways to compare projects in order to select the optimal one. One survey of chief financial officers showed their use of these techniques for making capital budgeting decisions: 75% reported that they use always or mostly NPV or the related internal rate of return (IRR); 55% use the hurdle rate or payback period, in which the time needed to cover the investment is calculated and compared with that of other projects; 50% use sensitivity analysis, in which the various variables that affect profitability are changed to identify best-case and worst-case outcomes and their probabilities; and 25% real options, in which the investment is disaggregated into several stages.[72]

Different types of projects require a different analysis. Generally, tactical investment means reinvesting in familiar activities with minor variations.[73] For example, if the Disney studio buys new film cameras every year, the purchase of new models would not be a departure from the past. In contrast, a strategic investment has major impacts on the company's future. It is harder to quantify. Thus, if Disney considered establishing a branded cellphone service (as it did), such a decision would be considered a strategic investment.

Strategic planning enables the company to narrow down its search for investment opportunities. With its strategy determined, a company will use project analysis to select specific investment opportunities within the categories specified by the strategic plan. Such a project analysis also serves to verify the conclusions of a strategic plan.

Net Present Value Analysis

As mentioned, NPV is the most common methodology. Its problems are to find the correct discount factor and how to estimate future revenue streams. Companies' risk tolerance varies. For example, a highly liquid firm such as Microsoft may be willing to take a bigger risk than a company that has reached its debt limit. Similarly, the incentive to diversify in order to lower risk is greater for a highly specialized company than for a conglomerate that already has been diversified.[74]

If a company concludes that the riskiness of a new project is equal to that of its current combination of projects, it can use its current cost of capital to determine the discount rate for the new project. On the other hand, if the company determines that the new risk is different, it can use the Capital Asset Pricing Model (CAPM) to calculate the expected returns, based on the risk rating of the project.[75]

To calculate the expected rate of return through the CAPM, companies follow a formula of required return = risk free rate + (beta coefficient × equity risk premium).

$$E(R)_i = r_f + \beta_i \left(E(R)_M - r_f \right)$$

where $E(R)_i$ is the expected return on an (arbitrary) project, r_f the risk free rate, β_i is the industry's beta, and $E(R)_M$ is the expected return of investments in general (the market rate of return). The beta coefficient is a statistic which measures the risk of a particular investment compared to the market. A beta coefficient of 1 puts the companies investment risk equal to the market, a smaller beta number is less risky. The equity risk premium is calculated by taking the rate of return for the market, typically the S&P 500, minus the risk-free rate (typically the yield of a 10-year government bond). For example, assume that Comcast has a beta coefficient of 0.82, a risk-free rate of 3%, and the market's equity risk premium is 9%.

$$\text{Cost of Equity} = 3\% + (0.82 * (9\%–3\%)) = 0.0792 = 7.92\%$$

See the discussion in ▶ Chap. 6 Financing Media, Information, and Communication.

The NPV technique is the most common method of comparing projects, and can be equally applied to broader strategies. It involves discounting the net cash flows for a project or strategy minus the net investment. The discount rate used most frequently is the company's cost of capital.[76]

$$NPV = \left(\sum_{t=1}^{N} \frac{R_t}{(1+r)^t} \right) - I$$

Where

- R_t = net revenue in period t
- r = discount factor
- N = time period
- I = investment

One problem is that it is difficult to forecast profit streams for a strategy. A second problem is picking the risk factor for the discounts. One way to deal with these uncertainties is a sensitivity analysis that explores each option, making different assumptions for projected income streams and discount factors, and observing how much they change the results.

Strategic planning enables the company to narrow down its search for investment opportunities. With its strategy determined, a company will use project analysis to select specific investment opportunities within the broader catego-

72 Graham, John and Campbell Harvey. "How Do CFOs Make Capital Budgeting and Capital Structure Decisions?" *Journal of Applied Corporate Finance* 15, no.1 (Spring 2002): 8–23.

73 Bierman, Harold and Seymour Smidt. *The Capital Budgeting Decision,* 8th ed. (New York: Macmillan Publishing, 1993), 3–13.

74 Hyland, David C. and David J. Diltz. "Why Firms Diversify: An Empirical Examination." *Financial Management* 31, no. 1 (Spring 2002): 51–81.

75 Brealey, Richard A. and Stewart C. Meyers. *Capital Investments and Valuation*. (New York: McGraw Hill, 2003), 185–219.

76 Thamhain, Hans J. *Management of Technology: Managing Effectively in Technology-Intensive Organizations*. Hoboken, NJ: Wiley, 2005.

ries of the strategic plan. In that process NPV is the most common methodology. If a company concludes that the riskiness of a new asset is equal to that of its current assets, it can use its current cost of capital to determine the discount rate for the new asset. On the other hand, if the company determines that the new risk is different, it can use the CAPM to calculate the expected returns, based on the risk rating of the project.[77]

Case Discussion

Comcast: Net Present Value and Return on Investment of Strategy Options

Suppose that CEO Brian Roberts offers his board of directors three strategic options for growth. The examples are hypothetical.[78]

- Option 1: horizontal expansion—acquisition of the large regional telecom company CenturyLink, in order to establish a presence in the central part of the USA.
- Option 2: vertical expansion into content—acquisition of the cable channel company Discovery Communications Co. in order to strengthen Comcast's presence in content production and distribution.
- Option 3: product upgrade—strengthen Comcast's in-house creation of content by expanding production facilities and projects.

Comcast's assessment criterion is to choose the strategy that is estimated to show the highest measures of NPV and return on investment (ROI) over six years.

Option 1: Acquisition of the Large Regional Telecom Firm CenturyLink

The goal would be to establish a presence in the central part of the USA. Synergies and economies of scale make this venture a low-risk strategy, with a discount rate of 4%. The initial investment is—hypothetically—$2000 million. Cash flows in the subsequent years are estimated as $550 million, $750 million, $900 million, and $1100 million.

$$NPV = -\$2000 + (\$550)/1.04 + (\$750)/(1.04)^2 + (\$900)/(1.04)^3 + (\$1100)/(1.04)^4$$

$$NPV = 962.4$$

$$ROI = (962.4/2000)\times 100 = 48.1\%$$

Option 2: Vertical Integration: Acquisition of Discovery Communications

Vertically integrating Discovery Communications (owners of the Discovery Channel and 28 other content brands) would allow the company to secure ownership of content production and cable channels and enable it to deny them to competitors. Ownership of these companies could also lower its content acquisition costs.

Resource synergies between a distributor of content and producer of content make this strategy a low-risk moderate-returns investment. The annual cash flow has a discount rate of 4% and an initial investment of $175 million. Net cash flows are $50 million, $80 million, $85 million, and $90 million.

$$NPV = -\$175 + (\$59)/1.04 + (\$80)/(1.04)^2 + (\$85)/(1.04)^3 + (\$90)/(1.04)^4$$

$$NPV = \$108.18 \text{ million}$$

$$ROI = (108.18/175)\times 100 = 61.82\%$$

Option 3: Product Upgrade

A third alternative strategy is to increase Comcast's internal ability to increase content production. But content production is a high-risk, high-returns strategy. The risk-appropriate discount rate is 40%, with an initial investment of $200 million. Net cash flows in subsequent years are $100 million, $135 million, $175 million, and $200 million.

The NPV is then:

$$NPV = -\$200 + (\$100)/(1.4) + (\$135)/(1.4)^2 + (\$175)/(1.4)^3 + (\$200)/(1.4)^4$$

$$NPV = \$56.14 \text{ million}$$

$$ROI = (56.14/200)\times 100 = 28.1\%$$

By those numbers, Comcast's optimal strategy would be the vertical integration into content creation and packaging by an acquisition of Discovery Communications. That strategy has the highest NPV, at $108.08 million. In terms of ROI the vertical integration strategy is also the best selection. Its ROI, over the 6-year period, is 61.8%, in contrast with the CenturyLink option whose ROI is 48.1%, and that of internal diversification, at 28.1%.

Decision Tree Analysis

A methodology to choose among determinative options is to use a "decision tree," in which various outcomes are presented with their probability as well as their cost and payoff. This is represented in a graph that shows a flow chart with decision points and possible consequences, including cost, benefits, probabilities, and chance events. One can then identify the option with the highest expected benefit. A decision tree analysis offers structure and clarity in presenting information to decision-makers.[79] On the other hand, a disadvantage is its formalism,[80] breaking everything into yes–no, either A, B, or C type decisions.

77 Brealey, Richard A. and Stewart C. Meyers. *Capital Investments and Valuation*. (New York: McGraw Hill, 2003), 185–219.

78 Based on Jan, Obaidullah. "Capital Asset Pricing Model." *Accounting Explained*. Last accessed July 14, 2017. ► http://accountingexplained.com/misc/corporate-finance/capital-asset-pricing-model; Shapiro, Alex. "The Foundations of Finance: The Capital Asset Pricing Model (CAPM)." Last accessed July 14, 2017. ► http://pages.stern.nyu.edu/~ashapiro/courses/B01.231103/FFL09.pdf.

79 The numeric example is taken from Quinlan, J. R. "Decision Trees and Decisionmaking." *IEEE Transaction on Systems, Man, And Cybernetics* 20, no. 2 (March/April 1990): 339–346.

80 Quinlan, J. R. "Decision Trees and Decisionmaking." *IEEE Transaction on Systems, Man, And Cybernetics* 20, no. 2 (March/April 1990): 339–346.

Case Discussion

Comcast: Decision Tree

Suppose three potential generic strategies exist for Comcast[81]:

- Product upgrade (internal production);
- Vertical integration M&A with content media (Discovery communications);
- Globalization by entering The European DBS market.

The probability for each decision alternative is derived from the risk analysis study of each step, derived from data where it exists and from expert opinion through brainstorming.

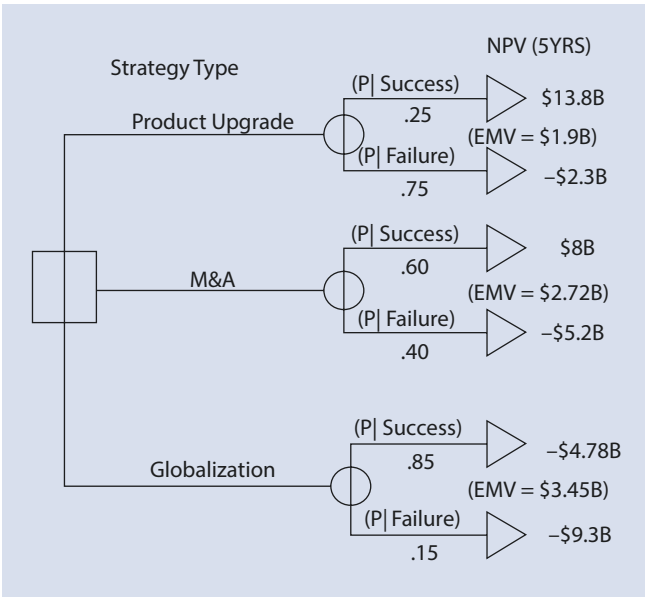
Applying decision tree analysis (DTA) to choose between strategic options, managers can use estimated monetary value (EMV) to find the composite value.[82]

$$\text{EMV} = \sum_{n=1}^{N} \text{Value}_n \times \text{Probability}_n$$

The EMV (expected monetary value) is the "total of the weighted outcomes (payoffs) associated with a decision" and is a useful tool for "choosing the most valuable option."[83]

Comcast has $2 billion and can invest in a long-term strategic plan or reward shareholders with dividends. It can utilize the DTA to determine the optimal generic strategy for the company (◘ Fig. 14.9). This is the outcome in terms of the payoff, weighted by the probability for each stage to occur.

The strategy that emerges from the decision tree analysis of ◘ Fig. 14.9 that shows the highest composite value is "globalization" (EMV = $3.45 billion). Although it also has the greatest potential downsides (−$9.3 billion), the probability of success is high.



◘ **Fig. 14.9** Decision tree for Comcast

The Imputed Value

A useful strategy tool for a firm is to calculate ("impute") its value as a company under several strategy scenarios. For example, does a demerger generate greater value than remaining a conglomerated firm? There may exist a potential "conglomerate premium" or, conversely, a "conglomerate discount." One can determine the imputed value of each of the divisions of a conglomerated firm by estimating its market value based on a comparison with a comparable "pure play" firm—that is, an undiversified firm—in the same industry.[84] The value of such a division is based on the assumption that each division would be valued by the stock market according to the market-to-book value of the comparable "pure play" firm.

$$\text{The firm's Total Market Value}\left(\text{MV}\right) = \text{Equity} + \text{Debt}$$

$$\text{Imputed Value}\left(\text{IV}\right) = \sum_{n=1}^{N}\left(M_n \div B_n\right) \times \text{Book}_n$$

One then compares the company's aggregate IV of the various divisions with the MV.

14.6.3.4 Case Discussion

Comcast: Imputed Value

How can Comcast decide whether it should stay a multidivisional firm or divest several of its divisions and become a focused firm?

◘ Table 14.3 is purely for illustrative purposes and is not a factual analysis of Comcast's division book values and the median market-to-book values.

Comcast has a total MV of $140 billion but an imputed value of its divisions of $115,650 million. Therefore, the market value of the conglomerate is higher, by approximately 21% of the divisions' imputed value.

According to these numbers, Comcast would reduce value for its shareholders by pursuing a divesture strategy and becoming a focused firm to close the gap between its market cap and the anticipated market value. The preceding NPV analysis finds that vertical integration into content should be a strategic priority.

- The DTA finds globalization to result in a high expected value.
- The Imputed Value Analysis finds that a divestiture would reduce overall value.
- Together, these three approaches conclude that the company should strengthen its content and global roles through acquisition, and that its conglomerate structure adds value to investors.

81 Anders, George. "Comcast Wins Skirmish, Girds for War." *The Wall Street Journal*. February 20, 2008. Last accessed July 11, 2017. ► https://www.wsj.com/articles/SB120346320004678295.

82 Vanguard Software. "Expected Monetary Value." Last accessed July 11, 2017. ► http://www.vanguardsw.com/dphelp4/dph00076.htm.

83 BusinessDictionary. "Expected Monetary Value." Last accessed July 11, 2017. ► http://www.businessdictionary.com/definition/expected-monetary-value.html.

84 Nanda, Narayanan. *Finance for Strategic Decision Making: What Non-Financial Managers Need to Know*. San Francisco: Jossey-Bass, 2004.

Table 14.3 Value of Comcast divisions (hypothetical)

Divisions	Comcast book value ($ millions)	Pure-play firm median market-to-book value	Imputed value of division
Broadband Internet access	20,000	2.1	42,000
Cable TV network platform	19,000	1.3	24,700
TV network	22,000	1.1	24,200
TV network	10,000	1.6	16,000
Cable networks	3000	0.9	2,700
Video on demand service	7000	0.65	4,550
Voice over internet provider service	2000	0.75	1,500
Total	83,000		115,650

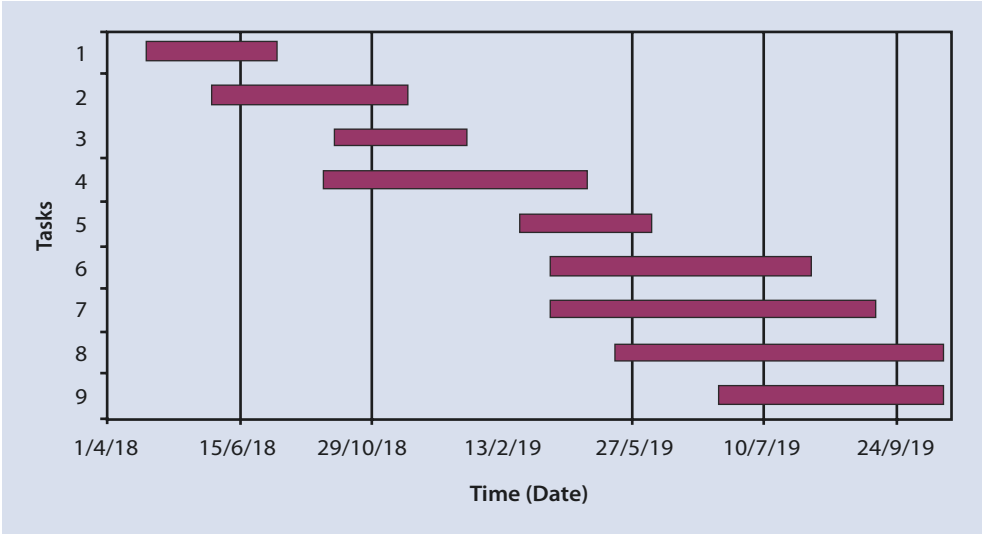


Fig. 14.10 A Gantt chart for the implementation of strategy

14.7 Implementing the Strategy

Creating a strategy is difficult, but its execution is even more difficult. It requires an organization to develop a road map, create an organizational structure, and establish integration, co-ordination, communication, incentives, and controls.

Tools and Steps for Implementation of Strategic Plan

An implementation should be well-planned, with targets and deadlines. It should cover the following:

1. Communication;
2. Reorganization;
3. Budgeting;
4. Government relation;
5. Monitoring and control.

A Gantt chart comes in handy (Fig. 14.10).

14.7.1 Internal Communication

Effective internal communication throughout the organization is vital. The responsibilities and accountability for key decisions and actions must be clear.[85] All within the organization should understand the basic strategy and they should "buy in."

85 Alkhafaji, Abbass. *Corporate Transformation and Restructuring*. (Westport, CT: Quorum Books, 2001), 17.

14.7.1.1 Case Discussion

Comcast: Implementing the Absorption of NBC Universal

Once the acquisition by Comcast of NBC Universal became public, in a joint letter to all employees the two CEOs (of Comcast and NBC Universal) wrote a letter to all employees and reviewed the history of both companies, their combined strength, and the opportunity for innovation for the merged company. After the merger was consummated, NBC Universal employees received gift packages including vouchers for 25 Comcast shares, worth about $400 at the time. Beyond the financial gift, this gave them a small financial stake in the new company.

Comcast also had to address the opposition of labor unions. First, there was concern about a greater opposition to unionization by Comcast management. NBC Universal was much more heavily unionized than Comcast. Roberts assured the unions concerned that he would deal with them not differently than the prior management. The second sensitive point was the protection of jobs. Comcast was in a delicate position when it came to layoffs. On the one hand, the deal was sold to Wall Street investors as creating synergies by reducing duplication, which means a reduction of jobs. But this created morale issues, especially in the acquired company. CEO Brian Roberts countered rumors of widespread layoffs. He pointed to a limited overlap in this primarily vertical transaction. In the end, approximately 500 NBC employees were laid off after the merger in order to eliminate duplicated positions.[86]

14.7.2 Reorganization

There is a relationship between strategy and organizational structure. Structures affect productivity, costs, and benefits. How should company structure be handled when a company embarks on a new strategy? Most management strategists hold that a firm should develop its strategy first and then define the organizational structure as part of the implementation. Others believe that the relationship between strategy and structure is not one directional and that structure defines strategy; and thus the existing structure may prevent certain strategies and need to be changed first.[87] Since both perspectives have some merit, this means that strategy and structure may have to be developed simultaneously. Given that strategy must be flexible in a dynamic world, structures have often moved from stable arrangements to increasingly fluid ones.[88] This includes temporary joint ventures and ad hoc structures focused on one-time projects. Such a project-based structure has existed in the film industry for a long time.

14.7.2.1 Case Discussion

Comcast: Reorganization After the Merger

Comcast's reorganization after the NBC Universal acquisition included a new management structure and division of responsibilities. NBC's new structure was "flatter" than before, allowing for more direct influence on the individual NBC networks by NBC CEO Steve Burke. To facilitate this transition, several executives associated with the old NBC had to leave the company, including CEO Jeffrey Zucker, often with lucrative "golden parachutes." Their roles were taken by several Comcast executives, for example was Matt Bond, formerly in charge of Comcast programming negotiations (i.e. the acquisition side), who took over the role of overseeing NBC program distribution.

14.7.3 Budgeting

Firms must support a strategy through the allocation of resources. Strategy must be translated into the budget process, otherwise short-term budget considerations will overwhelm long-term strategic decisions. But that is not always easy where resources are constrained and allocations are entrenched. Giving more to some activities will often mean giving less to others.

In planning a new strategy, the elements that need to be implemented are identified, with the specific activities required by each relevant business unit in addressing it. Each unit then creates its operational plan, which is costed.[89] The strategic plan leads to the creation of an operational plan and to assessing the resources needed. This is done by designing a budget to cover the work.

The operating budget consists of the day-to-day, periodic, and recurring expenditures, such as salaries. There are two basic approaches to fund strategy. The first is incremental budgeting, where one determines a growth rate for an activity, such as adding 5% to the advertising budget. The alternative is zero-based budgeting, where each expenditure must be justified from scratch. That technique works better for young and dynamic organizations. Some firms combine the two approaches, with a percentage of the budgets assured but with a substantial remainder zero based each year.

Typically, operating budgets are drawn up for the fiscal year or for another time frame. In contrast, the capital budget deals with large capital purchases or acquisitions that are non-recurring, such as buildings, or M&A deals.

86 James, Meg. "NBC cuts about 500 employees." *Los Angeles Times.* November 12, 2012. Last accessed July 11, 2017. ► http://articles.latimes.com/2012/nov/12/entertainment/la-et-ct-nbcuniversal-cuts-500-employees-20121112.

87 Lynch, Richard. *Corporate Strategy*. (Upper Saddle River, NJ: Prentice Hall, 2003), 596.

88 Küng, Lucy. *Strategic Management in the Media: Theory to Practice*. Thousand Oaks, CA: SAGE Publications, 2008.

89 Civicus. "Budgeting." Last accessed July 11, 2017. ► http://www.civicus.org/documents/toolkits/Budgeting.pdf.

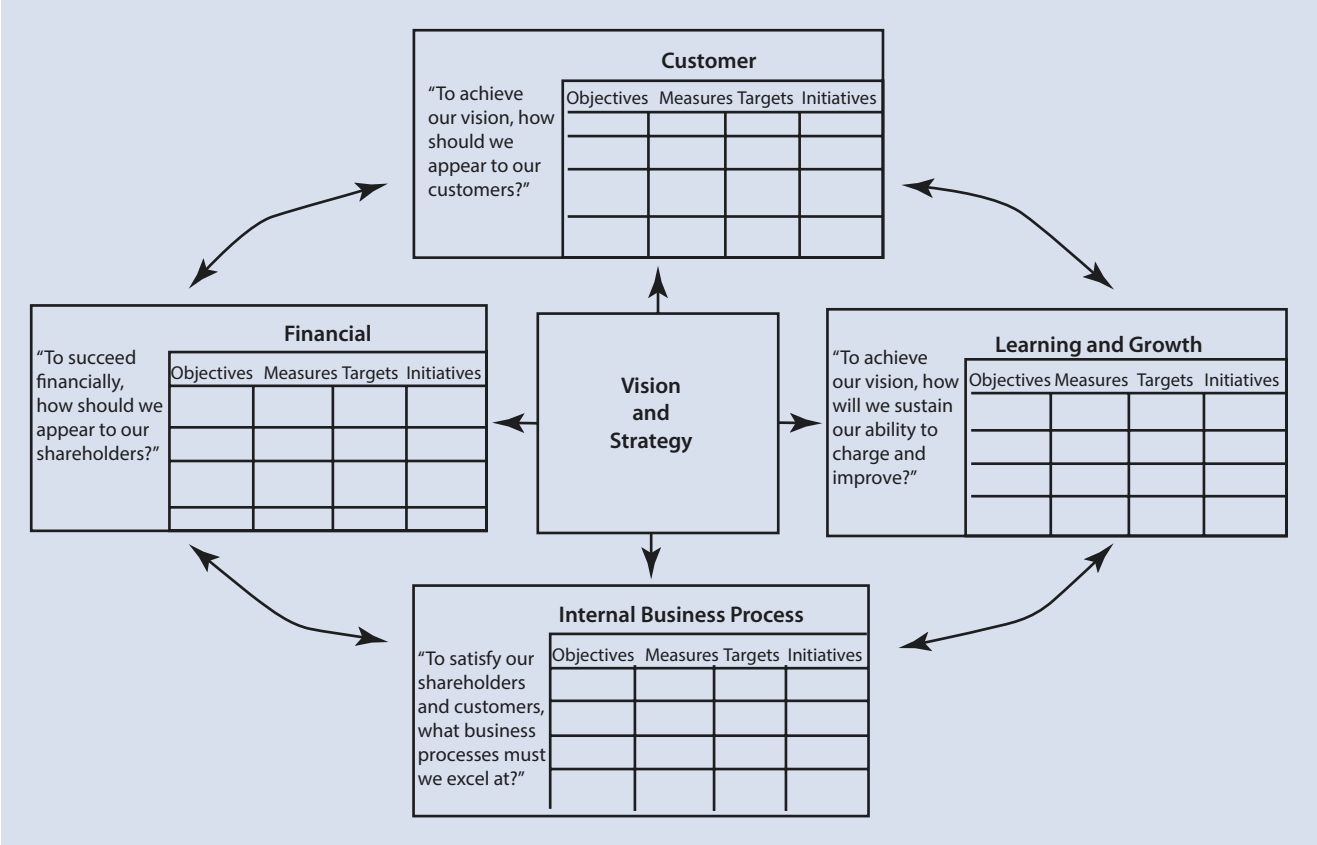


Fig. 14.11 Balanced Scorecard

14.7.4 Monitoring, Control, and Feedback

The implementation of a strategic plan includes monitoring of internal performance and business outcomes. It also includes a monitoring of external impacts.[90] Financial measures are important for companies, but other indicators, such as customer satisfaction, are essential as well. One technique for an evaluation is the Balanced Scorecard approach.

This is a strategic planning and management tool, created by Robert Kaplan and David Norton. It adds non-financial performance measures to traditional financial metrics. The system uses a set of metrics to measure if the organization is meeting expectations. It translates a more generic mission and vision statement into a comprehensive set of objectives and performance measures.[91] It identifies through a set of "scorecards" what the performance objectives are, what the performance metrics are, and how much the company has achieved. What the company's targets are, and what initiative it is taking to meet those targets.

The typical dimensions of performance are:

- Financial performance;
- Customer value performance;
- Internal business process performance;
- Innovation performance;
- Employee performance;
- Learning and growth.

Figure 14.11 shows an example with four dimensions (financial performance, customer relations, internal business processes, and learning and growth). A set of objectives is defined, together with objectives, measures, targets, and planned initiatives. For example:

- Financial Scorecards:
  - Objective: become more profitable.
  - Measure: percentage increase of net income.
  - Targets: increase net income from 3% to 4% within the next six months.
  - Initiatives: two options:
    - Either increase revenue (raise prices or sell more);
    - Reduce costs (cut costs per unit variable/fixed or sell less);
    - Choice: increase its prices.

90 New Zealand Ministry for the Environment. "Measure the success of your strategy." Last accessed July 11, 2017. ► http://www.mfe.govt.nz/publications/rma/live-work-play-jun02/guide/success.html.

91 Rigby, Darrell K. "Management Tools 2011: An Executive's Guide." *Bain & Company*. December 13, 2010. Last accessed July 11, 2017. ► http://www.bain.com/publications/articles/management-tools-2011-executives-guide.aspx.

- Internal processes scorecard:
  - Objective: build technological capabilities close to the customer.
  - Measure: the number of new technological improvements and features in online and cable services.
  - Targets: increase the average number of innovations in network services from three to five per month.
  - Initiatives: create interactive digital content production and distribution groups and monthly progress reports.
- Learning and growth scorecard:
  - Objective: grow faster and create the organizational setup for growth.
  - Measure: ramp-up time for new employees.
  - Targets: decrease the ramp-up time for new employees (the time until they are ready to fulfill their tasks full force) from three days to two days.
  - Initiatives: introduce a quality management system that documents the lessons learned and best practices for each process in the company. When onboarding new employees, they can learn from the documented best practices and lessons learned in each process and get a faster overview. That will decrease the ramp up time drastically.

The Balanced Scorecard reports several dimensions but does not provide a multidimensional overall measurement of performance.[92] A different approach that combines a set of metrics known as "objectives and key results" (OKR). It was introduced by Intel and used by companies such as Google and many tech companies.[93] The aim is to have an objective grading. OKRs are typically set by the person/team themselves for themselves and not by the supervisor, and are subject to objective measurement. At the end of the period that is being evaluated, key results are graded on a 0–1 scale. Perfect scores close to 1.0 (100%) indicate that the goals were set too easy; scores around 0.4 or lower indicate problems or lack of realism. A score of 0.6–0.7 is the sweet spot. The various scores are then averaged.

As an example, we apply the OKR framework to the performance of a video channel.

Objective 1: Become the preferred video channel of (target) customers.

- **Key Results 1:**
  - Increase the customer satisfaction metric from 7.3 to one of 8.3. The result after one quarter is 8.0, which is an achievement of 70% of the goal and the grade is therefore 0.7.
  - Decrease monthly churn rate from 2% to 1.7%. The actual performance is 1.85%, which is an achievement of 50%, and the grade therefore 0.5.
  - Increase new monthly viewing by 1%. The result = 0.8%, achieved 80%, the grade therefore 0.8.

The result for the first objective is the average of all key results: (0.7 + 0.5 + 0.8) / 3 = 0.67. That scale is in the desirable range.

Objective 2: Become more profitable (net profit).

- **Key Results 2:**

1. Increase number of advertisements sold by 4%. The result after one quarter is 3%, an achievement of 75%, the grade therefore is 0.75.
2. Decrease fixed costs by 3%. The result after one quarter is 1%, an achievement of 33.33%, and the grade therefore 0.33.
3. Decrease variable costs by 2%. The result after one quarter is 1%, an achievement of 50%, and the grade therefore is 0.5.

The result for the second objective is the average of all key results: (0.75 + 0.33 + 0.5)/3 = 0.53, which depicts an underperformance that should be analyzed to discover what went wrong.

The overall score can then be derived, and represents the last quarter's performance on average throughout a business unit or even the whole organization. In our example, the overall result of Objectives 1 and 2 would then be again the average of the two (0.67 + 0.53), which is 0.6 and therefore in the acceptable range.

OKRs can be applied to all parts of an organization, to a team, even to one person. At Google, all OKRs are internally public, including that of CEO/Founder Larry Page.

A weakness of the OKR approach is that all objectives and goals are given an equal weight in the aggregation/averaging, whereas clearly some are more important than others. For example, raising profitability seems more important to the organization than lowering consumer churn, yet they are treated the same. (They are interrelated, of course, but that does not mean they carry equal weight.) Thus assigning weights to goals and objectives would make sense. These weights may be subjective but so are some of the metrics and performances themselves. The key is consistency over time.

The organization should allocate its budget to the various dimensions of performance goals based on the impact of these funds on improvement, weighted by the importance of that goal and relative to the cost of achieving that improvement. The weighted results of budget allocations toward improvements in the various performance goals should be equal across the various goals.

92 Brudan, Aurel. "Learning from practice - A brief history of performance measurement." *Aurel Brudan.* August 7, 2010. Last accessed July 11, 2017. ► http://www.aurelbrudan.com/tag/history-of-performance-measurement/.

93 Yarow, Jay. "This is the Internal Grading System Google Uses for its Employees — And You Should Use it Too." *Business Insider.* January 6, 2014. Last accessed July 11, 2017. ► http://www.businessinsider.com/googles-ranking-system-okr-2014-1; Rotenberg, Zorian. "List of Top Companies That Use OKR Goals." *Atiim Inc.* Last accessed July 11, 2017. ► https://www.atiim.com/blog/top-companies-that-use-okrs/.

$$\frac{\Delta\,\text{Improvement in Goal\%} \times \text{Weight of Goal 1}}{\Delta\,\text{Budget Allocation 1}} = \frac{\Delta\ \text{Improvement in Goal\%} \times \text{Weight of Goal 2}}{\Delta\,\text{Budget Allocation 2}}$$

$$\frac{\Delta\text{OKR}}{\text{budget allocation}} \times \text{weight} = \text{Incremental Performance Measure}\,(\text{IPM})$$

For example, if $1 million in spending toward Goal 1 results in an improvement in the OKR score from 0.5 to 0.7, and the weight of Goal 1 is 8, then the $1 million has bought an improvement worth 0.2 × 8 = 1.6 (IPM). Assume that the same $1 million, used toward achieving Goal 2, results in an improvement from 0.3 to 0.6, with a weight of 7, and therefore an improvement score of 0.3 × 7 = 2.1 (IPM). Spending on Goal 2 therefore results in a greater improvement, and should be prioritized and possibly augmented relatively to a spending on achieving Goal 1.[94]

Any quantitative system leads to strategic behavior by the participants. They will de-emphasize low-weight goals and emphasize high-weight ones. Some people deem it inefficient to have employees or groups chasing after certain measures in order to maximize performance scores.[95] But properly designed, this provides management with an effective incentive and feedback tool that optimizes what the organization values, beyond the financial bottom line.

14.7.5 Implementation of Strategy: Government Relations

Almost any strategic reorientation by a large organization will have some regulatory or employment implications that will result in necessary steps before governmental bodies. Rivals may use this process to block or delay a company's strategy. Hence, to implement a strategy will usually require preparatory work to pave the way with regulators. This was discussed in ▶ Chap. 8 Entertainment Law and Media Regulation.

14.8 Outlook

14.8.1 Constraints on Strategy

Not all economically desirable strategies are open to a company. Some require funding, technology, or partners that are not available. But even financially and technologically viable projects might be constrained by governments. Given the importance of media in society, media firms are not quite able to function like most other businesses.[96] Some strategies cannot be followed simply because they would violate the law, international agreements, or contractual commitments. Such constraints include:

- Antitrust, anti-monopoly, and ownership laws that affect mergers, pricing, price discrimination, business practices, and consumer protection;
- Foreign ownership restrictions and domestic content requirements;
- Laws governing marketing practices and advertising;
- Tort liability for the impact of products;
- Liability for employee actions;
- Shareholder rights and financial disclosure requirements;
- Environmental laws;
- Union contracts;
- Patents held by others.

14.8.1.1 Case Discussion

Comcast: Government Regulation as a Constraint

In Washington, the Federal Communications Commission and the Department of Justice had to approve the merger of Comcast and NBC Universal, and later of Comcast's attempted acquisition of Time Warner Cable. They set a list of conditions for the NBC Universal acquisition. Comcast agreed not to use its programming or networks as an anti-competitive tool. It has to provide its TV programming to online distributors who want it, in addition to satellite telecom video and distributors who already have such rights by law and regulation. Comcast cannot exercise corporate control over programming available on the online platform Hulu. NBC programming cannot be withheld from other cable and satellite operators, as well as online distributors, and has to be offered at fair and reasonable rates.

Comcast also agreed to carry eight new independent channels owned or managed by African Americans or Latinos. Comcast is prohibited from unreasonably discriminating in the transmission of an online video distributor's traffic to a Comcast broadband customer. Comcast is required to give other firms' content equal treatment under any of its broadband offerings. (This resembles net neutrality provisions that, for a while, were set to regulate the ISP industry as a whole.) Comcast had to agree to offer internet service at reduced rates to low-income households.

A few years later, when Comcast intended to buy Time Warner Cable, (the number two cable operator), opposition to big media mergers had grown. Facing determined resistance and governmental scrutiny, Comcast abandoned the merger.

94 Assuming relative stability in the parameters.

95 Duggan, Kris. "Weighting OKRs - Unnecessary Complexity." *Better Works*. August 4, 2016. Last accessed July 11, 2017. ▶ https://betterworks.zendesk.com/hc/en-us/articles/211366166-1-Better-With-Kris-Weighting-OKRs-Unnecessary-Complexity.

96 Butler, Kelley M. "Examining the benefits of corporate social responsibility." *Employee Benefit News*. May 1, 2006. Last accessed July 11, 2017. ▶ http://connection.ebscohost.com/c/articles/20826550/examining-benefits-corporate-social-responsibility.

14.8.1.2 Case Discussion

Comcast: Conclusion

Comcast is a large and established media company in the entertainment and telecommunications sector. For both video channels and broadband it holds the largest US market share of connecting information providers and households. With its acquisition of NBC Universal, it has added creative production to its portfolio. This vertical integration furthers its strength in the media field, giving it an advantage over other cable TV companies and other large media firms.

But what is Comcast's next path of growth? Its size will remain a target for government, and Comcast must therefore tread lightly. Does that mean expanding worldwide rather than seeking market share in the USA? Or will Comcast instead launch new products domestically?

Expanding outside the USA in cable TV platforms would involve a massive infrastructure investment. The company could grow by acquiring a foreign cable TV or satellite company, which would already have a subscriber base and infrastructure to utilize. But that would be expensive too.

Growth opportunities are flat in most industrial countries, but there are some opportunities where cable is relatively weak. For example, cable penetrations are low in Japan, Italy, Spain, India, and China. In emerging markets demand is growing for broadband and cable services, but domestic companies do not have the capital to invest in such cost-intensive and high-risk endeavors.

Comcast's strategies to achieve or protect its competitive advantages would be to invest in barriers to entry, including by raising customer lock-in. But this is subject to regulatory scrutiny. Can Comcast differentiate its product? Actually, as the company has become wider, not narrower, in focus and hence less differentiated, it is exposed to competition by more specialized and fast-moving firms. Video distribution, at the same time, is becoming a commodity service.

In such a commodified market, can Comcast be a leader? The company has been efficient but has not aimed to be the low cost provider, nor is it likely to be able to be so. Its size gives it some advantages, of course, but the quality of content and performance are more important. Its internet broadband service is priced at the high end, as is its cable TV service. Can Comcast then differentiate the product by an innovation strategy? To do so, it would have to possess unique technology assets or R&D resources. While it has done a good job in adopting technology it has no unique access to it.

To conclude on Comcast strategy:

- Domestically, Comcast should move decisively into mobile and thus to quadruple play, partly through an MVNO approach, and partly through acquisitions or partnerships with Sprint or T-Mobile, in collaboration with other cable companies.
- In video platforms, Comcast should extend its cable operations into selected markets in emerging countries, and to satellite TV platforms in developed markets.
- In content, Comcast should strengthen its position through vertical integration.

14.8.2 Conclusion: Strategic Priorities

What is the best strategy to pursue? The classic business school approach is to analyze and then to select the optimal direction: "chart the best course." That could be accomplished in various ways, such as by product innovation, entry into new markets, or cost efficiency. The alternative approach, and the conclusion to this chapter, is to "build the best ship." The strategy prescription of this book is get the parts right and the whole will work out. The main strategic recommendation is to build the best organization. Optimal strategy will keep changing. An organization of effective sub-systems can handle the rapidly shifting needs that will inevitably occur in a quickly changing world of media business, technology, and policy. Mutation and "strategic morphing" are needed to succeed in a volatile environment.[97] Organizations need to develop strategies that are adaptable, rather than seeking an illusory long-term blueprint.[98] As Charles Darwin concluded, "It is not the strongest of the species that survives, nor the most intelligent, but rather the one most responsive to change."[99]

This then is our *Fundamentals* perspective on strategy: *"The Company is the Strategy."*

97 Kauffman, Robert J.; Miller, Tim; and Wang, Biin. "When Internet Companies Morph; Understanding Organizational Strategy Changes in the 'New' Economy." *First Monday* (July 2006).

98 Sánchez-Tabernero, Alfonso. "The Future of Media Companies: Strategies for an Unpredictable World." In *Strategic Responses to Media Market Changes. Media Management and Transformation*. Ed. Robert G. Picard. Jönköping, Sweden: Jönköping International Business School LTD., 2004.

99 Brul, Caroline van den. *Creativity by Design*. Last accessed on 12 July 2010 at ► http://www.creativitybydesign.co.uk.

14.9 Review Materials

Issues Covered

In this chapter, we have covered the following issues:

- How the strategy function applies to the media industry.
- How media strategy misjudgments affect businesses.
- What the intellectual stages have been that business strategy thinking passed through.
- What the strength and limitations of the competitive advantages approach are.
- What the strength and limitations of the core competencies and of the resource-based view are.
- How to organize the process of strategy setting.
- Who engages in strategy planning, and what the problems are.
- What strategic plans contain.
- How to conduct external and internal assessments.
- What kind of basic strategy options for information and media sector firms exist.
- How to evaluate and pick strategy.
- How to choose the best strategy.
- How to implement strategies.
- What the constraints to strategic options are that affect firms in the media industry.

Tools Covered

We used these tools:

- SWOT analysis.
- Game theory.
- Core competencies approach.
- Resource-based view.
- Strategic morphing.
- BCG growth share matrix.
- Demand analysis.
- Competitor analysis.
- Radar chart.
- Oligopoly analysis.
- Benchmarking.
- Initial tests for fit (e.g. constraints test, originality test, purpose test, or flexibility test).
- NPV.
- ROI.
- Decision tree.
- IV.
- Gantt chart.
- Incremental and zero-based budgeting.
- Balanced scorecard.
- Objectives and key results
- Porter's five forces industry analysis.
- General Electric/McKinsey matrix.
- Technology velocity analysis.
- Internal audit.
- Value chain analysis.
- Patent audit map.

14.9.1 Questions for Discussion

1. An established media firm in the USA wants to go global. What are the benefits of globalization? What are the potential problems?

2. Yahoo, once a shining star, lost market share to Google. As a consultant, you're asked to design a plan for how Yahoo may regain its competitive advantage. Discuss the general principles for creating a competitive advantage which may be the guidelines you want to apply to your strategic plan.

3. What implementation tools are necessary to fulfill the execution of a strategy plan? Briefly describe each tool.

4. Suppose a cable company wants to diversify its portfolio by acquiring a cable news channel provider. As an executive assigned to manage this new venture, how would you use the acquisition to increase the market share of both the cable company and the news channel?

5. Apple took a leap of faith with its digital media player (iTunes), portable media player (iPod), and multimedia smartphone (iPhone), and ended up winning first-mover advantages. What advantages can second and late movers utilize to take market share from Apple?

6. A magazine publisher has drawn strategic plans for product differentiation via the addition of specialized magazines to its already extensive portfolio. What are the risks of a product differentiation strategy? What you can you do to avoid them?

7. What are the necessary components of content strategy for a music company?

8. As a media consultant, how would you advise a broadcast radio company whose goal is to seek growth through expansion or widening of its operations?

9. What is the planning process for capital budgeting? Describe the two budgeting techniques, incremental and zero-based budgeting, and discuss how they are applied.

10. Comcast wants you to spearhead the management of a recently acquired videogame company. Your first priority is organizational restructuring. What are principles for successful organizational restructuring? How would you apply these principles?

11. How would a start-up apply OKR? A huge conglomerate?

14.9.2 Quiz

1. Which of the following is *not* part of directors' role in strategy?
   A. Make major strategy decisions in board meetings;
   B. Approve fundamental transactions;
   C. Review and approve corporate strategy and policy based on recommendation provided by senior management;
   D. Delegate day-to-day managerial responsibilities to the senior officers.

2. What gives media and information firms high rates of uncertainty?
   A. High failure rate of content;
   B. Short shelf life of content;
   C. Content is too abstract;
   D. Fickle consumer demand;
   E. All of the above.

3. Which of the following is *not* a theory of business strategy?
   A. The Strategic Gameboard;
   B. Game Theoretic Frameworks;
   C. Threat Matrix;
   D. Creative Destroyer;
   E. Share Development Tree.

4. Which of the following is part of market assessment?
   A. Define market;
   B. Assess market size, growth, and trends;
   C. Assess technology trends;
   D. Identify major plays;
   E. All of the above.

5. Which of the following is *not* part of external assessment?
   A. Audiences and customers;
   B. Competitors;
   C. Environment;
   D. Market;
   E. HR.

6. Which of the following is *not* a technique to determine consumer demand?
   A. Bayesian networks;
   B. Focus Groups;
   C. Econometrics;
   D. Self-reporting;
   E. Survey of retailers.

7. Competitive advantage is achieved by which of the following?
   A. Brand identity;
   B. Customer base;
   C. Access to capital;
   D. Globalization;
   E. A, B, and C.

8. What are the benefits of alliances?
   A. Gain technologies or skills;
   B. Reduce competition;
   C. Realize economies of scale;
   D. Gain access to new market segments;
   E. All of the above.

9. How would Apple describe, in 2018, a new model of its iPhone on the growth share matrix?
   A. Star;
   B. Dog;
   C. Cash Cow;
   D. Question Mark.

10. Why is a Gantt chart one of the best ways to lay out a strategic plan for an organization?
    A. It is the cheapest and easiest method of laying out a company's strategic plan;
    B. It is an implementation tool for a strategy that was set;
    C. It is the only method for laying out a strategic plan;
    D. All of the above.

11. How do "war game exercises" assist strategy groups in setting strategic plans for the company?
    A. They set employees up against one another, causing competition among the employees to devise the best strategy for the company;
    B. They pull in individuals from various departments allowing them to devise plans that they would have difficulty devising otherwise;
    C. They allow the company to run through various scenarios in market developments, new competitors, and various governmental regulations, generate observations, and plan solutions around their observations;
    D. They create a military environment which instills attention to detail and focus, allowing for the design of high-end strategic plans.

12. Limitations on the core competency approach are:
    A. It is difficult to sustain non-imitable advantage;
    B. It is better suited for start-ups than for mature companies;
    C. Core competencies are primarily based on patents that expire;
    D. The success of Asian companies cannot be explained by the core competency approach.

13. All of the following are components of strategic planning except:
    A. Review the internal capabilities;
    B. Identify, analyze, and select the best options;
    C. Develop a plan;
    D. Internal polling of whether to continue the plan.

14. In performing a SWOT analysis of a company, which of the following would be described as a threat?
    A. Low customer churn;
    B. High CAPEX requirements;
    C. Disruption by other platforms;
    D. Demand for new products and services.

15. All of the following are ways for a company to develop a core competency except:
    A. Protecting core strengths;
    B. Acquiring new companies and divisions;
    C. Understanding the wants of its customers through surveys and other means of deciding what the customer values;
    D. Comparing itself to other companies, and seeing how it is doing, by benchmarking.

16. Which person or group is ultimately responsible for the strategy of a corporation?
    A. The CEO;
    B. The company's Board of Directors;
    C. An outside strategy consultant;
    D. Division heads;
    E. All of the above.

17. What type of strategy deals with the widening and deepening of a firm's product?
    A. Scope strategy;
    B. Product strategy;
    C. Distribution strategy;
    D. None of the above.

18. A useful way for a company to select a successful strategy is to test different scenarios and see what value they generate for the company. This is referred to as:
    A. War Games Exercise;
    B. Total Market Value;
    C. Imputed Value;
    D. Gantt Analysis.

19. What does SWOT stand for?
    A. Strength, weaknesses, opportunities, and threats;
    B. Successes, warnings, objectives, and techniques;
    C. Strategy, weaknesses, offerings, and tactics;
    D. Strength, warnings, objectives, and threats.

20. What is a prisoner's dilemma?
    A. One party's gain is another party's loss;
    B. In the absence of collaboration everyone loses;
    C. Coordination is sought in the absence of communication;
    D. When a rival firm doesn't cooperate but everyone wins.

21. Which statement about the Core Competencies approach is not correct?
    A. In a dynamic environment of media and technology it is difficult to sustain a non-imitable and unusual capability in any resource;
    B. A company wanting to develop core competencies should consider outsourcing non-core capabilities;
    C. The approach is suitable for start-ups;
    D. A company can develop core competencies by identifying its key abilities and leveraging them.

22. Which statement is true for most strategy gurus?
    A. They use statistical and analytical methods;
    B. They use case studies;
    C. They have a high predictive value;
    D. They are bad at explaining the past.

23. Which statement applies to product strategies?
    A. Product strategies focus on the design, quality, and production process;
    B. Product strategies focus on reaching buyers and placing the product;
    C. Product strategies deal with the scope of the firm's products;
    D. Product strategies are separated into two dimensions: widening and deepening.

24. From which area does game theory originate?
    A. Chess;
    B. Military;
    C. Sports;
    D. Video games;
    E. None of the above.

25. What is not a possible way to achieve competitive advantage?
    A. Focus on improving brand reputation relative to the firm's competition;
    B. Invest in research and development (R&D);
    C. Stand ready to cut prices to deter rival entrants;
    D. Develop strong government relations to strengthen media entry barriers;
    E. None of the above.

26. What are possible first ways to select a strategy?
    A. Purpose tests and constraints tests;
    B. Risk tests and execution tests;
    C. R&D tests and originality tests;
    D. HR recruitment flexibility tests and execution tests.

Quiz Answers

1. A
2. D
3. B
4. B
5. D
6. A
7. A
8. E
9. C
10. B
11. C
12. A
13. D
14. C
15. B
16. B
17. A
18. C
19. A
20. B
21. C
22. B
23. A
24. B
25. E
26. A

Concluding Observations

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Eli M. Noam, *Managing Media and Digital Organizations*, https://doi.org/10.1007/978-3-319-71288-8_15

15.1 The Matrix of Media Management

We have come a long way since the opening chapter of this book. In the subsequent sections, we have covered much ground. As we observed at the beginning, the subject matter of media management can be thought of as a two-dimensional matrix. The *vertical* dimension is that of the various industries. Most of the books in the field follow this approach.[1] The industries we examined:

- distribution platforms: internet, telecom, TV and radio broadcasters, cable, satellites, and media clouds;
- content-creating industries: music, film, TV, books, newspapers, magazines, video games, and more;
- device-making industries: media-tech information technology, consumer electronics, and components.

In contrast, the *horizontal* dimension of the media management matrix is that of business functions—finance, marketing, distribution, and so on.[2] Each of the chapters covered a major management function, and their challenges were described and analyzed. Each of these functions is run by a high-level executive with extensive staff (for large companies) or by a multitasking entrepreneurial team (for start-ups).

- Producing
  - Production management
  - Technology management
  - Human resource management in the creative sector
  - Financing media and digital activities
  - Managing intellectual assets
  - Legal, regulatory, and public affairs
- Harvesting
  - Market and audience research
  - Marketing
  - Pricing
  - Distribution
- Controlling
  - Accounting in the information sector
  - Strategy setting and implementation

To make a media and information company effective, each of these functions and their managers must be made to work well, and work well together; or these functions must be outsourced to external specialist firms and professionals.

It has been the goal of this book to overcome the limitations of approaching the matrix from one dimension only. Instead, it applied the major dimensions of a management studies to the entire media and information sector. In the process, communications students and media professionals will have got a summary of an MBA curriculum covering many business issues and management tools. At the same time, more general-oriented business students and managers will have received an introduction into the media and information sector, and a "capstone" that integrates the various strands of a business curriculum as it applied to one sector.

1 For details, see the literature cited in ► Chap. 1 Introduction, Footnotes 3 and 4.
2 For details, see the literature cited in ► Chap. 1 Introduction, Footnote 5.

15.2 Is Management in the Media and Information Sector Different?

15.2.1 Fundamental Factors

At the outset, we asked the question whether management in the media and information sector is distinct from the one deployed more generally. The answer is yes and no. It is an industry sector with many of the same incentives and constraints as exist in other parts of the economy. But it is also a special field with its special set of fundamental economics, policy sensitivities, technology dynamics, and market organization. Media and media-tech industries are also on the leading edge of innovation when it comes to new organizational practices and market relations.

We identified the factors that make media management special. We discussed twelve such fundamental factors at work. They include extremely high economies of scale; network effects; instability of demand; exceptionally high risk for product failure; extraordinarily rapid technological change; excess supply and price deflation; divergence of cost trends and convergence of technologies; high distance insensitivity; cumulative and accelerating returns; a pervasiveness of intangible assets; the presence of economic non-maximizers; and public good characteristics with a wide range of governmental interventions.

These characteristics impact just about every media activity and media manager. In each of the twelve major chapters of this book, we analyzed how they affect the particular functions of a media company. Many of these characteristics exist in other industries too, but not in the same combination or intensity. Together, they create unique incentives, demands, and constraints. Such particularities and peculiarities create a need for media-specific management considerations and analytical tools. In that sense, media management is indeed different.

15.2.2 Personal Motivation

There are also personal dimensions that make media management special. As we observed in the introductory chapter, management of media and information ventures has appealing cross-overs: creativity meets management; imagination meets technology; arts meet investment; business meets public policy; left brain meets right brain. Why are so many talented people interested in working in the media and media tech sector? It is a risky business, with its share of complex personalities. Yet all of us have a creative spark which has often subsequently submerged. We have become consumers and spectators. But managing in the media brings it back, in a way. Media integrates parts of our personalities and biographies. It is an endlessly interesting, fascinating, enthusiasm-building field. Its horizons of creativity and technology are unlimited. It creates the entertainment that forms our fantasies, shapes our styles, and sets our role models. It shapes our analysis of the world.

It is the trendsetter that affects our tastes. It represents sweet imagination, seductive opportunity, rich possibilities, glamorous pioneering style, opportunity, fortune, and fame.

15.3 Challenges for Media Managers

Information has moved from being a supplementary factor to being the central business input and major output of advanced economies. Where information was once a scarce resource, it is becoming an abundant resource. Such a new environment requires:

- individuals capable of managing the production and use of information resources;
- organizations capable of deploying such individuals;
- tools to analyze and operate such organizations.

As important the nurturing of creativity and innovation is, ultimately it must be based on an economic foundation of investments, expenses, revenues, and income. Being able to plan and control activities and money is essential. This requires an understanding of statistics, finance, accounting and information systems.

The last few years have created a set of enormously powerful technology tools. These building blocks have only begun to transform the media and economy. Digital technology reshapes core processes, costs, products, content, distribution, customer relations, and consumption patterns. The elements are known and they are now making their way through the economy and society. John Maynard Keynes, possibly the most influential economist ever, observed that analyses of the future lack a scientific basis, and one therefore cannot work out long-range strategies; instead, what can be done is to prepare companies for opportunities and immediate challenges.[3] Yet we can also look ahead. In the media-tech field, "the future is already here, it is just unevenly distributed," as William Gibson, chief technologist of Sun Microsystem, noted.[4] Trends such as Moore's Law about the rate of progress in electronic components, will continue for some years, and one can engage—carefully—in extrapolation and projections.

As the newly emerging tools fully absorbed into economy and business behavior, new practices and organizations converge with the old ones. In the process, both are being reconfigured. This creates incentives to rapid investment. It generates boom–bust cycles. It affects the velocity of knowledge creation, the structure of markets, of companies, and of most institutions of society.

15.3.1 The Search for a New Media Business Model

Traditionally there have been two basic business models for media, pay and advertising. Both are severely challenged. Impediments to the pay model are that "information wants to be free." Even if piracy could be controlled, market forces are at work. With so much content being offered there is a relentless price deflation. It becomes difficult to charge for information directly.

The advertising model, too, is under pressure. The supply of ad space greatly exceeds demand. Competition drives down prices. There is a greater possibility for customization, but it is complex and costly. Readers and viewers can bypass advertisements. They increasingly refuse to pay for content by providing their attention. This has led to a third model of compensation—for users to "pay" by giving up information about themselves, thus making the remaining advertising more effective. Yet this direction raises issues of privacy and informational sovereignty.

The revenue model is not the only challenge to digital companies. There has also both a transformation of the traditional value chain. Producers, distributors, and consumers of information can interact directly or in different ways. In the past, media, information, and communications companies forged stable and profitable niches through high market shares in sub-markets, conglomeration across markets, and vertical integration. In the new environment, specialization, horizontal consolidation, and global expansion seem to perform better than conglomeration and vertical integration. The new environment requires a structural change in the way that the firms are organized.

15.3.2 The Search for a Media Industry Structure

It is likely to lead, over time, to a system that combines two major types of companies:

- Specialist firms which concentrate on particular technology elements and on focused content.
- Integrator firms whose major contributions are to co-ordinate, finance, bridge, market, and collect. These could be major media companies, but more likely network distribution companies, and new-style information-sector firms such as Google or Amazon.

15.3.3 The Search for a New Content Model

The traditional content model was based on mass-market content (blockbusters) as well as products for more specialized audiences. Audiences are now much more fragmented and oriented toward "long tail" content than in the past. The new broadband pipes will lead to new types of content. It is becoming participatory, individualized, and immersive; an experience, not just a show. To produce such content is

3 Sánchez-Tabernero, Alfonso. "The Future of Media Companies: Strategies for an Unpredictable World." In *Strategic Responses to Media Market Changes. Media Management and Transformation.* Ed. Robert G. Picard. Jönköping, Sweden: Jönköping International Business School LTD., 2004.

4 Chakravorti, Bhaskar. "The Future of the Future: Where Are the Breakthrough Innovations?" *Huffington Post*. April 22, 2014. Last accessed July 14, 2017. ► http://www.huffingtonpost.com/bhaskar-chakravorti/the-future-of-the-future_b_5194767.html

complex and expensive. The economies of scale are enormous, and transmission is distance insensitive. Together, these factors will lead to very large media firms playing an increasing role around the world as the central nodes.

15.3.4 The Search for New Government Policy and Regulation

Media managers often underestimate their public role. media have high visibility, cultural significance, commercial impact, and political clout. As a result, they are usually in the crosshairs of governments that want to assure various goals of public policy. Media suffuses society, and therefore society suffuses media. Hence, a media firm's activity more than for most organizations, is subject to numerous constraints by government. Given these important and multiple roles it would be naïve to imagine that media and related digital firms will be able to function purely with a bottom-line orientation like most other businesses.[5]

Governments are not sure how to proceed. Should there be converged regulation? Separation of platforms and content? Barriers to free flow of content to protect national cultures? Support policies for upgrade investments in infrastructure? Access rules? Subsidies for the connectivity of weaker segments of society? Restrictions on ownership and mergers? Laws to protect privacy and security? Many of the old tools of control are becoming ineffective, while new tools are not easy to conceive or implement. More fundamentally, the boom–bust cycles in the sector show problems of instability in the media and digital industries. Media managers are in the middle of this transformation. They need to understand the forces in society and how they affect the regulations. They must anticipate and shape these rules. And they must comply with them, both domestically and globally. This is a process that must be organized and managed.

15.3.5 Understanding the Future and Understanding the Past

The media and information field is progressing at a prodigious rate. To assess it properly requires knowledge of the details, but also an understanding of the big picture. This means an understanding of where things have been coming from, and why. A sense of history is important to recognizing how people, companies, and governments have been acting and reacting in the face of media and technology transformations, and to learn from their successes and failures. It helps to understand the different cultures and hence actions of companies, industries, and countries. This requires knowledge of technology, its drivers, its leading edges, and its trends. It also means an understanding of societal dynamics and their impact on people and politics.

15.3.6 Dealing with People

Media managers need to deal with several categories of people. Most obviously, there are customers or users. They are often unpredictable in their preferences and needs. They also affect each other. As societies become more heterogeneous, and as the supply of media content and services rises, these preferences become more specialized, more demanding, and harder to ascertain. A second major category of people is of those working for the media company, both inside and outside the organization. These include industrial workers, freelancers, middle-level managers, techno-geeks, and creatives. Each of these groups requires different types of attention by managers.

15.3.7 Globalization of Media and Information

There is a collapse of physical space, where a "death of distance" creates new markets for information goods and services, enables the entry of new competitors from abroad, and expands the footprint of companies.

There was a time when media activities were organized locally and nationally, in terms of companies, content, audiences, and governmental controls. That kind of segmentation is giving way to much wider cross-national footprints of activities. The challenges for managers in that environment is that they must broaden their understanding of markets, rules, competitors, audiences, and workforces far beyond their comfort level of familiarity.

15.3.8 How Organizations Succeed

Is there a "silver bullet," a lever for success in this field? As we discussed in ► Chap. 14 Strategy Planning in Media and Information Firms, the classic business school approach is to "chart the best course." That approach is to find the optimal strategy and try to get there. The alternative approach is to "build the best ship." This has been the prescription of this book: *get the parts right and whole will work out*. Optimal strategy will keep changing. An organization based on a set of effective parts can handle rapidly changing strategy needs. Mutation and "strategic morphing" are needed to succeed in a volatile environment.[6] As Charles Darwin concluded, "It is not the strongest of the species that survives, nor the most intelligent, but rather the one most responsive to change."[7]

5 Butler, Kelley M. "Examining the benefits of corporate social responsibility." *Employee Benefit News*. May 1, 2006. Last accessed July 11, 2017. ► http://connection.ebscohost.com/c/articles/20826550/examining-benefits-corporate-social-responsibility

6 Kauffman, Robert J.; Miller, Tim; and Wang, Biin. "When Internet Companies Morph; Understanding Organizational Strategy Changes in the 'New' Economy." *First Monday* (July 2006).

7 Brul, Caroline van den. *Creativity by Design*. Last accessed on 12 July 2010 at ► http://www.creativitybydesign.co.uk

15.3.9 Organizational and Personal Responsibility

Beyond organizational recognition of a media organization's role as an important factor in society, there is also a personal responsibility for a media manager. Ultimately, companies are run by people and people have aspirations, needs, ambitions, and ideas. Media managers should not forget some of the reasons they choose their occupation:

- to support creativity;
- to support an informed society;
- to keep growing personally;
- to appeal to our better self rather than our worst instincts;
- to be part of change;
- to be at a leading edge of innovation in technology and relativity;
- to be responsible to others and to oneself.

As we observed in the opening of the book, the good news is that for those interested in the information resource—how to produce it, how to distribute it, how to use it—the present is the most exciting period ever. The bad news is that it is also a period with the greatest uncertainty and risk ever. What does it take for success in the media business? Creativity, innovation, and performance, of course. But that is not enough. It requires an understanding of technology, money, markets, audiences, pricing, global business, economics, managerial accounting, government relations, and the ability to nurture and lead talent. This book wants to help those in the media, information, and media tech sector become creative managers, and managerial creatives. The objective of this book is to make media management less daunting and less filled with blinding hype. It aims to make the reader a more effective, more productive, and more responsible participant.

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The book was inadvertently published with an incorrect copyright year as 2018 whereas it should be 2019. The copyright year has been updated in the book.

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