Progress in IS

Bernd W. Wirtz

Digital Business Models

Concepts, Models, and the Alphabet Case Study

Springer

Progress in IS

"PROGRESS in IS" encompasses the various areas of Information Systems in theory and practice, presenting cutting-edge advances in the field. It is aimed especially at researchers, doctoral students, and advanced practitioners. The series features both research monographs that make substantial contributions to our state of knowledge and handbooks and other edited volumes, in which a team of experts is organized by one or more leading authorities to write individual chapters on various aspects of the topic. "PROGRESS in IS" is edited by a global team of leading IS experts. The editorial board expressly welcomes new members to this group. Individual volumes in this series are supported by a minimum of two members of the editorial board, and a code of conduct mandatory for all members of the board ensures the quality and cutting-edge nature of the titles published under this series.

More information about this series at http://www.springer.com/series/10440

Bernd W. Wirtz

Digital Business Models

Concepts, Models, and the Alphabet Case Study

Springer

Bernd W. Wirtz
Chair of Information
and Communication Management
German University
of Administrative Sciences
Speyer, Germany

This book was prepared with great care. However, it may still include incorrect information. Therefore, the author does not assume any liability for errors and their associated consequences. I am grateful for any related information. Please send your notes to ls-wirtz@uni-speyer.de

ISSN 2196-8705 ISSN 2196-8713 (electronic)
Progress in IS
ISBN 978-3-030-13004-6 ISBN 978-3-030-13005-3 (eBook)
https://doi.org/10.1007/978-3-030-13005-3

Library of Congress Control Number: 2019931979

© Springer Nature Switzerland AG 2019
This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.
The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.
The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The Internet economy is essentially characterized by its considerable dynamic and speed of change. The rapid digitalization of numerous areas of life has resulted in a shift towards today's Information Society. Therefore, since the beginning of the twenty-first century, online businesses have profoundly and progressively gained an importance. Against this background, the growing intensity of competition and the shortening of innovation cycles management decisions have become ever more complex and difficult, especially for the area of business models. In recent years, the business model concept has become a popular tool in business practice because it can help to successfully analyse and handle these complexities.

Despite the great practical importance of business model management in the digital area, the conceptual basis in the literature is not very comprehensive. Thus, it seems necessary to develop a stronger conceptual foundation in order to deduce helpful insights and practical guidance for managers of digital businesses. The present book aims at filling this gap and to provide a detailed overview of the business model concept in the digital world.

In preparing this book, I received various kinds of support from the former and current employees and doctoral students of the Chair of Information and Communication Management at the German University of Administrative Science Speyer. I would like to particularly thank Mr. Paul F. Langer (M.Sc.), Mr. Jan C. Weyerer (M.Sc.), Isabell Balzer (M.A.), Mr. Steven Birkmeyer (M.Sc.), Mr. Florian W. Schmidt (M.Sc.) and Mr. Daniel Schmitt (MPA) for their dedication to this project.

The scientific development of a subject area thrives through the critical analysis and discussion of concepts and content. Given this fact and the currently inchoate state of knowledge regarding digital business models, I am grateful for every comment or suggestion for improvement. Furthermore, lecturers who are interested in using graphics and lecture with materials from this book are welcome to contact the author.

Speyer, Germany
March 2019

Bernd W. Wirtz

Contents

About the Author

Prof. Dr. Bernd W. Wirtz studied business administration in Cologne, London, and Dortmund, culminating in a Master of Business Administration (MBA). He later served as Lecturer for media management at the University of Düsseldorf (Germany) and University of Zurich (Switzerland). In 1994, he was awarded a doctorate in the field of new media and competition strategies (Doctorate in Business Administration).

After finishing his studies, he worked as Consultant with Roland Berger and Partners as well as Andersen Consulting/Accenture (Manager in the field of new media/electronic commerce) and as Lecturer at the University of Zurich. From 1999 to 2004, he was Full Professor (Deutsche Bank Chair for Strategic Management) at the Witten/Herdecke University (Germany). Since 2004, he has been Full Professor (Chair for Information and Communication Management) at the German University of Administrative Sciences Speyer (Germany).

He is Editorial Board Member of the *journal Long Range Planning*, the *Journal of Media Business Studies*, the *International Journal on Media Management*, the *International Journal of Business Environment*, the *International Journal of Public Administration*, the *International Review on Public and Nonprofit Marketing and the Public Organization Review*. He has several years of experience in consulting on strategy projects for leading media and telecommunication enterprises and the European Commission. His publications focus on media management, business model management, marketing, e-government and electronic

business (approximately 300 publications). In total, he has published 20 books (e.g. tenth edition of *Media and Internet Management in German*, sixth edition of *Electronic Business* in German, fourth edition of *Direct Marketing* in German and fourth edition of *Business Model Management* in German).

Chapter 1
Foundations of Digital Business Models

1.1 Introduction

In recent years, the development and design of business models have received increased attention, especially in the economic literature and mainly related to the emergence of the Internet-based new economy (Wirtz 2000c; Chesbrough 2010). In this context, business models are often linked to competitive advantages. The success of corporate activities is largely attributed to the management of business models. The increased importance of the business model approach is primarily due to the considerable changes in competitive environments during the last two decades particularly in digital markets.[1]

Increasing globalization, deregulation of entire market sectors, faster innovation cycles, the digital transformation of business transactions and accelerating economic integration have made the markets more dynamic, more competitive, more digital and, above all, more complex. Companies striving to be global competitors have to adapt continuously to the changing market conditions. Strategies, organizations and products are subject to a growing pressure for change in order to be successful in this market environment.

How do companies manage to navigate successfully this highly dynamic and complex competition? Business models are important for answering this question. Business model management helps companies to develop new business ideas, examine existing business activities and modify their strategies and structures by simplifying the complexities and dynamics of the modern business environment. Thus, business models represent the essence of corporate activities. They support the management in systematically analyzing success factors and adapting their business activities.

[1]See also for the following chapter Wirtz (2013a) and Wirtz (2018a).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_1

The diffusion of the Internet into all areas of business activities has brought particular focus to business models. The all-embracing process of digitalization of business processes is the driver of changes in company strategies and management practices. Online markets have brought about a multitude of new business models that are the foundation of companies such as Amazon, Google, Facebook and eBay.

Today's significant start-up and innovation rate resting upon new business models shows the relevance of the business model concept in the digital context. The information society, generally based on digital goods, represents a focal point for competitive strategies of modern businesses. Against this background, this textbook particularly addresses the digital orientation of the business model concept. More precisely, the book's emphasis is on the description, illustration and analysis of digital business models.

The book intends to contribute to the topic of digital business models from the perspective of business administration and is therefore structured as follows. This chapter provides an overview of the business model concept in general by presenting the development of business models, the analysis of definitions of business models and the significance of the success of business model management. Chapter 2 gives insights into and explanations of the business model concept and provides the underlying approaches and ideas of business models.

Building on these foundations, Chap. 3 outlines the fundamental aspects of the digital economy. Chapters 4–7 examine different core models in the B2C context. Those chapters follow the 4-C approach that divides the digital B2C businesses into models, focusing on content, commerce, context and connection. Each chapter describes one of the four different models and provide different respective business model types, the value chain, core assets and competencies as well as a case study.

Chapter 8 outlines a hybrid digital business model approach. Based on the example of Google, the section describes the hybridization or in other words the development of a hybrid digital business model. Chapter 9 examines the B2B digital business models. It shows how companies focus on the business solutions such as the online provision of sourcing, sales, supportive collaboration and broker services. Chapter 10 gives insight into the innovation aspect of digital business models, presenting structures and processes of digital business model innovation. Chapter 11 presents a comprehensive case study of Google that combines all aspects of digital business models. Figure 1.1 provides an overview of the structure of the textbook.

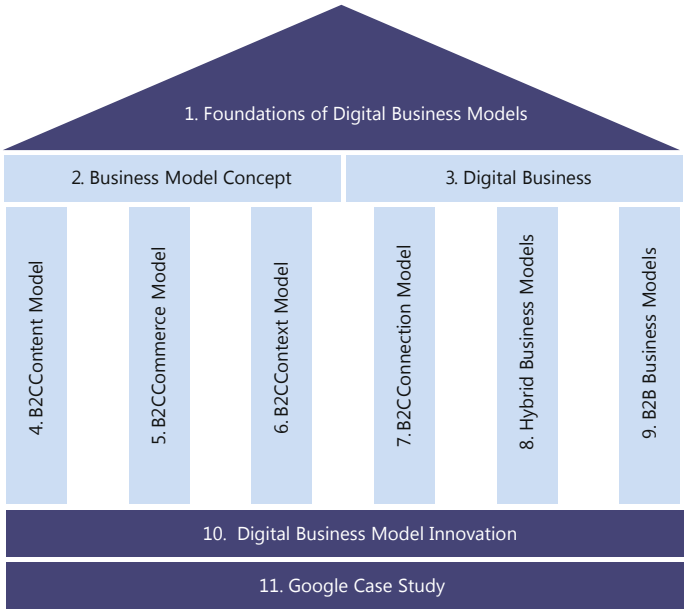

Fig. 1.1 Structure of the book

1.2 Development of the Business Model Concept

The business model concept and its development are often associated with the rise of the new economy from 1998 to 2001. However, the term business model predates this era. Osterwalder et al. (2005) found that the term was first used in an article by Bellman et al. in 1957 (Osterwalder et al. 2005).

The first use in the title and the abstract of a paper was found in an article by Jones in 1960. Other examples of early usage can be found in publications of McGuire (1965), the Manson Research Corporation (1966) and Walton (1966). However, in all these articles the term was still used non-specifically. The various authors used them in different contexts and with different meanings. At that time, there existed neither a common research focus nor a common understanding.

The concept's actual origin can be traced back to the beginnings of business informatics in the mid-1970s. At that time, the term was mostly used in connection with business modeling (Osterwalder et al. 2005). Accordingly, the term primarily showed up in journals of information technology such as the Journal of Systems Management, and in specialist magazines such as the Small Business Computer Magazine (Lehmann-Ortega and Schoettl 2005).

Until the beginning of the 1990s, the term business model chiefly appeared in connection with terms from the field of computer and system modeling in scientific literature (e.g., computerized models, computer-assisted modeling and information system) (Ghaziani and Ventresca 2005). Hence, one can conclude that business

models conceptually emerged from information modeling and information production (Teece 2010).

Between 1990 and 1995, the increasing practical significance of information technology led to a growing interest in business models. Although the main focal point was still the field of computer and system modeling, other themes increasingly began to influence the understanding of the term. The term business model was increasingly used in a strategic context and alongside terms such as revenue model or relationship management (Ghaziani and Ventresca 2005).

With the establishment of the Internet, the business model concept became a focus of interest for companies. In parallel with the rise of e-commerce, the usage of the term in publications increased considerably. While up to that point the business model concept had mainly appeared in specialist literature, now corporations and media became increasingly interested. For firms of the so-called new economy and their investors, the business model was often seen as the central aspect of a company. The increasing significance of the business model concept associated with the new economy is also reflected by press coverage in economic magazines.

Figure 1.2 illustrates the usage frequency of the term 'business model' between 1995 and 2015. While the term has hardly been used before 2000, the dot-com boom has made it widespread. Since the year 2005, there has been a clear increase in the use of the term 'business model'. In recent years, one can also observe a stable high press coverage of the term.

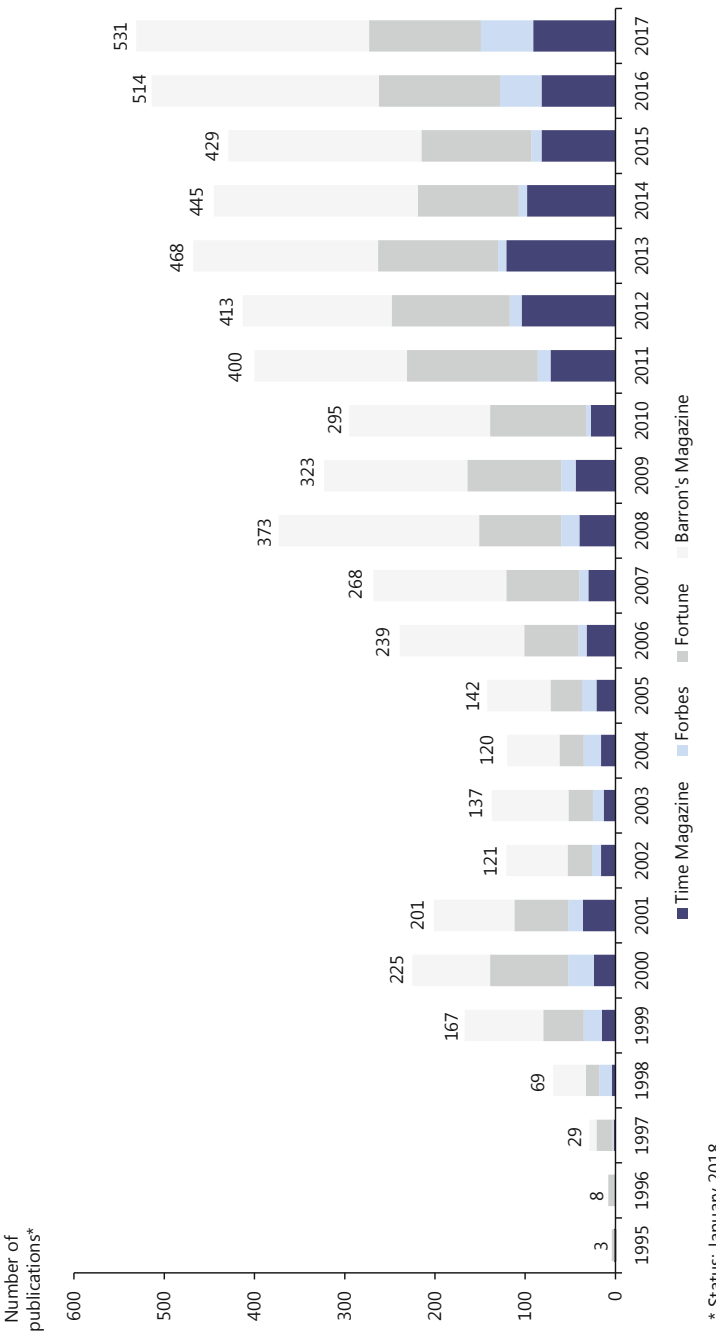

Fig. 1.2 Frequency of the term business model in the financial press. *Source* Wirtz (2016a), including updates

At the same time, the scientific literature also started to pay more attention to the business model concept. An analysis of the EBSCO database Academic Search Complete and Business Source Complete shows this development: For the period of 1965–2017, 21.225 articles could be identified, with 4167 articles being published in peer-reviewed journals. While the majority of these articles were conceptual studies and case studies, only few studies use multivariate analysis methods. During the last 20 years, the frequency of use of the term business model has increased considerably in the scientific literature. Figure 1.3 gives an overview regarding the frequency of the term business model in peer-reviewed and non-peer-reviewed journals during the last 50 years.

Based on 1726 abstracts, Ghaziani and Ventresca (2005) investigated how the context in which the term business model was used had changed over the years. Table 1.1 gives an overview of the most important development periods of the term business model depending on the context of usage.

The decline of the new economy since the end of 2000 changed the understanding of business models. The term business model shifted from a promising catch phrase to an expression that was quite often associated with the bursting of the new economy bubble (Lazonick 2005). In many cases, ill-conceived or inconsistent business models led to the failure of companies of the new economy. In addition, insufficient differentiability of their business models resulted in a cutthroat competition, which only few start-ups survived. However, in spite of its occasionally negative connotation, the interest in the concept of the business model remained.

Much later than in the new economy, companies of the old economy increasingly adopted it. Even enterprises that had not been interested in the Internet so far, suddenly started to expand their business models by adding e-business components. Terms such as business model change or business model innovation show the broadened understanding of the concept.

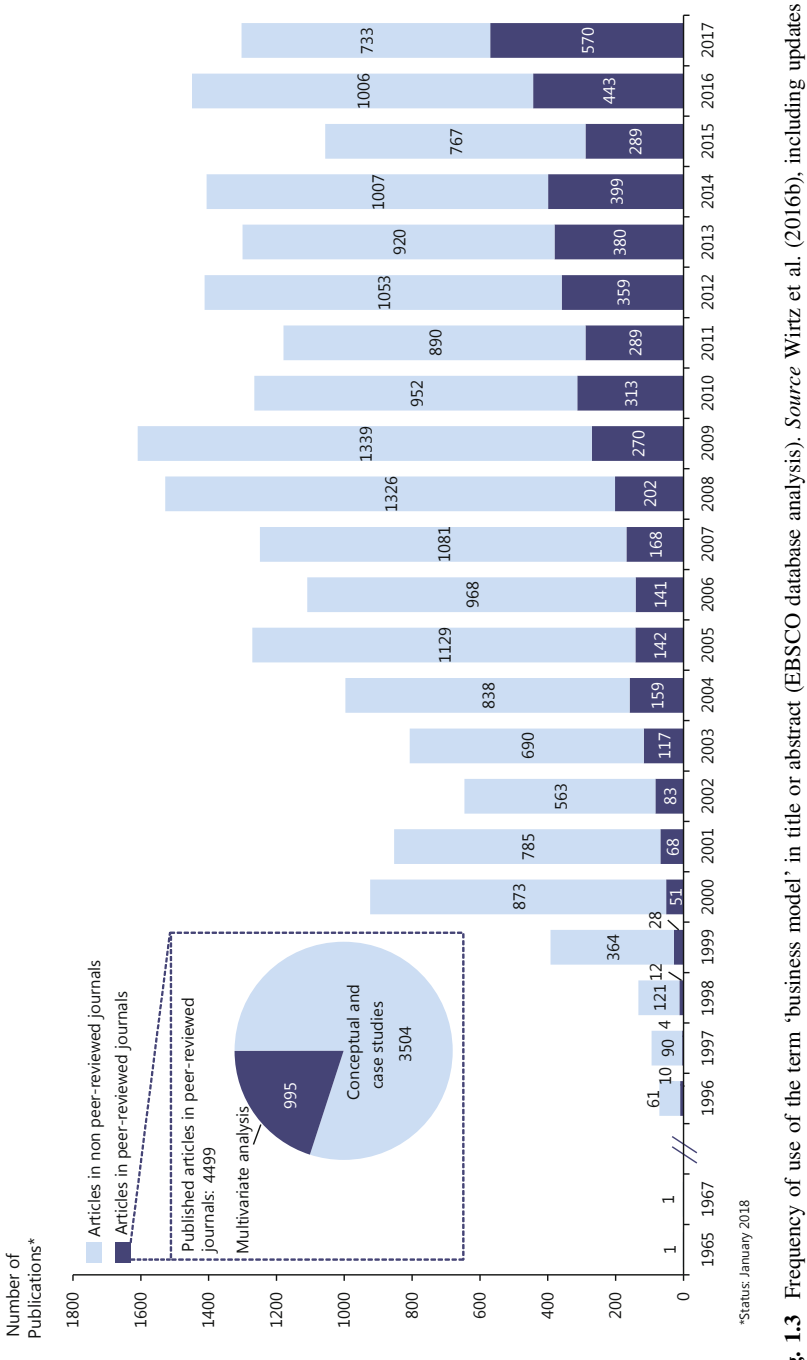

Fig. 1.3 Frequency of use of the term 'business model' in title or abstract (EBSCO database analysis). *Source* Wirtz et al. (2016b), including updates

The resulting interest in the concept of the business model in the practical world of business created the foundation for a new scientific discussion. Different authors have attempted to formulate a definition of the term business model, but only few definitions are universal. Most frequently, they only refer to certain sectors or components of business models. Due to the complexity of the concept, caused by the various theoretical approaches, there is no generally accepted definition of the term so far. Thus, to be able to describe the concept of the business model in a comprehensive manner requires a close look at the available definitions, which is the core of the next section.

Table 1.1 Frequency of the business model term according to context

Context of usage	1975–1989	1990–1994	1995–2000	Total	Percent
Value creation	1	7	81	89	17.6
Tacit conception	4	25	55	84	16.6
Revenue model	0	13	58	71	14.0
Electronic commerce	0	7	57	64	12.6
Computer/system modeling	28	19	13	60	11.8
Relationship management	0	17	35	52	10.3
Business strategy	0	11	14	25	4.9
Varied other	3	12	5	20	3.9
Business plan	2	3	13	18	3.6
Organization design	0	5	9	14	2.8
Globalization	0	9	1	10	2.0
Time block totals	38	128	341	507	100
Percentage	8	25	67	100	–

Datasource Ghaziani and Ventresca (2005)

1.3 Analysis of Definitions

The term business model has been used in various disciplines, leading to different basic explanatory approaches to the concept. This thematic heterogeneity is particularly reflected in existing definitions, which in most cases are very context-specific or merely cover subareas, such as business model components (Eriksson and Penker 2000). When looking at possible business model definitions, generally two perspectives may be distinguished. On the one hand, a simplified point of view can be adopted by deriving the business model definitions from the partial definitions of the two terminologies. This method, however, leads to very general concepts that give little information about the specificity of the business model term and neglect relevant features (Knyphausen-Aufseß and Meinhardt 2002).

On the other hand, there is an integrated business model definition that includes the pure intersectional perspective of the simplified view along with the various

research streams. Here, an attempt is made to combine the different schools of thought and numerous specific insights of business model research in order to deduce a comprehensive and specific business model definition.

Therefore, subject-related, functional and teleological aspects are systematically considered in the following sections in order to derive an integrated business model definition. While subject-related aspects refer to the subject and structure of the connotations that are to be explained, functional aspects relate to their function or mode of operation. When considering teleological aspects, objectives and purposes are important. The goal of a specific, integrated business model definition can only be attained by means of a comprehensive analysis of the term. For this purpose, the most frequently used and latest definitions of the business model concept were identified, which in total provide a quite thorough and comprehensive picture of the definitional approaches Table 1.2.

Table 1.2 Overview of business model definitions

Author	Definition
Treacy and Wiersema (1997), p. 10	The second concept, the operating business model oriented to the customer benefit, describes the synergy of operating processes, management systems, organizational structure and business culture which allows a company to make good on its promise of service. To be more precise, this involves the systems, infrastructures, and the environment with the aid of which the customer benefit can be realized. The promise of service is the business objective; the costumer value-oriented operative business model by contrast constitutes the means with which this purpose is achieved
Timmers (1998), p. 4	An architecture for products, services and information flows, including a description of various business actors and their roles; A description of the potential benefits for the various business actors; and a description of sources of revenues
Wirtz (2000c), p. 81	Here, the term business model refers to the depiction of a company's internal production and incentive system. A business model shows in a highly simplified and aggregate form which resources play a role in the company and how the internal process of creating goods and services transforms these resources into marketable information, products and/or services. A business model therefore reveals the combination of production factors which should be used to implement the corporate strategy and the functions of the actors involved
Hamel (2000), p. 83	A business model is simply a business model that has been put into practice. A business concept comprises four major components: Core Strategy, Strategic Resources, Customer Interface, Value Network
Linder and Cantrell (2000), p. 5	Operating business models are the real thing. An operating business model is the organization's core logic for creating value. The business model of a profit oriented enterprise explains how it makes money. Since organizations compete for customers and resources, a good business model highlights the distinctive activities and approaches that enable the firm to succeed—to attract customers, employees, and investors, and to deliver products and services profitably

(continued)

Table 1.2 (continued)

Author	Definition
Eriksson and Penker (2000), p. 2 et seq.	A business model is an abstraction of how a business functions. […] What the business model will do is provide a simplified view of the business structure that will act as the basis for communication, improvements, or innovations, and define for the information system requirements that are necessary to support the business. It isn't necessary for a business model to capture an absolute picture of the business or to describe every business detail. […] The evolving models also help the developers structure and focus their thinking. Working with the models increases their understanding of the business and, hopefully, their awareness of new opportunities for improving business
Amit and Zott (2001), p. 493	A business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities
Rayport and Jaworski (2001), p. 109	A business model is comprised of four parts: a value proposition or "cluster" of value propositions, a marketspace offering, a unique and defendable resource system, and a financial model. The value proposition defines the choice of target segment, the choice of focal customer benefits, and a rationale for why the firm can deliver the benefit package significantly better than competitors. The offering entails a precise articulation of the products, services, and information that is provided by the firm. The resource system supports the specific set of capabilities and resources that will be engaged in by the firm to uniquely deliver the offering. The financial model is the various ways that the firm is proposing to generate revenue, enhance value, and grow
Hedman and Kalling (2002), p. 113	Based on the review of existing literature, we would define a business model as consisting of the following causally related components, starting at the product market level: (1) customers, (2) competitors, (3) offering, (4) activities and organization, (5) resources and (6) factor and production input suppliers. The components are all cross-sectional and can be studied at a given point in time. To make this model complete, we also include (7) the managerial and organizational, longitudinal process component, which covers the dynamics of the business model and highlights the cognitive, cultural, learning and political constraints on purely rational changes of the model
Magretta (2002), p. 3 et seq.	A good business model remains essential to every successful organization, whether it's a new venture or an established player. […] Business models, though, are anything but arcane. They are, at heart, stories – stories that explain how enterprises work. A good business model answers Peter Ducker's age-old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?

(continued)

Table 1.2 (continued)

Author	Definition
Afuah and Tucci (2003), p. 3 et seq.	A business model is a framework for making money. It is the set of activities which a firm performs, how it performs them, and when it performs them so as to offer its customers benefits they want to earn a profit
Afuah (2004), p. 9	A business model is the set of which activities a firm performs, how it performs them, and when it performs them as it uses its resources to perform activities, given its industry, to create superior customer value (low-cost or differentiated products) and put itself in a position to appropriate the value
Osterwalder et al. (2005), p. 3	A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore, we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is done and with which financial consequences
Al-Debei et al. (2008), p. 7	The business model is an abstract representation of an organization, be it conceptual, textual, and/or graphical, of all core interrelated architectural, and financial arrangements designed and developed by an organization presently and in future, as well as all core products and/or services the organization offers, or will offer, based on these arrangements that are needed to achieve its strategic goals and objectives
Johnson et al. (2008), p. 52	A business model, from our point of view, consists of four interlocking elements that, taken together, create and deliver value. The most important to get right, by far, is the first. Customer value proposition, profit formula, key resources and key processes
Baden-Fuller and Morgan (2010), p. 168	Business models are not recipes or model or scale and role models, but can play any—or all—of these different roles for different firms and for different purpose: and will often play multiple roles at the same time
Johnson (2010), p. 22	A business model, in essence, is a representation of how a business creates and delivers value, both for the customer and the company
Osterwalder and Pigneur (2010), p. 14	A business model describes the rationale of how an organization creates, delivers, and captures value
Teece (2010), p. 173	A business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, and profits associated with the business enterprise delivering the value. […] In essence, a business model embodies nothing less than the organizational and financial 'architecture' of a business

The definitions show significant differences concerning the term business model. The vast majority of these authors consolidate the general structure of business models in their definitions and subdivide business models into several partial models. Particularly Hamel (2000), Rayport and Jaworski (2001), Hedman and Kalling (2002) and Johnson et al. (2008) provide a clear overview of and suggestions for a component-based business model definition. Apart from this conceptual understanding of business models, the definitions also illustrate the frames of reference, architecture, and tools from a subject-related point of view.

Wirtz (2000c), for instance, explicitly describes business models as a representation of the production and performance system of a company. Eriksson and Penker (2000) and Johnson (2010) share this perspective. In principle, Afuah and Tucci (2003) also understand business models as a representation and an abstract, corporate frame of reference, but with a much higher level of abstraction.

Similarly, the architecture can be seen as an interpretation of the business model concept. While Timmers (1998) terms it as the architecture of the company's most important services including the relevant information flows, Linder and Cantrell (2000) and Teece (2010) summarize the entire architecture of a company as the core logic.

Ultimately, it becomes evident that some authors also adopt an instrumental view apart from these more illustrative conceptualizations of the business model. Osterwalder et al. (2005), for instance, understand business models as a conceptual tool that can not only be used to illustrate but also to manage a company's core logic.

Altogether, the functional aspects of the different business model definitions form a homogenous picture. It becomes apparent that the postulated functions or modes of business model operations are strongly determined by subject-related aspects. The functions of the simplified and aggregated representation of the relevant activities and interactions of a company are the center of attention.

Eriksson and Penker (2000) as well as Wirtz (2000c) use business models to present the complex relationships within a company in a clear and aggregate way. Both approaches explicitly address a number of necessary processes and activities, which the business model is supposed to present in a conceptually simplified way.

Other more specific processes and activities are taken up by Treacy and Wiersema (1997), who concentrate on the interactions of different corporate parameters, whereas Timmers (1998) focuses on the actors in a business model and the relevant interactions that are supposed to be explained.

Linder and Cantrell (2000) as well as Magretta (2002) assume a higher level of abstraction in the context of business model functions. These authors assert that a business model needs to show and describe the relevant and characteristic activities of a company, preferably answering all relevant questions regarding the production of goods and services as well as financial success. Osterwalder et al. (2005) likewise assume this abstract, functional view, but without specifying the relevant aspects.

Regarding teleological aspects, in other words, the goal-oriented and purpose-driven nature of business models, the definitions present diverse

perspectives. Goals are typically only mentioned implicitly and many definitions do not provide any at all. Beyond the goal of generally advancing the understanding of the company as a whole and the core logic of the production of goods and services (Magretta 2002; Osterwalder et al. 2005), especially the value proposition, the satisfaction of consumer needs, the general success of the company and the further existence or development of the business model can also be identified as essential goals of the concept.

Treacy and Wiersema (1997) distinguish between the conceptual level of a company's value proposition and the operational realization, i.e. the creation of customer benefit in the business model. Rayport and Jaworski (2001) have a similar understanding regarding the purposes of a business model, additionally considering the differentiation from competitors when analyzing the need satisfaction. Afuah and Tucci (2003) establish the connection between service fulfillment, need satisfaction and the company's profitability by definition. Linder and Cantrell (2000) focus on corporate success as an essential objective of the business model, implicitly addressing the services and satisfaction of consumer needs.

In addition to these increasingly interdependent objectives, some definitions consider new objectives, such as further development or redevelopment of business ideas. Eriksson and Penker (2000) as well as Amit and Zott (2001) have a similar understanding, although they place special emphasis on the identification of new corporate ideas and new possibilities.

In summary, one can derive an integrated business model definition that focuses on the illustrative, graphical depiction respectively the architecture of the company within the scope of the subject-related aspects. From a functional view, the aggregated and simplified explanation of the relevant corporate activities remains the focus. The teleological aspects show that a business model can be implemented to ensure the value proposition, customer satisfaction, long-term profitability and further development of business ideas.

This can be summarized as the preservation or generation of competitive advantages. The synopsis of this analysis in terms of an integrated business model definition can be described as follows:

Definition Business Model by Wirtz (2000c)
A business model is a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company's value-added component. In addition to the architecture of value creation, strategic as well as customer and market components are considered in order to realize the overriding objective of generating and preserving a competitive advantage.

Furthermore, based on the definitions analyzed, an instrumental view of the business model may be identified (Osterwalder et al. 2005; Zollenkop 2006). In this context, the entire management—in terms of describing, analyzing and structuring a

company—is increasingly addressed by means of business models, in order to secure and foster the long-term business activities. Here, one can focus on a management process that is guided by the different phases of a business model (Debelak 2006; Bridgeland and Zahavi 2009). In the following, the business model management definition is presented that may be derived from this.

Definition Business Model Management by Wirtz (2010a)
Business model management is an instrument for the governance of a company and comprises all target-oriented activities concerning the design, implementation, modification and adaptation as well as the control of a business model, in order to realize the principal objective of generating and securing competitive advantages.

Having outlined the core content-related aspects of the business model definitions in this section, the following section shows the significance of business model management as a key factor for business success.

1.4 Importance of Business Model Management for Success

In the last decade, the business model approach has become an integrated management concept. Its successful theoretical implementation is directly reflected in the success of a business. This is confirmed by an IBM study, in which 765 CEOs worldwide were surveyed regarding factors of business success. The study reveals that financially successful companies emphasize the consistent and sustainable management of business models twice as much as less financially successful companies (IBM Institute for Business Value 2008). Furthermore, the study shows that strategic setups of business models particularly contribute to success when companies want to differentiate their range of products, enforce a change or implement innovative ideas.

Business models enable managers to focus on the essential aspects of their responsibility. Due to the reduction of complexity and the resulting focus on relevant information, the quality of decision-making can be enhanced, which enables more well-founded strategic and operating decisions. Thereby, a well-conceived business model increases the sustainability of competitive advantages and thus creates long-term business success.

Furthermore, a business model constitutes a conceptual and comprehensive management tool for companies to distinguish themselves from competitors in all sectors over the long run (McKinsey 2008). By consistently analyzing the different partial models of the business model, a company can better assess the relevant competitors and particularly their value proposition to the customers. If this analysis

reveals, for example, a competitor's weaknesses within individual partial models, a company can decide to become particularly involved in these partial models in order to attract new customers. This type of new market positioning or production of goods and services can change whole industries and generate great competitive advantages (Magretta 2002).

Changes in existing business models are considered to be an essential component of business model management in order to adapt to changing conditions and survive in the market over the long run (Linder and Cantrell 2000). Almost every company adjusts existing business models to deal with new technologies or customer needs. Approximately 70% of companies state that the business model often has to be radically changed in order to remain competitive (IBM Institute for Business Value 2008).

An example that is repeatedly used to confirm the significance of business model management for success is the Dell Company. Dell was founded in 1984 by Michael Dell and began solely with direct sales of computer systems in 1993. While Dell developed into one of the leading manufacturers of computer systems worldwide and became a dynamic company in the computer business, its competitors like IBM or Compaq hesitated to adapt their business models accordingly.

With the business model of direct sales, Dell shortened the value chain and could better respond to customer needs due to their greater customer intimacy. The modification or the reorganization of value creation—in particular of the value chain–is one of the central aspects of business model management and an essential factor for the significance of success (Tikkanen et al. 2005).

Another important element of business model management are business model innovations that are also relevant in the context of changes in business models. With the help of the business model management concept, innovative business models can be identified and successfully implemented. Regarding this, Johnson et al. (2008) note: "Fully 11 of 27 companies born in the last quarter century that grew their way into the Fortune 500 in the past 10 years did so through business model innovation" (Johnson et al. 2008, p. 52).

Overall, the concept of the business model has gained in importance and today is considered as relevant for success in both academic circles and in management practice. By means of business model management, a company can differentiate itself from competitors in order to build and ensure competitive advantages in the long run. Business model management affects all divisions and functions of a company and may also exert its influence across sectors.

Chapter 2
The Business Model Concept

Is seems obvious that business models have a special relevance to the competitiveness and the success of companies. This chapter shall therefore provide the foundations of the business model concept in more detail. While Sect. 2.1 outlines the research streams of business models, Sect. 2.2 provides a classification of business models and Sect. 2.3 illustrates an overview of integrated business models. After having presented a general understanding of integrated business models, Sect. 2.4 provides the levels and goals of business models. Subsequently, Sect. 2.5 concludes with the presentation of core concepts of business models, i.e. the value-creation chain and the approach of assets and core competencies.[1]

2.1 Research Streams of Business Models

The business model concept has a long history. During its development, the concept was taken up by different streams of research and associated with different schools of thought. In the literature, there are three different theoretical approaches to the business model concept: information technology, organizational theory and organizational strategy. These three basic research streams will be explained in the following.

- Information Technology

In the technological context, business models emerged from the research area of management information systems (Teece 2010). Thus, information technology is the first basic approach that was established in business model literature. The main consideration in the information technology approach is business modeling from which the business model results.

[1]See also for the following chapter Wirtz (2013a, 2018a).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_2

As early as 1975, Konczal described the procedure and benefits of business modeling and predicted that computerized business models would continue to gain importance (Konczal 1975). Early on, Konczal directed his work towards management and identified the business model as a management tool. The declared goals of business modeling were to create a business compliant architecture and to reduce the costs of hard- and software implementation.

Gradually, the methods and tools such as ARIS and PROMET were developed, which were suitable for process documentation, process analysis and conceptualization. Since the mid-1990s, system developers have been using UML, a standardized object-oriented modeling language. Business modeling occurs as a three-step process (Eriksson and Penker 2000): 1. The business objectives and available resources are determined by the CEO or the responsible unit managers. 2. The system developer drafts the structure and the business processes as well as the allocation of available resources, resulting in the business model as a simplified representation of the business processes. 3. The system developer creates an information system based on the business model.

In the sense of early information technology, the business model chiefly describes the activity of system modeling and is characterized by strongly functional aspects (Zott et al. 2011). During the course of the technological revolution caused by the Internet and the advent of e-business, the significance of the information-technological view on business models expanded. Due to changed competition and market conditions, it was often not possible to directly transfer traditional business concepts to the Internet (Wirtz and Becker 2002).

Hence, the task of the business model changed. Instead of only describing existing processes and structures for the technical system development, the business model itself became the first step in the modeling process. An Internet-based information system no longer refers to a real structure but is designed directly according to the business model.

Therefore, the business model is still to be seen as a preliminary conceptual stage but has become substantially more important in the overall modeling process. Apart from the classical information-technological view, business models had already increasingly gained an independent meaning detached from systemic considerations before the new economy. The business model changed from the plan of producing a suitable information system to an integrated depiction of the business organization in support of the management (Schoegel 2001).

- Organizational Theory

At the beginning of the 1990s, the business model concept lost its implicit connection to information systems. The focus changed and two new research streams evolved. One of these research streams was organizational theory. Since business models were no longer restricted to the preliminary conceptual stage of information system development, they evolved into an independent instrument of analysis (Zott et al. 2011). Hence, the direction of the concept's effect changed as well. In its early information-technological view, the business model was mainly regarded as a tool to transpose instructions from decision makers, but in its organization function, it can be used to support management decisions.

The business model now helps to understand how companies work. Organization theory views a business model as an abstract representation of the company's structure or architecture (Al-Debei et al. 2008). In this connection, Eriksson and Penker (2000) define the following functions of the business model:

Definition by Eriksson and Penker (2000)

- "To better understand the key mechanics of an existing business.
- To act as a basis for improving the current business structure and operations.
- To show the structure of an innovated business.
- To experiment with a new business concept or to copy or study a concept used by a competitive company (e.g. benchmarking on the model level).
- To identify outsourcing opportunities." (Eriksson and Penker 2000, p. 3)

While information technology and the business model concept developed largely in parallel, the origins of organizational theory as an economic framework have to be placed much earlier in management theory. Organization theory as an analytical concept is already to be found in the pre-industrial area.

With the industrial revolution in the middle of the 19th century, this concept became increasingly relevant for companies and may be regarded as a preliminary stage of modern management theory. During this period the first charts of corporate structures were drawn. However, a scientific examination of the subject did not take place until the beginning of the 20th century. The most important attempts in this period are those from Taylor (1911), Gilbreth (1911) and Fayol (1916).

Early definitions of organization can be found in Barnard (1938) or March and Simon (1958), among others. To this day, the further development of organizational theory has produced many different schools and theories, many of which can be classified in the area of sociology. A list of the theories that are relevant in the context of business models can be found in the work by (Hedman and Kalling 2002).

Nowadays, in the context of business management, organizational theory concentrates on achieving efficient results by means of organizational regulations. For this purpose, it becomes necessary to decide on the results one aims to achieve. These objectives are defined by a strategy that the organization follows. Hedman and Kalling (2002) emphasize the close connection between organizational theory and strategy. They found that strategy has its roots in organizational theory and listed both constructs as basic theoretical approaches of the business model concept.

- Strategic Management

With the functional change of the business model to a management tool in the sense of organizational business planning, strategy as a further basic theoretical approach gained in importance. The business model became the comprehensive description of entrepreneurial activity in an aggregated form.

Since the year 2000, many papers closely relate strategy and business models. Wirtz and Kleineicken (2000) emphasize the close connection between the business model concept and business strategy. Here, the business model provides information about the production factors for implementing a company's business strategy. According to Hamel (2000), innovations in business models constitute competitive advantages. Thus, the business model includes an internal corporate view with a competitive-strategic component.

In the course of the differentiation of the concept, the strategic approach became increasingly important in academia, which is why the business model was extended especially by strategic components (Wirtz and Kleineicken 2000; Chesbrough and Rosenbloom 2002; Magretta 2002). Compared to organization theory, the strategic approach is a relatively new discipline in the business management research. However, strategic and organizational theories have not developed linearly; different schools of thought have developed simultaneously and affect the contemporary view of the business model concept in various ways.

Chandler (1962) did fundamental work in this field, not only decisively coining the term strategy, but also describing its relationship with the administrative structure of a company. Chandler describes how strategic considerations are reflected in the structure of the company and also connects the basic strategic and organizational approach. Many authors consider Chandler's "Strategy and Structure" (1962) to be the first pivotal work for the business model characterized by the strategic approach. A further development of Chandler's approach regarding the market orientation of strategy can be found in the work by (Ansoff 1965).

In 1971, Andrews published another early strategic work closely related to the concept of today's business model. Andrews was the first author to distinguish between a corporate strategy and a strategy of individual business segments. Chesbrough and Rosenbloom (2002) found that many business model definitions hardly differ from Andrew's definition of the strategy of individual business segments.

In addition, a multitude of different streams of strategic research can be found that influence the business model concept. One of these streams was shaped by Penrose (1951): The view of the management's influence on the resource allocation of the company (Kor and Mahoney 2004). Penrose laid the foundation for the resource-based view, which, in addition to the market-based view, became the prevailing strategic tendency. Furthermore, both schools of thought, the market-based view and the resource-based view, are particularly important for the concept of the business model.

In the context of the market-based view, the company is considered as part of an industry. Special emphasis is placed on the competitive orientation and the external view of the company. One of the most important representatives of the market-based view is Porter. Particularly Porter's five forces and his value chain model should be mentioned. In contrast to this, the resource-based view focuses on the individual company and its sustainable handling of resources.

The resource-based view is also used to explain the origin of the business model concept (Schweizer 2005; Seppänen and Mäkinen 2006). Today, the two originally divergent approaches are often considered complementary. Accordingly, many

authors see both schools of strategy as basic theoretical approaches of the business model concept and combine them in their descriptions.

The concept of innovation is another approach that is often used in the context of strategy. Within the scope of the business model, different authors trace this approach back to Schumpeter's theory of creative destruction (1942) (Hedman and Kalling 2002; Schweizer 2005). In doing so, two different approaches are mainly considered. At the time of the new economy when strategic considerations first gained influence on business model literature, the creation of a new company—entrepreneurship—received special attention.

With the loss of importance of the new economy and a renewed focus on established companies, the possibility to innovate a company with a new business model and to achieve a restructuring of the company in the strategic sense (in most cases Internet-supported) became more important. Hence, the orientation of business models toward innovation is associated with the strategic approach.

Summarizing this section, it can be concluded that the basic research streams identified provide different explanatory approaches and access points to business model management. Figure 2.1 outlines a general overview of the research streams of the business model concept.

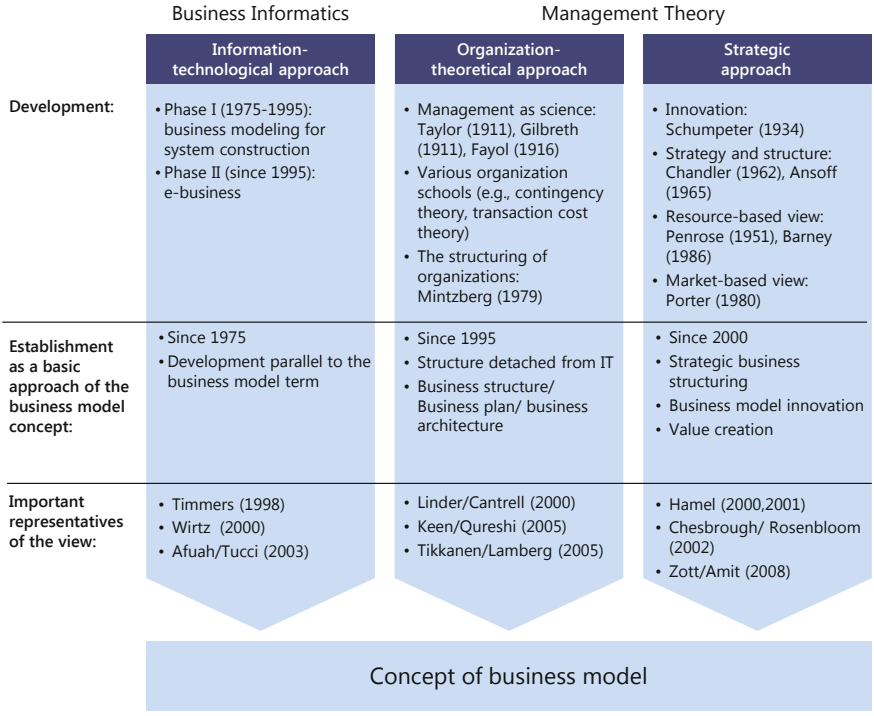

Fig. 2.1 Research streams of the business model concept. *Source* Wirtz (2010a, 2016a)

The different theoretical approaches underlying the business model concept have increasingly converged in recent years. Thus, in the current literature, a similar conceptual understanding of the business model concept has been established (see for the following Wirtz 2016a).

Between the years 2000 and 2002, the technologically-oriented business model articles have been very dominant in the context of e-business, but from 2002 on more and more strategy-oriented articles have been published. There are also some organisation-oriented articles, but they play a subordinate role compared to the other two currents in the scientific discourse. While allocating business model articles to the three basic perspectives has been clear and easy until the year 2000, it has become increasingly difficult to do the same with publications of the last few years.

Considering the concepts used and referenced in each article, it is easy to recognize that the boundaries between basic theories become blurred. In articles of the recent past, the authors mostly refer to the fundamental works and aspects of all three basic perspectives (Zott et al. 2011; Magretta 2002; Afuah and Tucci 2003; Tikkanen et al. 2005; Johnson et al. 2008). Accordingly, an increasingly uniform business model understanding seems to have been developing in recent years. An aspect that also shows this development is the abstraction level of the business model view used.

The focus of a business model in the literature ranges from a very detailed product level, the business level and the company level to the much aggregated industry level. Authors of very early technological orientation have a very detailed viewpoint in considering the business model to be a small part of a company. This profound point of view is no longer found among the authors of modern technological orientation (in the context of the new economy). In fact, these authors are much more abstract and see the business model increasingly as a representation of a company (Zott et al. 2011).

The authors of organization orientation also see the business model as a tool for the abstraction of an entire company. It is a different case, however, with the authors of strategy orientation. Here, also in early works, the business model is seen as a strongly abstract tool to get a picture of a company's competitive situation (Hamel 2000).

Altogether, in initial developments there have been great differences in the various approaches regarding the level of consideration. Yet, meanwhile a broader company perspective has become the main focus. Here, a competitive as well as a company-internal view is included in a company's actual focus (Osterwalder and Pigneur 2010).

There is also an increasing consensus among authors about the purpose of the business model concept and the role within already existent business concepts (from strongly operational process management to future-oriented strategy). Especially with the increasing involvement of authors with a strategy-oriented view, the question soon has come up about what the difference is between a business model and strategy. Although it has been found over time that both concepts intersect, they are not the same (Amit and Zott 2001). Casadesus-Masanell and Ricart (2010) emphasize: 'In our formulation, strategy and business model, though related, are different concepts: a business model is the direct result of strategy but is not, itself, strategy'.

Strategy involves a vision, the positioning to the environment or competitors or simply put, an idea of which direction it will go in the future (Chandler 1962). Fundamental decisions are made about medium and long-term objectives and activities of a company. At this point, the business model takes on concept and depicts the value creation logic of a company with a holistic description of company activities in an aggregated form (Osterwalder et al. 2005). The business model presents a means for the coherent implementation of a strategy (Dahan et al. 2010). Based on a business model, the operative implementation can take place in the course of an organizational design or business process model. The business model can thus be understood as a link between future planning (strategy) and the operative implementation (process management).

In summary, it can be stated that an increasingly converging view or a similar conceptual understanding in the literature has been established up to now. This can be demonstrated exemplarily by means of the aggregation levels used as well as the classification of business models in the areas of processes and strategy. This converging business model understanding is not so evident in all areas. Due to the inconsistent use of the term business model in the literature, there is still no generally accepted definition of the concept. Some authors quote definitions from the early business model phase that only partially reflect the understanding of the converging concept. After having outlined the research streams and related approaches, the following section uses this foundation to derive a classification of business models.

2.2 Classification of Business Models

At the beginning of the scientific analysis of the business model concept, rather rudimentary models existed, specialized for individual application scenarios. Today, a wide range of business model approaches exists. Authors from different research areas have fostered the development of business models and dealt with the term from different scientific perspectives. As stated in the previous section, it can be observed that over the course of time, different opinions have been condensed into an integrated understanding of the business model. Figure 2.2 illustrates this process.

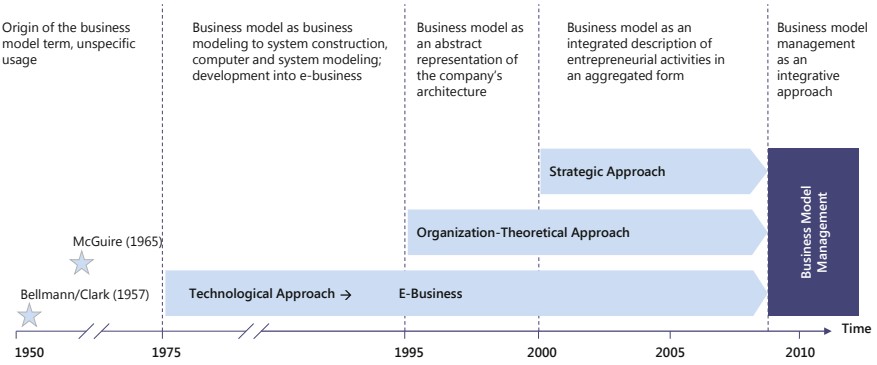

Fig. 2.2 Development of the business model concept. *Source* Wirtz (2010a, 2016a)

However, this multitude led to a pluralism of perspectives and a heterogeneous understanding of the concept in the early concept-forming phases, which is reflected by fragmented approaches. For this reason, multiple attempts were made in the literature to develop a synopsis of definitions (MacInnes and Hwang 2003; Pateli and Giaglis 2004; Al-Debei et al. 2008). It is noticeable that the authors use very different criteria for their systematization and that they associate different content with the term business model. In this context:

- components of business models are listed (Afuah and Tucci 2003; Osterwalder 2004),
- the context of the business model definition is taken into account (Pateli and Giaglis 2004),
- different categories of business models are formed (Al-Debei et al. 2008),
- existing business models from practice are grouped into categories (Krüger et al. 2003) or attempt to establish a taxonomy.

For instance, Bieger et al.'s (2002a) analysis compares eight selected contributions from business model literature and shortly outlines each publication. Eight core elements are extracted from the different approaches and it is emphasized that the respective contents overlap. The difficulty to clearly distinguish these categories involves the danger of varying interpretations. This might lead to misunderstandings, especially when implementing the model in practice. Moreover, the authors found great discrepancies regarding the scope of the descriptions. However, similarities exist with regard to the structure of business models. Based on this analysis, they suggest an eight-stage business model, which is depicted in Fig. 2.3.

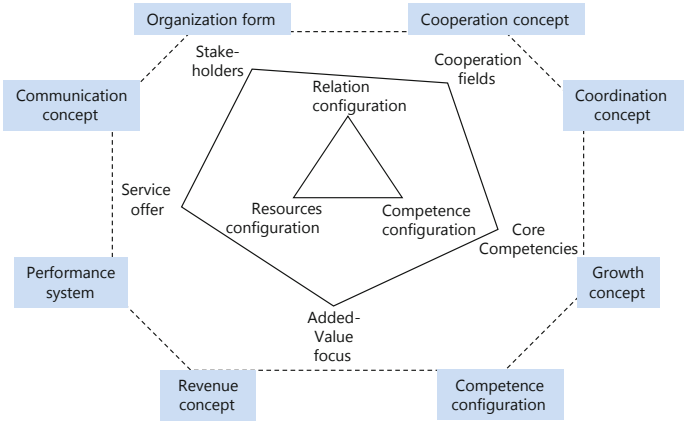

Fig. 2.3 Eight dimensions of a business model. *Source* Bieger et al. (2002b)

MacInnes and Hwang (2003) have analyzed different approaches to business models. In contrast to Bieger et al. (2002b), MacInnes and Hwang (2003) found that literature on business models can be divided into two categories: firstly, types and

characteristics of business models, and secondly, components of business models. MacInnes and Hwang (2003) say that the components of business models are vital for the success of a company. Therefore, they extract the relevant components from the seven contributions and classify the approaches based on these components.

Krüger et al. (2003) focus on types or characteristics and components of business models. They analyze three selected approaches regarding the taxonomy of Internet business models and subsequently derive components of business models from three further approaches. Krüger et al. (2003) argue that components may be linked to the corresponding taxonomies and illustrate this by a generic linking approach. Finally, they transfer their results from the analysis to the special context of the online news market.

The classification by Pateli and Giaglis (2004) is more comprehensive than the previous approaches. They note that the existing literature is characterized by a confusing diversity and emphasize the heterogeneity in general and the different angles of the existing approaches in particular. Based on their analysis, the authors conclude that there is no consistent framework for the analysis and research of business models in academia so far. Although all of the examined research approaches can be assigned to one or several sections of business models, these approaches have not yet been connected interdisciplinary. Figure 2.4 Sections and research approaches of business models depicts the eight principal sections identified by the authors.

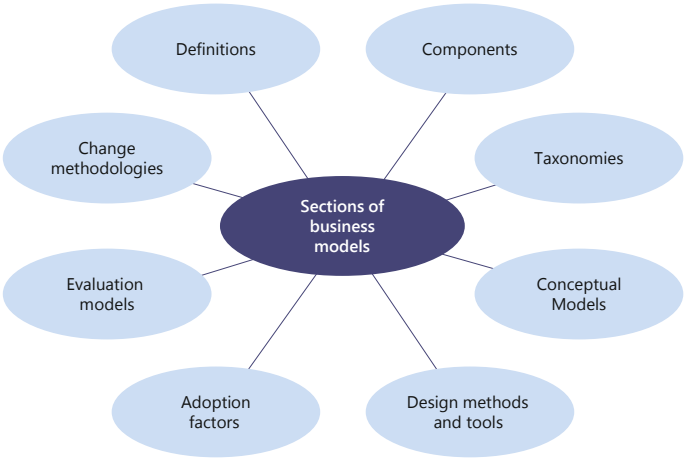

Fig. 2.4 Sections and research approaches of business models. *Datasource* Pateli and Giaglis (2004)

Osterwalder et al. (2005) also note that technology- and business-oriented authors have a different understanding of the business model concept. In their opinion, every publication in business model literature can be assigned to one of three categories: overarching business model concept, taxonomies or instance level. With this, the authors initially make a rough classification and subsequently examine the structure, differentiation and development of the business model concept. Based on this framework, four pillars with nine business model building

blocks are derived: the product pillar with the value proposition block, the customer interface pillar with the target customer—the distribution channel—and the relationship block, the infrastructure management pillar with the value configuration—the core competency—and the partner network block and the financial aspect pillar with the cost structure—and the revenue model block (Osterwalder et al. 2005).

Lambert (2006) classifies selected contributions of the existing literature. In contrast to the classification approaches above, the author adopts a perspective characterized by e-business. Lambert identifies four criteria to differentiate the literature and illustrates selected approaches by means of this research grid. The author argues that it is possible to create a universal approach from the existing approaches, but that this would be less significant because of the loss of specific criteria.

Wirtz et al. (2016b) provide a holistic classification of the business models literature by quantitatively investigating relevant research papers and carrying out a differentiated, research field-oriented qualitative analysis. Here, 681 peer-reviewed journal articles have been investigated for the period between 1965 and 2013.

Based on the heterogeneity of existing business model approaches and classifications, the authors identified three main categories, which have been further differentiated into specific subcategories. The first main category is concept/terminology and combines 'definitions and scope' of the business model concept. The second main category is business model structure, whose subcategories are 'forms and components', 'value system', 'actors and interaction' and 'innovation'. The third main category is business model management process and comprises 'design', 'implementation', 'operation', 'change and evolution' and 'performance and controlling'. Figure 2.5 displays the described business model classification (Wirtz et al. 2016b).

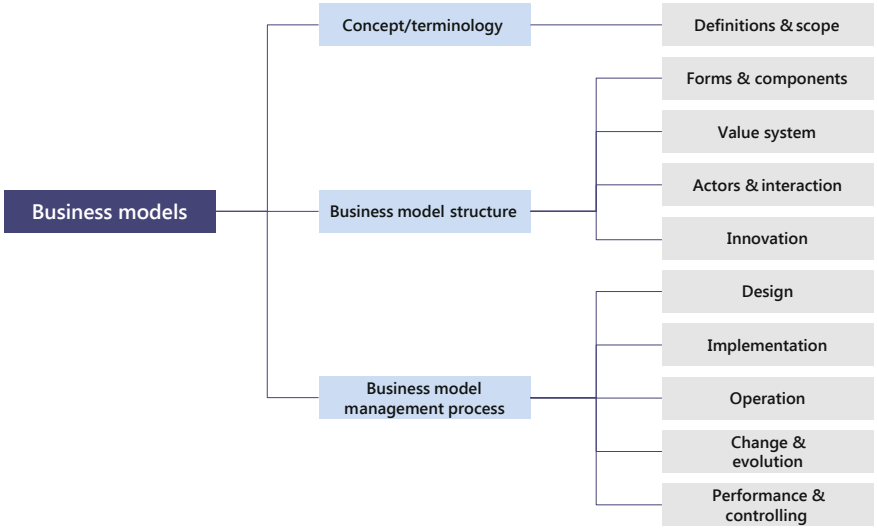

Fig. 2.5 Business model classification according to Wirtz et al. (2016b). *Source* Wirtz et al. (2016b)

Figure 2.6 summarizes the business model classification according to Wirtz et al. (2016b) and describes the individual subcategories. Based on the literature analysis, the figure further illustrates the research intensity regarding the individual subcategories divided into conceptual studies, case studies, and complex empirical studies. While the distribution between conceptual papers (46%) and case study-based research or other basic empirical work (49%) is almost balanced, there is a clear deficit and therefore high potential for research in the case of multivariate analyses (5%).

Considering the respective research fields based on the individual subcategories, the authors have identified four essential foci with special research intensity: innovation (26%), change and evolution (18%), performance and controlling (16%) as well as design (10%).

Upon a closer look at the distribution, it seems reasonable that innovation is the most important research field because globalization trends and the accordingly growing competitiveness in the marketplace becomes increasingly challenging for many companies. Therefore, it is highly important to understand how to become and remain innovative and thus successful with the company's business model. The research field of innovation is strongly related to the research area change and evolution, when considering how business models of various industries have fundamentally changed or been adapted over time, due to the rapid development of new information and communication technologies.

Furthermore, there is an increased research interest in performance and controlling of business models since new procedures are necessary to examine the profitability and sustainability of business models. This is particularly relevant considering the current situation, in which companies are increasingly challenged by competitive advantage and continuing discussions about their impact on and responsibility for society, environment and multiple stakeholders. Finally, the design of business models that has been investigated intensively as a distinctive arrangement of the design process, as well as well-structured graphical visualizations, ontologies and their communication within the company are essential for well-rounded decision-making (Wirtz et al. 2016b).

	Key Content	Research Status Conceptual	Research Status Case Study	Research Status Complex Empirical	Total
Definitions & Scope	• Basic definition of the concept • Differentiation from existing concepts	27 (100%)	-	-	27 (4%)
Forms & Components	• Decomposition of the business model concept regarding partial models • Categorization of concrete parameters	25 (45%)	31 (55%)	-	56 (8%)
Value System	• Structure of value creation • Topology of value chain partners	22 (47%)	22 (47%)	3 (6%)	47 (7%)
Actors & Interaction	• Analysis of the interactions and relationships of the different business model actors	14 (37%)	20 (53%)	4 (10%)	38 (5%)
Innovation	• Entrepreneurship, socio-economic implications of business model innovations	87 (9%)	84 (48%)	5 (3%)	176 (26%)
Design	• Arrangement of the design process • Graphical visualizations (ontologies)	38 (54%)	29 (41%)	4 (5%)	71 (10%)
Implementation	• Arrangement of the implementation process	7 (37%)	12 (63%)	-	19 (3%)
Operation	• Arrangement of the operational process	7 (37%)	12 (63%)	-	19 (3%)
Change & Evolution	• Change of business models over time (evolution / revolution) • Factors to adapt a business model	59 (49%)	56 (47%)	5 (4%)	120 (18%)
Performance & Controlling	• Development of methods for testing the feasibility, sustainability and profitability	29 (27%)	65 (59%)	15 (14%)	109 (16%)
Total		315 (46%)	330 (49%)	36 (5%)	681

Fig. 2.6 Research articles in the field of business model. *Source* Wirtz et al. (2016b)

By looking at the different perspectives of the individual authors regarding a business model classification, it can be summarized that particular overlaps are apparent regarding the classification criteria of the different authors, but a basic homogeneity is not discernible. Table 2.1 summarizes the criteria presented.

Table 2.1 Criteria for the classification of business models

Authors	Classification criteria
Bieger et al. (2002b)	• Incentive system • Concept of communication • Concept of revenue • Concept of growth • Configuration of competence • Form of organization • Concept of cooperation • Concentration of coordination/control
MacInnes and Hwang (2003)	• Types and development of business models • Components of business models
Krüger et al. (2003)	• Types of business models • Components • Taxonomies
Pateli and Giaglis (2004)	• Definitions • Components • Taxonomies • Conceptual models • Design methods and tools • Adoption factors • Evaluation models • Change methodologies
Osterwalder et al. (2005)	• Value proposition • Target customer • Distribution channel • Relationship • Value configuration • Core competency • Partner network • Cost structure • Revenue model
Lambert (2006)	• Referred to by the author(s) as • Criteria for differentiation • Number of categories and subcategories • Business model categories
Wirtz et al. (2016b)	• Concept/Terminology – Definition and scope • Business model structure – Forms and components – Value system – Actors and interaction – Innovation • Business model management process – Design – Implementation – Operation – Change and evolution – Performance and controlling

The briefly outlined classification attempts are exemplary of current literature. The observed categories are only suitable to a limited extent for a generalized classification of business model approaches. For instance, often only certain sections of the business model concept are considered and relations or implications are not sufficiently taken into account. For the most part, only selected approaches of the literature are examined.

Regarding the classifications of business models, it becomes evident that a component-oriented perspective is present in the majority of business model understandings. To develop a clear understanding of the business model concept, the extraction of relevant components is therefore considered to be highly relevant (see for the following Wirtz et al. 2016b).

Based on an elaborate meta-analysis in terms of a quantitative and qualitative examination of peer-reviewed journal articles, Wirtz et al. (2016b) identify that the first component-oriented approach has been mentioned by Hamel (2000). The author identifies core strategy as a central component of a business model. The contributions of Hedman and Kalling (2002), Afuah (2004), Yip (2004) and Tikkanen et al. (2005) in the following years also name strategy as a significant business model component.

Another important component is (material and immaterial) resources. In this context, company-internal and external resources and competencies/capabilities are observed (e.g. Wirtz 2000c; Osterwalder et al. 2005). An additional business model component is the network that influences the value creation of a company. The network component includes the various, mostly external interactions of a business model and serves as a management tool to monitor the value distribution with a joint value creation.

Further, the special importance of customers is frequently referred to in the literature. The customer model presents all products and services for specific customer segments of the business model. Another component often referred to in the literature is the market offering model that includes the frequently mentioned value proposition, i.e. the customer value delivered by a business model. Besides the focus on the own company, the main aspect here is the consideration of competitors (Hedman and Kalling 2002).

The revenue component is also frequently mentioned ranging from transaction-dependent and independent direct revenue to indirect forms of revenue. The support of the entire business model is determined by different revenue streams. The revenue streams and revenue structure are to be designed in such a way that they maximize revenues. The term service provision is also reflected in the components. In this context, Afuah (2004) and Johnson (2010), for instance, quote "activities", "implementation and configuration of value creation activities", and "processes". Hence, the service provision model portrays the value creation of the business model, defining central parameters and depicting how lower order goods may be transformed into goods of higher order by internal company processes.

Today's modern procurement management particularly needs to comply with globalization, decreasing production cycles as well as the change from producer to buyer markets. Therefore, the business model component of procurement is

obligatory since neglecting this aspect can have extensive impacts on other components. In this regard, an input-based understanding of procurement predominates in the literature (e.g. Hedman and Kalling 2002; Yip 2004). Finally, the financial model can be stated as the last component of a business model. It undertakes the functions of controlling and financial planning by means of detailed financial planning and the analysis of the cost structure (e.g. Demil and Lecocq 2010; Osterwalder et al. 2005; Osterwalder and Pigneur 2010). Figure 2.7 presents an analysis of the relevant business model components.

In summary, the business model literature presents various classification criteria mostly including a component-oriented view. In this context, many authors present specific research approaches but only implicitly address their significance for business models. Although the different authors do not use the same nomenclature, they quite obviously have a common understanding.

In this regard, Osterwalder (2004) explains that different points of view on business models can also exist within a company and a business model may be the link between these views. Here, one can distinguish between business strategy, business organization and ICT (information and communication technology) (Osterwalder 2004).

Bieger et al. (2002b) present a very similar point of view. They address the topic of business models by means of the following three analytical patterns: network effects and strategic network theory, strategy theory and value chain configuration. Pateli and Giaglis (2004) also draw on three research streams emphasizing that it is necessary to consider them not separately but as a whole (Pateli and Giaglis 2004). After having derived a classification, the following section uses this understanding to provide an outline of an integrated business model.

Compo-nent / Author	Strategy	Resources	Network	Customers	Market offering (value proposition)	Revenues	Service provision	Procure-ment	Finances	Spectrum of the Components
Hamel (2000)	Core Strategy, Strategic Resources		Value Network	Customer Interface						◔
Mahadevan (2000)			Logistic Stream		Value Stream	Revenue Stream				◔
Wirtz (2000)	Combination of production factors for strategy implementation	Core competencies & Core assets		Market & customer segmentation	Service offer & Value proposition	Systematization of revenue forms	Combination & transformation of goods & services	Production factors & Suppliers	Financing & Refinancing	◕
Hedman/Kalling (2002)	Managerial and organizational, longitudinal process component	Resources		Customers	Competitors, Offering		Activities & Organization	Factor & Production Input Suppliers		◕
Bouwman (2003)		Technical architecture		Customer Value of Service					Financial arrangements	◔
Afuah (2004)	Positions	Resources			Industry Factors		Activities		Costs	◑
Mahadevan (2004)				Target Customers	Value Proposition	Revenue Model	Value Delivery			◔
Voelpel/Leibold/ Tekie (2004)		Leadership capabilities	Value Network (Re)Configuration for the Value Creation		Customer Value Proposition					◔
Yip (2004)	Scope, Differentiation	Organization		Nature of Customers, Channels	Value Proposition, Nature of Outputs		How to transform inputs (including technology)	Nature of inputs		◕
Lehmann-Ortega/Schoettl (2005)					Value Proposition, Value Architecture	Revenue Model				◔
Osterwalder/ Pigneur/Tucci (2005)		Core Competency	Partner Network	Target Customer, Distribution Channel, Relationship	Value Proposition	Revenue Model	Value Configuration		Cost Structure	◕
Tikkanen et al. (2005)	Strategy & Structure		Network				Operations		Finance & Accounting	◑
Al-Debei/El-Haddadeh/Avison(2008a)			Value Network		Value Proposition, Value Architecture				Value Finance	◔
Demil/Lecocq (2010)		Resources & Competences, Organization			Value Proposition	Volume & Structure of Revenue Streams			Volume & Structure of Revenue costs	◑
Johnson (2010)		Key Resources			Customer Value Proposition	Profit Formula	Key Processes			◑
Osterwalder/ Pigneur (2010)		Key Resources	Key Partners	Customer Relationships, Channels, Customers Segments	Value Proposition	Revenue Streams	Key Activities		Cost Structure	◕
Intensity of use	◑	◕	◑	◑	◕	◑	◑	◔	◑	

○ Very low ◔ Low ◑ Moderate ◕ High ● Very high

Fig. 2.7 Overview of selected business model components. *Source* Wirtz et al. (2016b)

2.3 Integrated Business Models

Concrete applications of the business model concept can be found in various fields. The scope of application reaches from the rough modeling of a business idea in the early stages of a start-up to the change management process for established and long-standing companies, in order to withstand changing basic conditions (Wirtz 2013b; Afuah 2004; Osterwalder et al. 2005). However, the application of the business model concept is always associated with a primary intention, namely, the development, implementation and protection of a lasting, successful and profitable corporate strategy (Wirtz and Becker 2002; Wirtz and Nitzsche 2011).

Nevertheless, a detailed analysis of a company's activities and the resulting effects on lasting success requires a certain precision. This ensures that relevant aspects of a business model are anticipated and integrated during the processes of formation and change, so that unnecessary sunk costs are prevented. The integrated business model concept cannot and should not replace necessary economic analyses during the individual processes, but rather should reveal a conceptual and aggregated framework of the most important components (Wirtz 2013b).

Those most important components constitute the partial business models of a so-called integrated business model approach. In total, the combination of those different parts ensure together a functional and integrated business model. This conceptual framework is important in order to show how a company creates value and thus how it can ensure its profitability. When looking at discussions of strategic management, both internal aspects and environmental conditions of a company need to be considered in order to derive the relevant components of a business model (Afuah 2004). Especially industry-specific factors are counted among the environmental conditions or external factors of profitability consideration.

In order to get a comprehensive picture of the partial models of business models, one can refer to the aspects introduced by Porter (1980): rivalry within the industry, supplier and customer power, potential new suppliers and substitute goods. However, possible cooperation between different companies also plays a role in the analysis of industry-specific factors in order to equitably deal with particular developments related to the value constellation. Some types of cooperation can generally lead to lower costs and consequently be suitable for the business model of a single company and the overall product (Dyer and Singh 1998; Dyer and Nobeoka 2000).

Concerning internal factors, a variety of influential variables can be identified. However, three comprehensive aspects have emerged: the positioning, activities and resources of a company (Afuah 2004). The positioning of a company provides information about which market and customers are to be served and how revenues will be generated. In this context, it is important to decide which possible strategies are suitable, what value is provided to the customers and in which segment a company wants to position itself compared to its competitors. This is closely connected to the activities of the company that are described in the business model. The critical questions in this context are: which activities shall be performed, and in what way and when, in order to achieve, hold and strengthen a profitable position in comparison to the main competitors.

In turn, the activities of the company are strongly influenced by the resources of the actors involved. Here, the core competencies and assets of a company must be taken into account to analyze the long-term success of the company. Especially in strongly diversified companies, a further observation of business models on the level of strategic business areas is useful (DeWit and Meyer 2010). Within a conglomerate, such as Siemens, a variety of relevant business models exist that may admittedly correspond to some extent but, which are not comparable in their entirety.

In the case of Siemens, examples include the strategic business units of Power and Gas and Mobility. Power and Gas provides utilities, independent power generators, plant builders and industrial customers such as the oil and gas industry with a wide range of products and solutions for environmentally friendly, resource-conserving power generation and the reliable transportation of oil and gas using fossil and renewable fuels. Mobility offers efficient, safe and environmentally friendly transport for passengers and goods by rail and road. Important products in this sector are the ICE high-speed train of Deutsche Bahn or the S70 urban railways, for instance. This example shows the differences between strategic business units within a company. The business models must be adapted to these different conditions.

The performance and business-specific orientation of business models not only takes place on the overall model level of the business model, but also concerns the configuration of the partial models of an integrated business model. In principle, each integrated business model consists of several partial models. Figure 2.8 illustrates the individual partial business models.

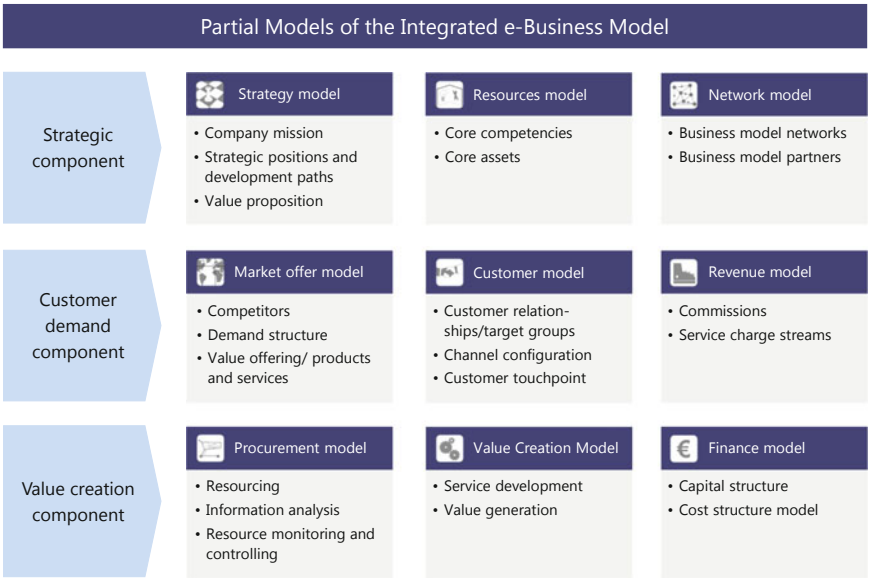

Fig. 2.8 Partial models of the integrated business model. *Source* Wirtz (2010a, 2016a)

The strategic components of an integrated business model consist of three partial models: The strategy model, the resource model and the network model. The internal resources and networks build an upper unit of the integrated business model concept and are therefore particularly important when analyzing value creation in business models. These strategic partial models generate an operational scope for the other partial models and define which types of value creation are generally possible.

In the strategy model, the top management defines medium and long-term goals and activities of a company in order to persist on the market. In this context, it is generally postulated that these strategies unite the business vision, mission and goals. The determination of the positioning and definition of strategic business areas is connected to this. A strategic situational analysis that comprises changes in framework conditions, scope of action and strengths and weaknesses of the company serves as a basis.

In the resources model, the core assets and core competencies are depicted as well as their subordinate elements relevant to value creation. It is thus a summary of all relevant tangible and intangible input factors of the business model. In this process, both internal and external resources and competencies are presented. The network model gives an overview of the value constellation partners in value creation and the connections between different business models. In this context, the network model is an instrument of the top management to control and manage value distribution within a collaborative value creation. Different tangible and intangible streams of information and goods are analyzed in this process. In this way, particular stakes in value creation may be determined and classified to a network of connections and relations.

The partial models of the area of customer and demand components depict basic influence factors for the design and operation of a business model. The three main components are the market offer model the customer model and the revenue model. The information from these models describe the corporate environment and connects it to internal value creation by means of revenue. They are consequently the link between the business strategy and its value generation. Before transferring strategic targets to the process of value creation, first adaptations to customer needs and market situations need to be made. The data that is obtained by means of the customer and market components can also be used for the corporate strategy.

The market offer model is oriented along the market environment. This model seeks to make use of available market opportunities. This partial model is therefore closely aligned with competitors, the market structure and the value offer, in other words, the products and services. As a result, the company's value proposition is developed and shaped against the background of an analysis of competing business models.

The customer model includes all activities aimed at a successful customer relation. Therefore, the major focus is an effective customer relationship management (CRM) and a target group orientation. This is also the core interest concerning the selection and design of sales channels. Customer orientation is also crucial regarding the setup of customer interfaces—in other words customer touch points—which are the sole points of interaction between the company and the customer (Wirtz 2018b; Wirtz and Daiser 2017b).

Actual revenue streams and their relevance to the business model are managed by the revenue model. This partial model depicts the value capture of internal value creation. This means that it clarifies how and to what extent the value generated can be monetized for the company. The revenue model is thus responsible for the absorption of a portion of the added value generated from the production of goods and services.

The partial models within the value creation component comprise the internal value generation. In this context, the manufacturing model, the procurement model and financial model are relevant. Here, the focus is put on how and under which conditions value can be generated by means of a central value creation logic. The partial models of value creation are thereby influenced by the strategic components as well as the customer and market components of the business model.

The procurement model describes the structure and sources of the raw materials, goods and services that are necessary for the production of value-added goods and services. The securing of suitable resources to favorable conditions, respective market screenings and information analysis is the basis for the value creation.

The manufacturing model depicts the generation of additional value as building on the topic of initial value creation. It defines key parameters of the offer-oriented business model and is of particular importance for the business model management process. The manufacturing model gives an overview of the conversion process of inferior goods and services to better-quality goods and services through internal processes. This conversion is accomplished through performance and production factors that function as input and can be subdivided into planning and elemental components.

The financial model combines two financial areas of the business model. On the one hand, the financing of the business model is depicted. Therefore, a capital model is developed that enables planning by means of equity and debt capital. On the other hand, the cost structure of the business model is also included in the financial model. In this way, a monetary quantification of the resource input is made that is particularly relevant for manufacturing and revenue.

The capital model of a business model is developed in accordance with the business model strategy. The financial model provides information about which financial resources are transferred to a business model and how the refinancing of corporate activities can be organized. Consequently, the model also shows the sources of financing for the business model. Furthermore, with the aid of data from recent periods it enables an evaluation of the financial success of a business model and thereby allows to forecast prospective financing and liquidity requirements.

The strategy, networks and resources of a company play a central, interdependent and superior role within the integrated business model approach since these partial models are increasingly concerned with one another as well as all other partial models. The partial models of the business model form an interdependent network of structural elements. For this reason, the single models cannot be observed separately or solely within the respective components but instead need to be applied to the whole spectrum of partial models in terms of their causes and effects. A holistic understanding of business models can therefore only be achieved with an overview of interactions for all partial models. In Fig. 2.9 the respective interactions are presented.

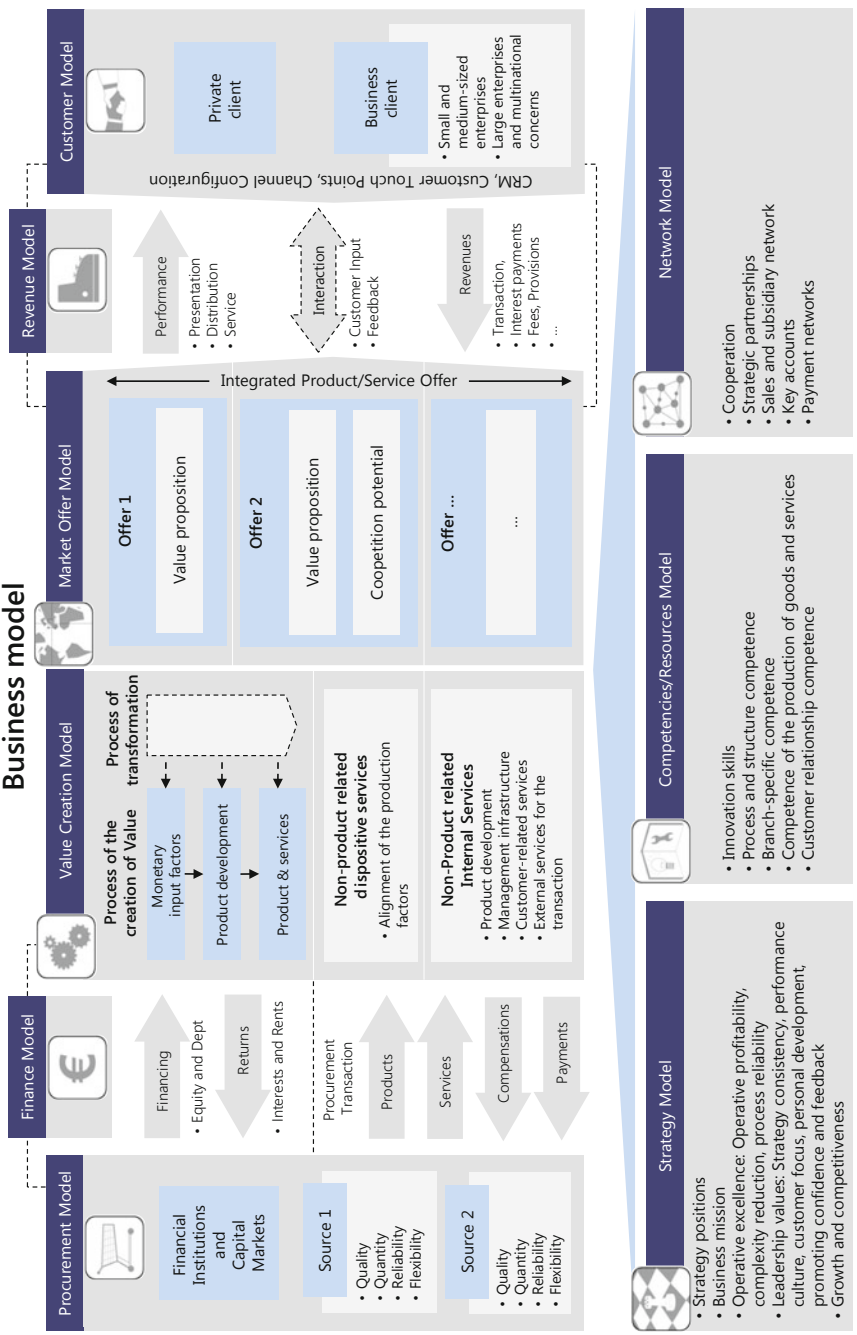

Fig. 2.9 Interactions of the partial models of the business models. *Source* Wirtz (2010a, 2016a)

The purpose of a business model is to accomplish long-term corporate goals such as high profitability or quality leadership. Thereby, the strategy model, resources model and network model affect the composition of value creation. The single models constitute a strategic framework and influence one another. In turn, the manufacturing model and the market offer model serve as a central partial model for value creation. An offer that is conceptualized and realized in a business model by employing capital is recapitalized on the market in order to generate a part of the added value as revenue.

Value creation enforces a transformative process in which, after a development phase, products or services are generated from monetary input factors and their transformation into elementary production factors. This process comprises the value generation part of the value creation. In order to obtain elementary production factors such as materials, information from the procurement model needs to be taken into account. The source of supply is weighted according to the criteria of quality, quantity, reliability and flexibility.

The monetary transaction of purchasing and the transaction related to the flow of goods are moderated by means of the financial model, for instance, by coordinating price negotiations and payment terms. Acquisition, however, not only serves to produce goods and services, but also to support non-product related planning services and non-product related internal services. Planning services are responsible for managing the production of goods and services, whereas internal services comprise activities within value creation that can take place either before or after the production of goods and services.

The market offer model and the customer model are intended for the planning of value capture that eventually appears in the revenue model. Therefore, the different offers of the business model are compared according to their value proposition, cost structure and, to some extent, their suitability for coopetition. As a second step, the offers of competitors are included in this analysis. Offers are finally made to customers that can be divided into different segments according to the customer model and which in turn interactively influence the design of offers. Performance can further be differentiated into the areas of presentation, distribution and service.

After the transaction has been made, the monetary revenue stream is transferred to the business model by the customers and completes the value creation phase of value capture. Through this interaction structure, the synergy of the single partial models within a business model is described on a general level, which results in a basic, generic understanding of their interdependent operation. Having provided the essential features of an integrated business model, the next section derives the different levels and goals of an integrated business model.

2.4 Levels and Goals of Business Models

In many fields it is important to apply the integrated business model concept specifically. The basis of a business model is to describe the relevant value creation and the value proposition. Here, the concept depicts an aggregate framework of the most important partial models and illustrates their structure (Wirtz 2001a). In this context, several levels of a business model can be distinguished. The relevant levels can be divided into industry, company, business units and product levels. These different levels build upon one another and can consequently explain the structure of industries or companies as a whole (Afuah 2004). Figure 2.10 illustrates this notion.

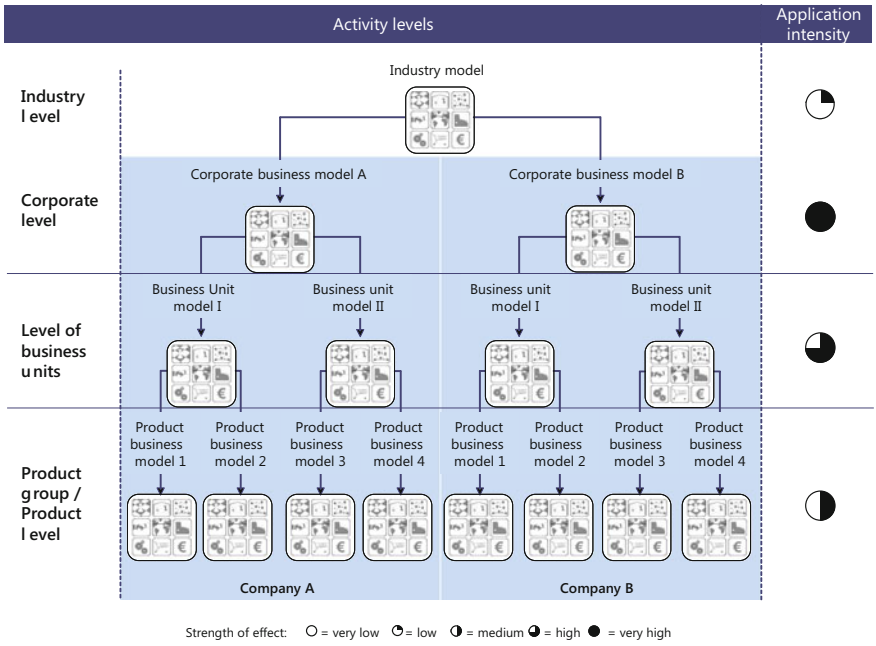

Fig. 2.10 Business model levels. *Source* Wirtz (2010a, 2016a)

Regarding the industry level, environmental conditions and external factors of the profitability consideration are included. This is carried out in line with familiar concepts of strategic management, such as Porter's aspects of rivalry within an industry, supplier and customer power, potential market entrance and substitutes (Porter 1980). This industry model not only focuses on a comprehensive environmental analysis, but also on an analysis of the production of goods and services of different companies within an industry.

The company can be identified as another possible degree of abstraction in the business model concept. While the industry level focuses on the corporate environment, here, corporate factors and determinants are considered. Three essential factors should be emphasized in the context of business models: resources, activities and the positioning of a company (Afuah 2004). Along with the core competencies, resources form the foundation of a business model.

They considerably influence the configuration of the production system and significantly impact success. The positioning of a company not only determines its resources and activities but also its success. It further provides information about which consumers or markets can be served and how revenues can be generated.

In the case of smaller enterprises, a comprehensive overview of all activities can be achieved through the corporate view. However, in the case of large and diversified corporations, this degree of abstraction is too undifferentiated to ensure the management of the production of goods and services (Susman 2007). For this reason, an even more detailed degree of abstraction is introduced in the form of the strategic business unit level. A strategic business unit is the corporate segment that is responsible for the functioning of one or more business units or products. Many different business models may exist within a corporation. While single partial models of a business model may be consistent with one another, the consumer's perception may differ.

The product group/product level constitutes the lowest possible level of consideration of a business model. Here, different segments of the creation of goods and services can be summarized in an integrated view, and all relevant partial models and processes for a product can be illustrated. The cell phone iPhone by Apple Inc. serves as an example since the hardware development and software development is performed by different departments. Depending on the application context and the size of the company, the appropriate level for considering the business model has to be chosen. The levels are not mutually exclusive and in some cases it is reasonable to consider a company on several or all business model levels mentioned. Due to these different degrees of abstraction, the value creation and profitability of a company can be fully comprehended. This is the foundation of sustainable management and the creation of long-term competitive advantage through business models.

Apart from securing short and long-term competitive advantages as an overriding objective of business models, further objectives can be derived from the functional aspects of the business model concept, especially for business model management. Due to the instrumental character of business model management, six procedural objectives may be identified which, in turn, serve the prevailing business model objective. Figure 2.11 illustrates the procedural subgoals of business model management with the overriding business model goal as a core.

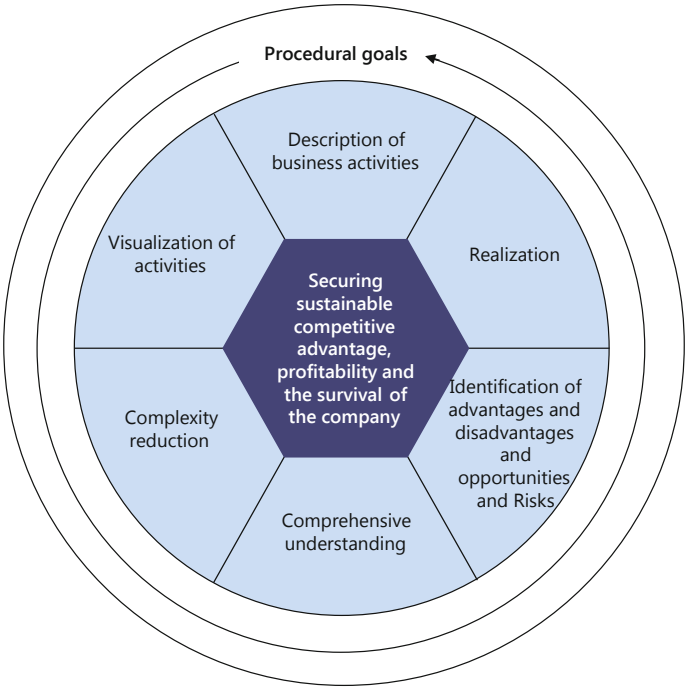

Fig. 2.11 Objectives of the business model and business model management. *Source* Wirtz (2010a, 2016a)

The first objective is to assist the companies in describing their business activity. The existing business concept can be explicated by means of a business model or the individual partial models. The theoretical business operations are graphically depicted in order to simplify the management of interactions, processes, etc. This graphical representation achieves a higher level of abstraction for all business activities and supports the corporate management in developing a better basis for decision-making. Furthermore, graphical depictions may also serve as a foundation for deliberations within the scope of further development or the adaptation of business models (Osterwalder 2004).

Another procedural goal is the reduction of complexity (Bridgeland and Zahavi 2009). The corporate management needs to be equipped with relevant and aggregate information regarding processes, resources, competencies, finances and competition in order to develop appropriate strategies that ensure competitive advantage. The simplified depiction of the business activity by means of a business model allows to clearly present information on the company as a whole. This, in turn, leads to a better basis for decision-making within business model management in order to successfully operate the company.

In the context of information processing, an increasing quantity of information and key figures is generated and provided to the corporate management. Business model management should not only support the management in daily decision-making but also enable a long-term, profit-based orientation. In the course of this long-term orientation, it is important for the manager to fully understand the relationships within the company as well as the processes and links to the corporate environment. For this reason, building a holistic understanding is another goal of business model management, in order to better identify potentials and evaluate risks more precisely (Eriksson and Penker 2000).

The internal and external potentials and risks have a considerable impact on decision–making in a company. Therefore, the identification of opportunities and risks constitutes an important procedural goal of business model management for the company (Debelak 2006). In this context, the individual partial models are continuously examined to assess whether further efficiency advantages or synergy effects can be used to better serve customers or to optimize the production of goods and services. In addition to this internal perspective, the business model facilitates the competition analysis and the identification of possible external value creation partners for the responsible business model managers. Apart from focusing on partial models, the business model management may also undertake the task of consistently evaluating the whole business model, in order to identify advantages and disadvantages of its strategic orientation.

The last procedural goal is to support companies in implementing the business models (Osterwalder et al. 2005). In the course of restructuring or changing the business model, business model management can help to present an overview of the relevant aspects of the company's change process. Furthermore, when implementing a new business model, business model management can ensure that all relevant aspects and partial models have been considered, which increases the probability of success. All procedural activities and subgoals are focused on the primal goal of securing sustainable competitive advantage, profitability and the survival of the company. Having described the essential levels and goals of business models, the next section outlines the foundation of business models, namely the value chain and competencies that are necessary to be considered for a full understanding of business models.

2.5 Business Models, Value Chain, Core Assets and Competencies

In order to understand the management of business model it is vital to assume that the company's resources determine its success and development. The elements that are decisive for competitiveness of an enterprise are included in the value creation system. The value chain, the core assets and the core competencies as well as the business model of enterprises belong to the essential elements.

Figure 2.12 provides an overview of the value creation system of enterprises. Here the core assets, core competencies and value chains need to be taken into consideration as complementary topics of analysis. The value chain facilitates the differentiated and structured presentation and analysis of the value flow activities in enterprises, while core assets and core competencies describe the resource foundation of competitive advantages. The business model covers both concepts and in addition, takes a special look at external aspects of management of enterprises.

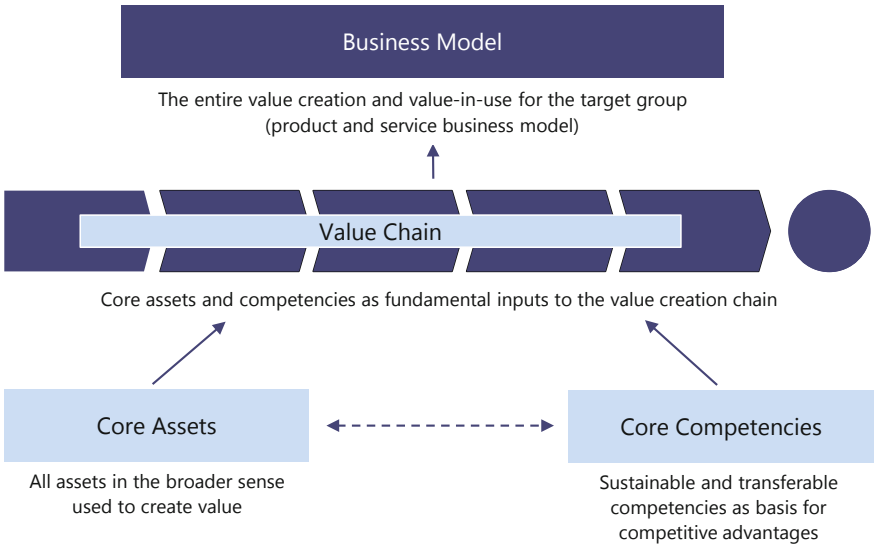

Fig. 2.12 Value creation system. *Source* Wirtz (2005, 2018b)

The following section primarily focuses on core assets, core competencies and the value chain to gain a holistic understanding of business models as such. It thus provides the basis of the aforementioned introduction to business models.

- Core Assets and Core Competencies

In classic management theory, core assets and core competencies give companies a sustainable competitive advantage, which leads to the achievement of superior

returns in the long term (see for the following Wirtz 2011b) Moreover, competitive advantage is regarded to lead to better, superior product and service offerings, which in turn lead to an enhanced demand position (Fahy and Smithee 1999). Therefore, all other factors being equal, the best product and service offer from a customer point of view will finally result in a market leadership position by better satisfying customer demand than competitors. Transferred to the digital sector, the concept of competitive advantage thus allows the respective enterprise to create better service offers and to provide its services with higher value for the customer. In addition, competitive advantage becomes a vital factor for the company for further reasons, such as cost efficiency and reliability.

The concept of core assets and core competencies arises from the resource-based theory approaches of strategic management. Therefore, the resource-based view and its advanced concepts—capability-based, dynamic capability-based, and knowledge-based view—form the basis for the following discussion of core assets and core competencies. The resource-based approaches are used to explain differences in results between companies and to derive strategies for the creation of competitive advantages. In this context, an inside-out perspective is applied, meaning that the accumulated internal assets and capabilities of the company are in focus.

Based on this reasoning, the achievement of sustainable competitive advantage is attributed to the unique and specific assets and competencies of an organization. Discrepancies in these assets and competencies as well as in their management are regarded as reasons for differences in entrepreneurial success. The classic resource-based view is primarily concerned with the assets and core assets of a company, largely neglecting competencies. The term asset in this context refers to an undifferentiated input factor, which is freely acquirable in the market and forms the necessary condition for all activities of a company (Teece et al. 1997). Thus, financial resources or human resources are general examples of assets.

If company-specific assets play a particularly important role in the value chain of the company, these are referred to as core assets. However, assets can only be classified as core assets if they are valuable to value creation, rarely available in the market, and not easy to imitate or to substitute. Otherwise, they cannot create the potential for sustainable competitive advantage. Based on this proposition, the following definition for the asset and core asset concept is derived.

Definition of Assets and Core Assets (Wirtz 2011b)
Assets are tangible and intangible resources that form the basis for the activities and the competitiveness of an enterprise. Core assets concern specific assets that are accumulated in-house or were at least refined and that have a special intrinsic value for a company's value creation process. They are relatively scarce and are difficult to imitate or substitute. Core assets form the basis for a lasting competitive advantage.

The resource-based view follows the fundamental premise of imperfect factor markets. This theoretical circumstance is the prerequisite for the asset heterogeneity of organizations that underlies the resource-based theory approach. According to this reasoning, above-average returns can only be achieved if the value of an acquired asset exceeds its cost. The employees, being the persons with the relevant know-how and competencies, are essential for value creation. Since their implicit knowledge and expertise is rarely available in the market and difficult to imitate, employees are core assets. The IT platform, being the interface between user and provider, as well as the technological infrastructure, providing the backbone of the functioning digital business, are core assets of a respective company.

The answer to the question how a core asset-based competitive advantage is transferred into superior services is provided by the competency-based perspective of the resource-based theory. The underlying assumption of this perspective is that organizational skills and abilities allow smart combinations of assets and core assets, creating surpassing services that are different from those of competitors and thus have the potential to create user preferences.

For this reason, competencies allow to manage core assets in a way to achieve competitive advantage. Company competencies are therefore a coordination capacity that is based on the social interaction patterns, the knowledge, and the individual skills of the company's employees and its management. According to the management-oriented explanation of Prahalad and Hamel (1990), core competencies are characterized by three features: (1) provide access to various business areas, (2) are transferable to a multitude of products/services and/or customer groups and (3) form the basis for its core products or services. Based on the previous discussion, competencies and core competencies of companies can be defined as follows:

Definition of Competencies and Core Competencies (Wirtz 2011b)
Competencies form the foundation for collective action and facilitate the service creation process, in which assets and core assets are combined into valuable services. Core competencies are a special form of competencies. They are relatively scarce and do not lend themselves to imitation or substitution by the competition. Core competencies make a significant contribution to the perceived customer benefits and provide companies with a lasting competitive advantage

Automatization and data processing competencies are of high importance for the digital management. The same holds true for content creation competency, which covers the abilities necessary for successfully producing information content that satisfies user demand. A competitive service business further requires collaboration competency since comprehensive service provision usually involves the collaboration among different companies or company units.

Experience design competency refers to the ability of creating a satisfying user experience in the context of an online offers. Technology and programming

competencies are indispensable abilities for digital business undertakings since these are needed to set up, maintain and develop the relevant IT infrastructure.

Running a successful digital business calls for distinct information and service bundling as well as service development competencies, since these directly influence the service offer, which is designed to satisfy the user's demands. Finally, customer/user relationship management is an important core competency since this requires the activities to attract customers to the digital service or product and to maintain the growing customer base.

The system to provide digital services needs to be envisaged like a tree. In this picture, the trunk and major limbs are core services, the smaller branches are service segments and the leaves are the final services. Since the actual source of sustainable competitive advantage lies in an effective and enduring combination of core assets and core competencies, a superior final service may only result in a short-term competitive benefit, and for the most part not in a long-term competitive advantage. For this reason, the interconnected "treesystem" is based on its roots, the core competencies, which provide the nourishing basis for sustainable competitive service provision. Thus, like a tree, the service system grows from its roots and branches out to its final digital services (see Fig. 2.13).

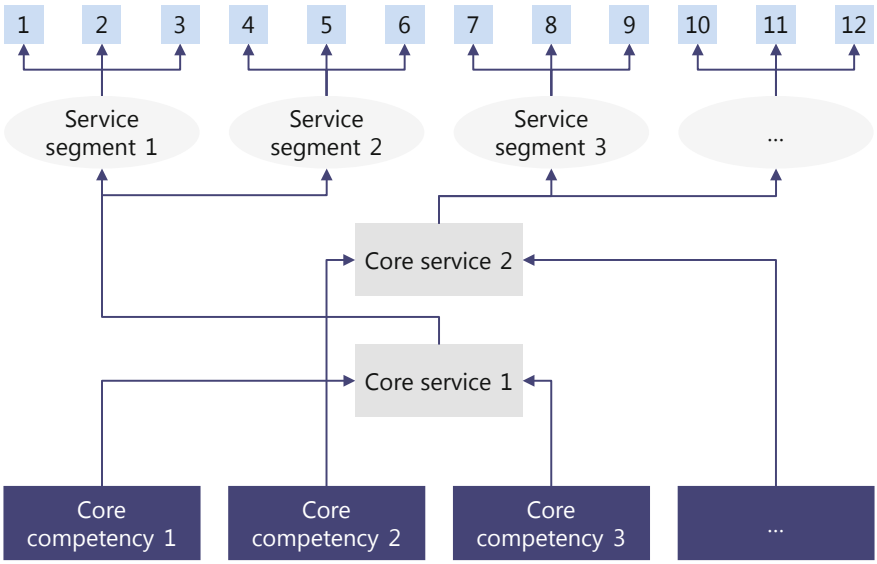

Fig. 2.13 Competences as the roots of competitive services. *Source* Based on Prahalad and Hamel (2006)

Prahalad and Hamel (1990) exemplify this matter by referring to a company that possesses the core competency of producing electronic displays. By using its competency, the company could successfully do business with different products in

different markets (e.g. pocket calculators, smartwatches, smartphones, tablets, cloud services, etc.).

Since both core assets and core competencies are not rigid or stiff objects but rather responsive factors that can be developed, the resource-based perspective was complemented with the dynamic capabilities view. Dynamic capabilities explain the development of resources and competencies over time and reflect an organization's capability to build up, configure, integrate and coordinate core assets and competencies (Teece et al. 1997).

Building up or dismantling core assets or core competencies is, for example, required if organizations are constrained to adapt to varying surrounding conditions. This activity demands regular reviews of a company's assets and competencies in order to decide which of them, for instance, need to be developed or degraded. These processes can be controlled by the management of the company through by defining specific goals and strategies that support an asset or competency-based development. Here, especially the customer needs and requirements should serve as a benchmark for the continuous review of the core asset and core competency profile. The cycle is illustrated in Fig. 2.14.

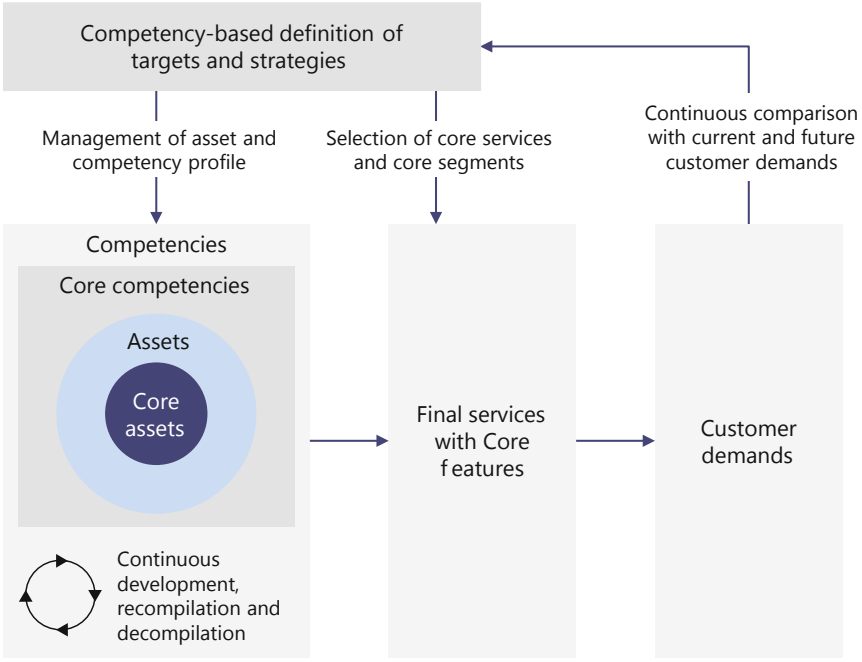

Fig. 2.14 Core asset and core competency development. *Source* Based on Wirtz (2005, 2016b)

Developing core assets and core competencies requires a systematic analysis and management process since this procedure plays a vital role in the formulation of recommendations for action in order to ensure the company's future success.

First, the core assets and core competencies that possess strategic importance for the organization need to be determined. Here, future scenarios may be analyzed to identify promising core assets and core competencies, i.e. virtual reality is assumed to become an important digital markets trend and thus, IT platform, technological infrastructure, technology and programming, as well as service development are promising core assets and core competencies.

Second, the achieved hypothetical target state is compared with the current core asset and core competency profile to identify relevant fields of action. If, for instance, a company does not yet have access to the required core assets and core competencies to adequately address the previously mentioned virtual reality topic, they need to be actively developed. In the same manner, core assets or core competencies can be outsourced, reduced or completely dropped if they do not show strategic or operative relevance anymore.

Finally, the results of the target and actual situation outcome are transferred to derive the respective course of action. Core assets and core competencies that show, for instance, a high future significance but a low current state should be quickly build up, intensifying investments and knowledge management. However, core assets and core competencies that show a diametrically opposed picture (low future significance but high current state) should be dismantled and disinvested.

If specific core assets and core competencies have rather become obsolete (low future significance and low current state), they may be outsourced or further reduced. If core assets and core competencies, however, show high future significance and the companies already has achieved a high current state, they should be maintained and upgraded by all means. Figure 2.15 presents an overview of the analytical processes and the strategic course of action.

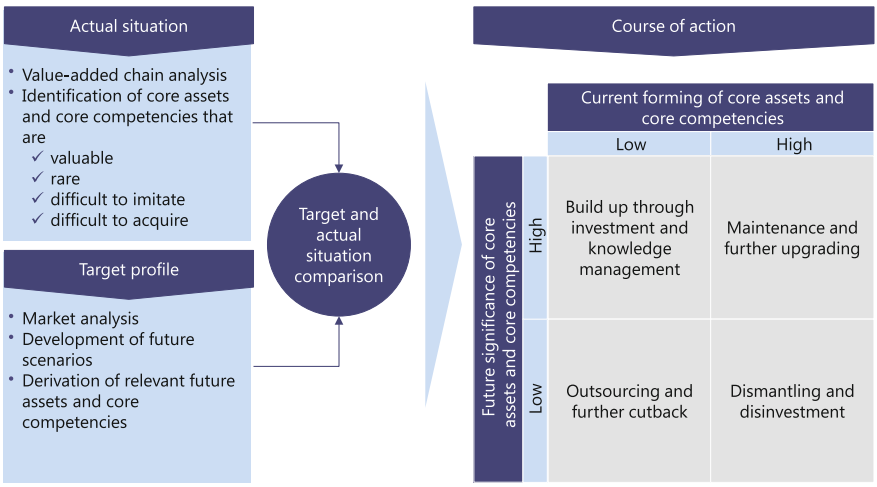

Fig. 2.15 Analysis and management of core assets and core competencies. *Source* Based on Wirtz (2005, 2016b)

Having set a clear strategic course of action, the respective core assets and core competencies can be systematically developed or dismantled and thus adjusted to the company's requirements. Apart from a strategic perspective on company's resources, which are a key factor of its success, it is also important to analyze the value creation process of companies. The next section outlines the value chain in enterprises.

- Value chain

In the development of a business model, it is primarily the individual value chain activities within the enterprise that are analyzed. This analysis especially focuses on the different physical and technological activities of an enterprise that are considered the building blocks of a product that is useful to the consumer (Porter 1986). A relatively simple but successful instrument for portraying the value generation of enterprises is the concept of the value chain analysis by Porter (1986).

The value chain serves to provide a functional structure for in-house activities in order to identify approaches to improve the quality of products and processes. Primarily developed for manufacturing companies, the value chain consists of primary activities and support activities. Primary activities deal with the physical production and transfer of the product to the customer and include inbound logistics, operations (production), outbound logistics, marketing and sales, and customer service. Support activities are infrastructure, human resource management, technological development and procurement. They are necessary during the entire value creation process and influence the individual primary activities (Porter 1986).

The sequential portrayal of all the activities clarifies the consistent orientation of all value creation activities to the consumer, whereas the profit margin actually constitutes the end goal. This is made up of the difference between the total value and the sum of the costs that accrued in conducting the value activities (Porter 2004).

The value chain can be understood as a very simplified structure that can and must be individually adapted to each enterprise. In the analysis of the primary activities, it will, however, become clear that the structure cannot be transferred to service enterprises or media enterprises without any problems. The inbound logistics cannot be viewed here as a logistic activity in the sense of inventory planning because the input factors of the production process are often of an intangible nature. Furthermore, the first contact with advertising clients occurs at this juncture—in connection with activities that are directed to the advertising market—because the advertising enterprise makes a considerable contribution to the input. In the portrayal of production in digital enterprises, it is pointless to summarize all the production activities at one level. For this reason, the aggregation and production of content is separated from the configuration of the product and technical production. In sectors in which the content is connected to a tangible storage medium for transmission, a distinction can be made between technical production and distribution, whereas in other sectors, both activities coincide to the greatest possible extent. Not even customer services have the same importance in

the value creation chain of digital enterprises than in the material goods sector and in many service enterprises. An analysis of customer services, if necessary, can, hence, be carried out within the framework of distribution.

Having provided a comprehensive understanding of the link between business models, assets, competencies and the value chain in this chapter, the next chapter gives insight into digital business.

Chapter 3
Digital Business

Digital or e-business is one of the most significant fields of application of digital information and communication technologies. The following sections systematically describe the development and basics of digital business, its forces and the success factors of digital business. Section 3.1 gives an overview of the development of digital business. After presenting the basics of digital business in Sects. 3.2 and 3.3 outlines the forces of the digital development. Finally, Sect. 3.4 describes business models in digital markets.[1]

3.1 Development of Digital Business

For some time, there has been an essential change within the economy and society induced by information technology. This change is mainly caused by increasing digitalization: "With the beginning of the 'digital age', also called 'digital revolution', which evolved throughout the development of the multimedia market, there will be a fundamental change of existing structures in the telecommunication, computing, entertainment and media industries" (Denger and Wirtz 1995b). This assessment in 1995 aptly illustrates the impact of digitalization.

Network Internet applications represent a sustainable simplification and individualization of communication and information brokerage. Already in the year 1970, the Harvard sociologist Daniel Bell has coined the term "postindustrial society" describing the, at that time, anticipated change due to technology. In this society, the secondary sector in the economy loses importance because of an economic system that is primary rather coined by information technologies than by production.

Already in the beginning of the 1980s, Bell's academic and abstract phrasing has been specified by using the term "information society". The sociological term describes the transfer of human labor and macroeconomic impact to the tertiary sector

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_3

of a higher industrialized society. The delineated change is particularly characterized by technological development dynamics. The underlying principal of this development can be explained by Kondratieff's theory of long cycles showed in Fig. 3.1.

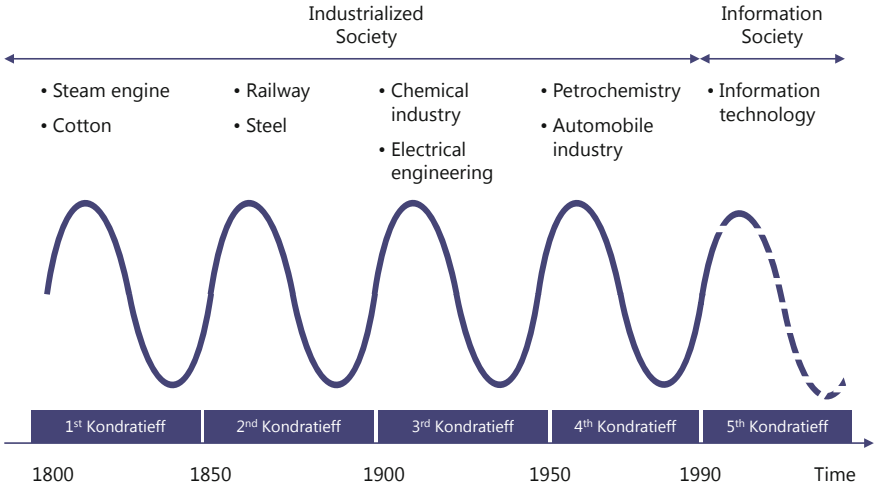

Fig. 3.1 Kondratieff-cycle. *Source* Nefiodow (1999)

According to Kondratieff, technological innovations essentially determine the status of societal development through sinusoidal innovation phases (Schumpeter 1939). This change, currently induced by the dynamics of development of information and communication technology, is an important driver of the development towards an information society.

In the course of the societal change from the postmodern industrial society to the information society, the quantity and quality of information enter entirely new dimensions. Information has never been available that extensive and at the same time concentrated before. Particularly the Internet is the focal point in this context, enabling time and location-independent, as well as accurate access to a previously unimagined extent of knowledge.

In the postmodern industrial society, knowledge was available solely dispersed. Through the dynamic development of information and communication technologies access to information has become inexpensive or even free of charge. The ubiquity of information and knowledge has become the main identifying characteristic of the information society. Figure 3.2 illustrates this multidimensional phenomenon.

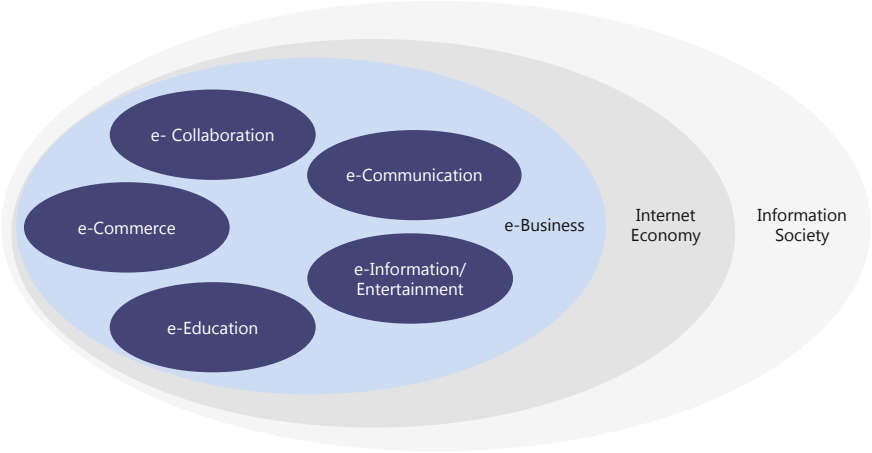

Fig. 3.2 Dimensions of the information society. *Source* Wirtz (2000c, 2018b)

In this context, the Internet economy and e-business represent the two main dimensions that constitute today's information society. E-business includes e-commerce, e-communication, e-information/entertainment, e-collaboration and e-education. This shows that sociopolitical, economic and managerial areas are increasingly affected within information society. The Internet economy strongly changes existing structures and interdependencies through the rapid diffusion of information and communication technologies (Webster 2014).

The rapid development of new Internet hosts and the growing Internet usage reflects the continuously increasing importance of information and communication technologies for the information society. The influence of the Internet as a global networking and communication system is ubiquitous. Its rapid spread on a worldwide level connecting state, economy, society and individuals also across national borders made it an unprecedented medium. Figure 3.3 illustrates the development of worldwide Internet hosts, namely domain names that are assigned to an IP address.

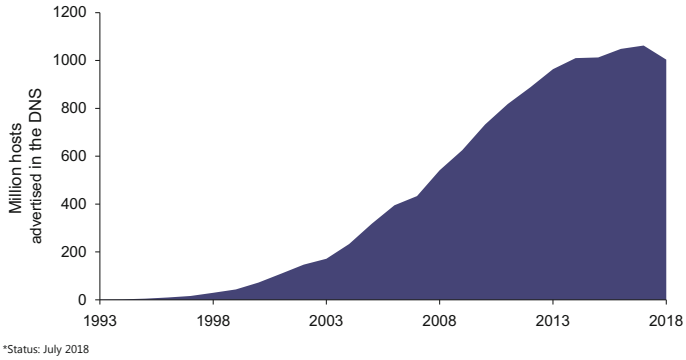

Fig. 3.3 Development of the number of Internet hosts since 1993. *Datasource* ISC (2018)

Along with the rising number of Internet hosts, the Internet usage increases steadily among the populations around the world. In 2017, the Internet already had more than 3.7 billion users. This means that already four out of ten people worldwide use the Internet, representing a growth of 933.8% since the year 2000 (Internet World Stats 2017). The respective development and diffusion of modern information and communication technologies, as well as the respective repositioning and use of these technologies were key drivers of the shift from an industrial to an information society. Table 3.1 reflects this development by showing recent worldwide Internet usage and population statistics.

Table 3.1 Worldwide Internet usage and population statistics

Regions	Population (2017 Est.)	www users (31 Dec 2000)	www users (31 Mar 2017)	Pop. in %	Growth (2000–2017) (%)	Users in %
Africa	1,246,504,865	4,514,400	345,676,501	27.7	7557.2	9.3
Asia	4,148,177,672	114,304,000	1,873,856,654	45.2	1539.4	50.2
Europe	822,710,362	105,096,093	636,971,824	77.4	506.1	17.1
Latin America/ Caribbean	647,604,645	3,284,800	385,919,382	59.6	2035.8	10.3
Middle East	250,327,574	108,096,800	141,931,765	56.7	4220.9	3.8
North America	363,224,006	18,068,919	320,068,243	88.1	196.1	8.6
Oceania/ Australia	40,479,846	7,620,480	27,549,054	68.1	261.5	0.7
World total	**7,519,028,970**	**360,985,492**	**3,731,973,423**	**49.6**	**933.8**	**100.0**

Datasource Internet World Stats (2017)

In view of the above-mentioned developments, digital business and the information society have significantly gained importance. The following section presents the basics of digital business.

3.2 Basics of Digital Business

Digital business is one of the most significant fields of application of the new digital information and communication technologies. The following section systematically describes the basics of e-business. In doing so, it first illuminates the historical development of information and communication applications and then defines and classifies the term e-business. On this basis, the following deliberations address the actors, interaction patterns and service exchange in the field of digital business.

- Development of Information and Communication Applications

The development of information and communication applications looks back on a long history (see for the following Wirtz 2016b). The basics preconditions for today's information and communication applications have been created back in ancient times and the Middle Ages. About 250 B.C., the first algorithm to determine prime numbers was introduced, known as "Sieve of Eratosthenes". This algorithm defines a rule that consists of a finite number of steps and serves to solve problems. Algorithms represent the theoretical foundation of calculation by means of a computer. In 1623, the astronomer and mathematician Wilhelm Schickard invents the first four-function calculator for the addition and subtraction of numbers. Approximately 50 years later, in the year 1672, Gottfried Leibnitz creates the first mechanical calculating machine that is capable of the four standard calculation methods.

In the year 1854, George Boole publishes the "Boolean algebra" for the portrayal of logical operators and set theory, which form the theoretical foundation of electronic technology. In the course of developing technological communication infrastructures, Alexander Graham Bell puts the first telephone into operation in the year 1854 based on the fundamental research of Philipp Reis. After a patent for wireless energy transfer, Nikola Tesla patents electrical circuits in the year 1903. These achievements laid the groundwork for radio technology and thus the wireless transmission of signals via electro-magnetic waves. 33 years later, a decisive starting point for the theoretical informatics has been set. With the Turing machine, Alan M. Turing develops a model for calculating functions for the solution of different decision problems.

In 1941, the construction engineer Konrad Ernst Otto Zuse builds the first fully automated, program-controlled and freely programmable computer in the world, which primarily served for processing numbers. Only a few years later, in the year 1946, the first mobile network worldwide goes into operation in the U.S. as an extension of radio technology. The increasing digitalization of information and communication technologies is characterized by the further support of new communication tools and improved information transmission. In the year 1948, William Bradford Shockley patents the transistor that serves for switching and amplifying electrical signals. In the year 1953, color television is introduced in the U.S. and in the year 1956, IBM introduces the magnetic hard drive (IBM 350) for storing data. This technical improvement not only enabled a quicker access time and greater storage capacity but also laid the foundation for secure data storage. Figure 3.4 illustrates the development of information and communication applications until 1956.

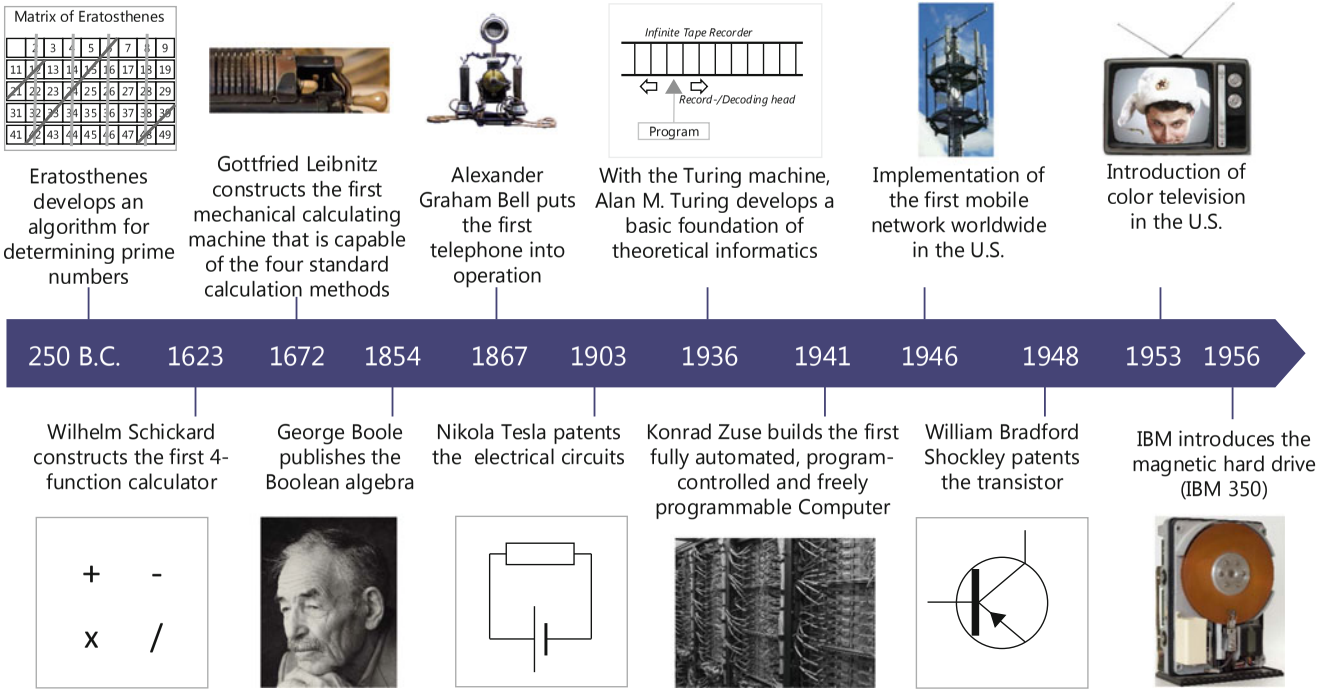

Fig. 3.4 Development of information and communication applications. *Source* Wirtz (2013c, 2017) and updates

The Disk Operating System/360 (DOS) introduced in 1966 has been provided as operating system for IBM mainframes. Therefore, the potential of the magnetic hard drive IBM 350 could be fully exploited for the first time. DOS facilitated a quasi-parallel diffusion of computer operations based on the directly addressable magnetic discs storage media.

As a precursor of today's Internet, Paul Baran and Donald Watts Davies create the cross-linked decentral network ARPANET in the year 1969. In the year 1971, Intel launches the first microprocessor 4004 that is produced in series for the first time. Ten years later, in the year 1981, IBM introduces the first personal computer and opens up new possibilities for developing information and communication applications.

In 1983, Motorola introduces the world's first commercial mobile phone Dynatac 8000x. Soon after, Microsoft releases Windows 1.0 for a simplified use of different devices. In the year 1985, Steve Case founds the online service Quantum Computer Services, which is renamed to AOL three years later.

With the establishment of the World Wide Web in 1989, the Internet increasingly influences the media and initiates a trend towards digital technologies that persists until today. An advancement of the enterprise software became necessary, leading SAP to offer its ERP software SAP R/3. Since that time, companies are able to connect different business areas by means of this software. In the same year, Toshiba introduces the first tablet PC DynaPad T100X. In the year 1994, Jeff Bezos founds the Internet shopping platform Amazon revolutionizing the global online trade in goods.

One year after the introduction of Amazon, Pierre Omidyar founds the Internet auction house eBay Inc., which quickly becomes the world's largest online marketplace for private and commercial distributors. At this point, information and communication applications may be subsumed under a generic term for a variety of services in the fields of electronics, electrical engineering, information technology and informatics. These fields are frequently characterized by a digitalization of their components and the possibility of interactive use (Wirtz 1995b). Figure 3.5 depicts the development of information and communication applications from 1966 until 1994.

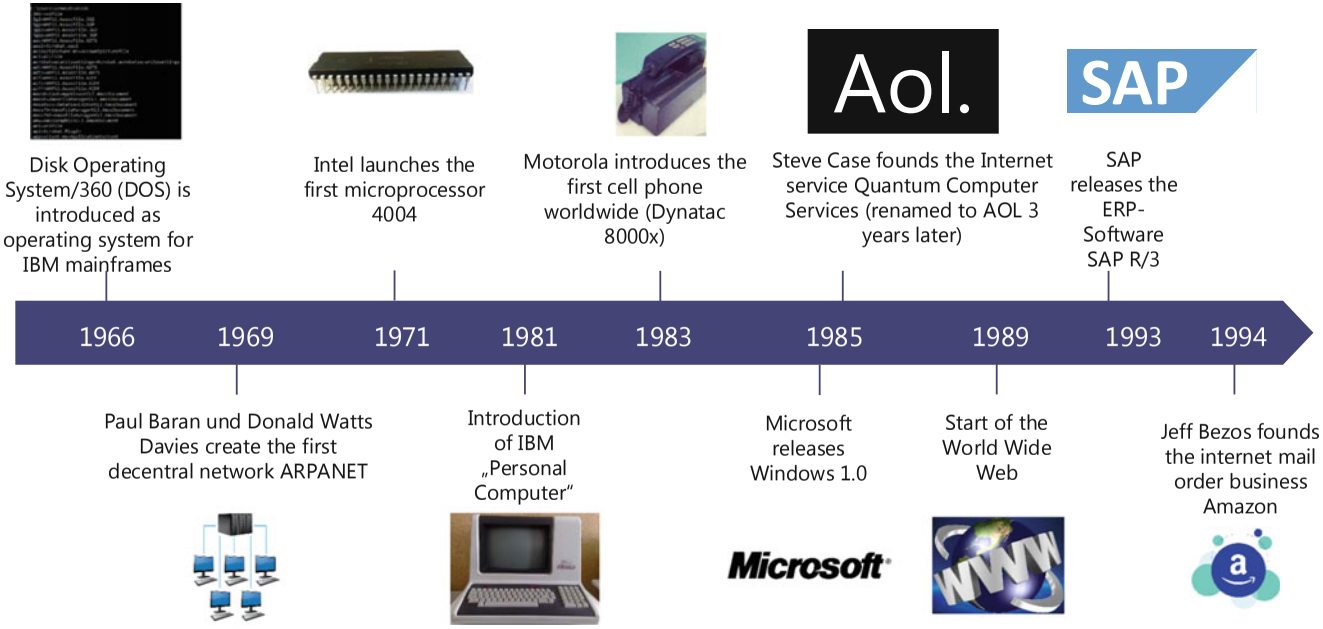

Fig. 3.5 Development of information and communication applications (1966 until 1994). *Source* Wirtz (2013c, 2017) and updates

The information society is in a dynamic stage of development, which places high demands on the operating companies with regard to their innovative power and flexibility. An important trend regarding the development of information and communication technologies begins with the introduction of the first smartphone, developed and distributed by Nokia in 1996.

While at the beginning of the smartphone era, the phones were rarely dispersed, they are now a mobile companion and very important for everyday life. In the year 1998, Lawrence Edward Page and Sergei Brin found the Internet service provider Google Inc. and offer a far-reaching search engine with the same name. In 1999, AT&T starts to market broadband in the U.S. and thus enables high data transmission rates. The company launches its service including digital subscriber line (DSL), cable modem and wireless Internet access for corporate customers. Since the end of the 1990s, the information society has significantly gained in importance, particularly due to the development of the Internet economy.

Therefore, changes in the competitive marketplace and economic conditions resulted in numerous foundations of dotcom companies since the year 1998. This trend has been supported by the further development of mobile networks and the ubiquitous diffusion of the Internet. For instance, the implementation of the first UMTS network at the Isle of Man by the local company Manx Telecom in 2001 is an essential milestone for the mobile information and communication technologies. This development increasingly facilities new Internet services. For example, the Internet has emerged as a further distribution channel for the music industry. In this context, Apple's introduction of iTunes in the year 2001 represents an important cornerstone. In the year 2004, Marc Zuckerberg founds the social network Facebook.

The boom of the Web 2.0 and social media applications continues in the year 2005. Internet platforms like Facebook and Twitter reflect the emerging networked growth of the Internet. Today, social media has become an integral part of the information society. In the year 2006, AT&T launch their brand U-verse, offering triple-play telecommunications services in 21 states of the United States and using the FTTP, VDSL and ADSL communication protocols. Already in the year 2009, the Swedish company TeliaSonera puts the first commercial LTE network in Stockholm and Oslo into operation. Finally, in 2016, Samsung launches the latest version of its successful smartphone Samsung S7 in combination with its virtual reality headset Samsung Gear VR. Figure 3.6 shows the development of information and communication applications from 1995 until 2016.

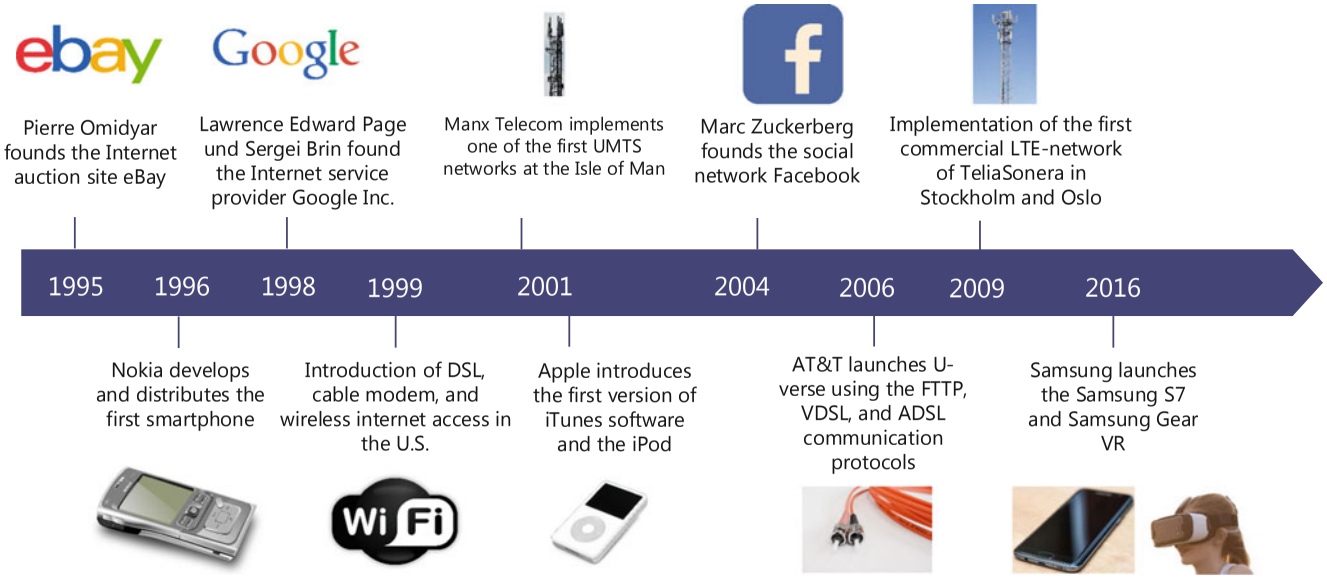

Fig. 3.6 Development of information and communication applications (1995 until 2016). *Source* Wirtz (2013c, 2017) and updates

- Definition and Classification of e-Business

In the context of the Internet economy, there are various terms and definitions. In general, the current literature has a heterogeneous understanding of the term e-business. Furthermore, the existing definitions frequently overlap to some extent, which is exemplary for the terminological inconsistency of the term's application. Table 3.2 presents some important definitions of e-business.

Table 3.2 Definitions of e-business

Author(s)	Definition
IBM (1997)	A secure, flexible and integrated approach to delivering differentiated business value by combining the systems and processes that run core business operations with the simplicity and reach made possible by Internet technology
PriceWaterhouceCoopers (1999)	Hereafter, e-business will be defined as the application of information technologies to facilitate buying and selling of products, services and information over public standard-based networks
Wirtz (2000e)	[…] is defined as the initiation, negotiation and/or transaction of a business between economic subjects which is electronically realized through telecommunication networks
Rayport and Jaworski (2001)	e-business can be formally defined as technology-mediated exchanges between parties (individuals, organizations, or both) as well as the electronical based intra- or inter-organizational activities that facilitates such exchange
Jelassi and Enders (2004)	The use of electronic means to conduct an organization's business internally and/or externally
Chen (2005)	Business that is conducted using electronic networks or electronic media. Sometimes used synonymously with e-commerce and sometimes used more widely to include other business activities in addition to buying and selling
Papazoglou and Ribbers (2006)	e-business can be defined as the conduct of automated business transactions by means of electronic communications networks (e.g., via the Internet and/or possibly private networks) end-to-end
Chaffey (2009)	All electronically mediated information exchanges, both within an organization and with external stakeholders supporting the range of business processes
Laudon and Traver (2014)	[…] is the use of Internet, the World Wide Web (Web) and mobile apps to transact business
Schneider (2017)	The term electronic commerce or (e-commerce) […] includes all business activities that use Internet technologies. Internet technologies include the Internet, the World Wide Web and other technologies such as wireless transmissions on mobile telephone networks

To systematically deduce a definition of the term e-business, it is necessary to subdivide these definitions into subject-related, functional and teleological aspects. While subject-related aspects deal with the subject and structure of the respective content of the term, functional aspects refer to its effectiveness and teleological aspects to its aim and purpose.

In the context of subject-related definitions, the consistency of some characteristics are predominant. Most definitions consider the creation of business processes and transactions as the focus of e-business. Several definitions refer to the usage of innovative information technologies.

For instance, IBM (1997) used the term of "Internet technology" in their original definition of e-business, which has been unified to "information technology" or "information and communication technology" in several subsequent definitions. In addition, the expressions "use of electronic means" as well as "by means of electronic communication networks" have been used synonymously for electronic information technology (Jelassi and Enders 2004).

In general, there is a clear consensus with regard to the creation of business processes and transactions through the usage of innovative information technology (Zhu and Kraemer 2005). The latest subject-related definitions involve the application of e-business via emerging technologies, such as wireless transmissions on mobile telephone networks and applications.

In contrast, when looking at the functional aspects, there is a lack of clarity regarding the extent and the intensity of certain aspects. For instance, some definitions restrict the number of actors involved by constraining e-business to the interorganizational business domain. This results in a narrow comprehension of the term. Other definitions expand the circle of actors by including intraorganizational and customer-related perspectives. Furthermore, there is no clear consensus regarding the extent of business processes in e-business. The spectrum of definitions ranges from solely supporting activities via electronic networks to electronic implementation and execution of all business activities. Regarding the teleological aspects, the definitions show a certain heterogeneity.

PriceWaterhouceCoopers (1999), for example, emphasizes the support of buying and selling processes of products, services and information. In contrast, Wirtz (2000c) offers a more specific definition. The author extends the teleological aspects by involving the initiation, negotiation and/or transaction of a business regarding the aim and purpose of e-business.

Definition of e-Business (Wirtz 2000c, 2018b)
E-business is the initiation as well as the partial or full support, transaction and maintenance of service exchange processes between economic partners through information technology (electronic networks).

In this context, service exchange processes refer to those processes, in which tangible and intangible goods and services are transferred in exchange for

compensatory consideration. In the case of electronic networks, it is the combination and agglomeration of physical and mobile connections through which electronic data are transferred. Based on the above-deduced definition, the following chapters presents a systematization and classification of e-business by observing actors and interaction patterns, service exchange, activities and success factors.

- Actors, Interaction Patterns and Service Exchange

Actors of digital business include all providers and recipients of electronic-based or electronic-induced service exchange processes. Consequently, business, administration and customer act as actors that interact with each other and hence form the matrix of interaction patterns, which may be complemented by an intra-level. The intra-level represents the service exchange within a single group of actors. Figure 3.7 presents the respective matrix.

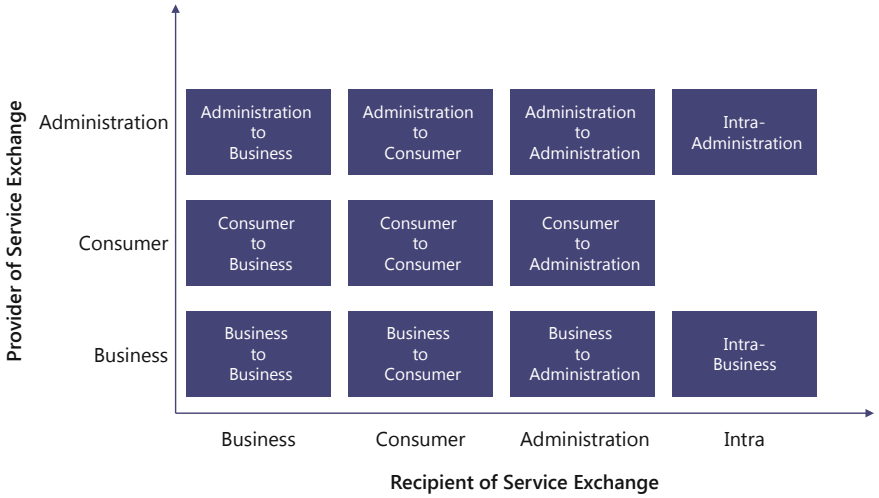

Fig. 3.7 Matrix of interaction patterns in digital business. *Source* Wirtz (2000c, 2018b)

The providers of service exchange processes facilitate a service exchange within electronic networks. They provide goods and services that recipients use on their own initiative or request. In practice, the B2B and B2C sector are most important. The B2B sector summarizes the electronic service exchange between several companies. Thereby, the company may take the role of both the buyer and the seller. Business activity opportunities in the context of B2B are diverse, ranging from online shops to B2B marketplaces and integration of customers and suppliers (Timmers 1998).

Regarding the value creation in the B2C segment, there are companies on the supply side and customers on the demand side. The service exchange may involve

physical goods, digital goods or services. An example of a service exchange with regard to physical goods is the purchase of textiles through an online shop. For digital goods, the service exchange, for instance, may include the provision of a voice-over-IP call and the additional sale of paid content. Services, in contrast, could be consulting services, purchase recommendations or processing of user comments, for instance.

In the context of e-business, B2A refers to the performance of administrative processes between businesses and public entities via electronic information and communication media. These include, for example, transactions with government bodies, such as the processing of companies' tax matters (e.g., VAT, income tax). Intra-business refers to internal e-business applications of a company. An example in this context may be the offer of a network-based, intraorganizational advanced training. For instance, employees of Volkswagen can visit e-learning centers to improve their foreign language skills.

The C2B constellation is mainly characterized by the individuals' voluntary exchange or disclosure of data to a company. This, for example, may happen by means of databases for job applications, such as monster.com or craigslist.org, through which individuals offer their manpower to companies.

Transactions between private individuals in the e-business domain refer to C2C. These transactions are not necessarily only direct purchase-sale processes, like eBay transactions, they also capture the exchange of digital goods. The Web 2.0 or social media are particularly relevant in this context. For example, a digital exchange of goods between individuals takes place on the video portal YouTube that allows its users to upload free video clips and to watch videos of other users. In general, the Internet is increasingly influenced by the interaction and networking of the users (Wirtz et al. 2014).

In the area of C2A, government is the recipient of a service exchange. The customers, who in this case represent citizens, use electronic networked resources in order to transmit information to government institutions. An example is the electronic tax return (efile) of income tax. Especially in this area, the acceptance of C2A has increased steadily in recent years. Within the year 2015, more than 128 million tax returns have been submitted electronically in the United States (AMS 2000).

Transactions in the A2C area are rather non-commercial. A supplier of customer services in A2C is the Federal Labor Office, for instance. It offers a job exchange as well as supports and manages the interaction between the applicants and employers regarding job vacancies online. Nevertheless, in A2C there are also fee-based offers, for instance, customer information regarding specific products or companies.

The A2A area in e-business refers to the electronic handling of certain information tasks between national and international authorities. Some public authorities, for example, are service providers for other authorities. Individual public authorities are also increasingly interconnected internationally. For example, national police forces are working under the direction of Europol and mutually exchange information electronically.

The intra-administration constellation refers to internal activities of public authorities, such as network-based, intraorganizational training opportunities for

administrative staff. The role of the provider and recipient of the service exchange process is not determined a priori. In particular, the emergence of Web 2.0 or social media applications leads to an abandonment of traditional business structures. While formerly customers were solely recipients on the Internet, they are now able to be service providers by providing problem-solving information in the course of customer integration. Since e-business affects all areas of the value chain, its actors may be both provider and recipient of the service exchange at the same time.

The integration of digital business in organizations and institutions includes four stages of development that particularly differ with regard to their complexity and added value. In its simplest form, a digital business solution is limited to a purely organizational and product/service presentation, as well as to the publication of information for relevant target groups, such as potential customers or investors. In a further stage of development, the Internet service is personalized, like in the case of commercial companies that add pre and after sales activities to their business offers.

These include customer inquiries, communication via email, general offers or sending information. In a third stage, there is further the possibility of completing transactions online. Finally, at the fourth stage of development, there is the possibility of electronically integrating transaction partners in the value-added processes. Figure 3.8 illustrates the various stages of development of digital business.

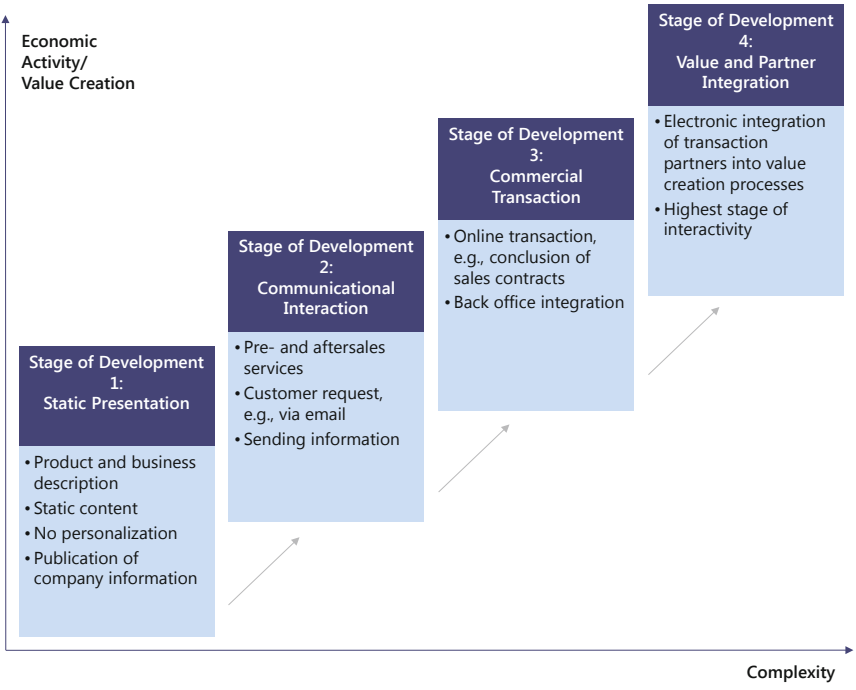

Fig. 3.8 Stages of digital business development. *Source* Wirtz (2000b, 2018b)

In addition to the specific attributes of service exchange processes and the development stages of digital business, there are also fundamental changes in the process structure compared to traditional economy (Chesher et al. 2013). Figure 3.9 shows a highly simplified service exchange process. The digital marketplace is at the center of e-business transactions and the place where supply and demand merge, just like in the traditional economy. The market access in the digital business domain, in contrast, partly differs from the one of traditional business.

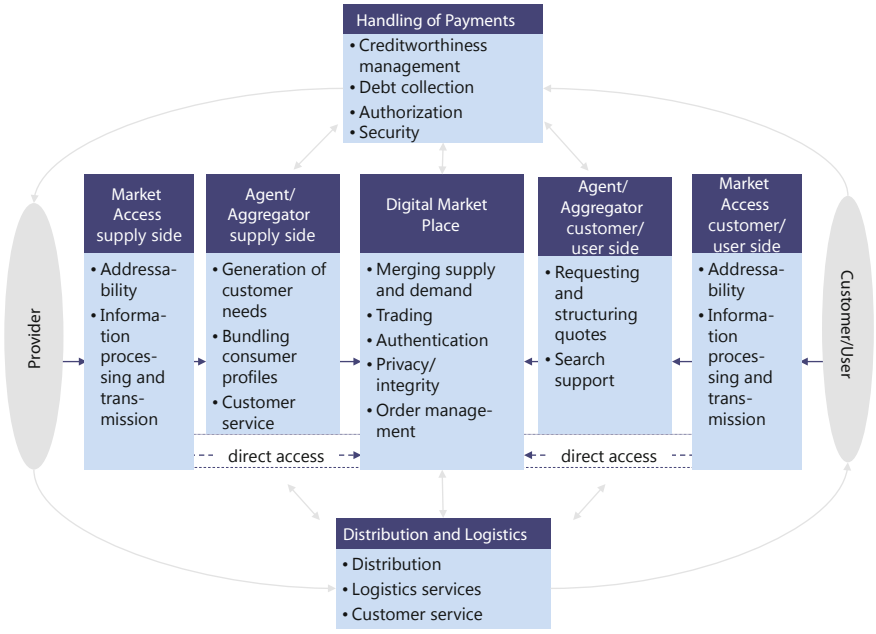

Fig. 3.9 Service exchange model of Internet economy. *Source* Wirtz (2000c, 2018b)

On the one hand, suppliers of products and services require market access in order to interact in the digital marketplace. Here, particularly technical aspects are important. Product-specific information has to be processed in a manner that makes them transferable to the market. This requires special hardware and software. If these conditions are met, the supplier may choose between a direct market entry, an intermediary agent or aggregator in order to operate in the digital market. In the former case, the supplier itself has to create customer needs, bundle customer profiles or offer customer service. In the latter case, the agent or aggregator is responsible for these tasks.

On the other hand, customers require market access as well. In this context, there are several service providers, who offer Internet access to individuals. For customers, it is also important to transmit information such as product needs into the market. Just like the supply side, they also have the choice between different opportunities of market access (Papazoglou and Ribbers 2011).

The intermediary agent or aggregator undertakes the task of collecting and structuring offers, as well as supporting the customers in their product and service search. Payment processing and distribution require third-party involvement to some extent. Distributors such as FedEx deliver the ordered products to the customers. Payment processing includes creditworthiness management, debt collection authorization and security. Credit card companies and online payment services such as PayPal or Amazon Payments undertake these tasks. Having described the development of information and communication applications and having systematically deduced an e-business definition, the next section presents the activities of the actors involved as well as particular success factors of digital business.

- Activities of Digital Business

Activities of digital business systematize the concept in functional respects. According to this, digital business consists of the activities e-commerce, e-collaboration, e-communication, e-education and e-information/entertainment. This functional division results from the divergent characteristics and intentions of the respective activities. Figure 3.10 combines these activities with the actors of digital business.

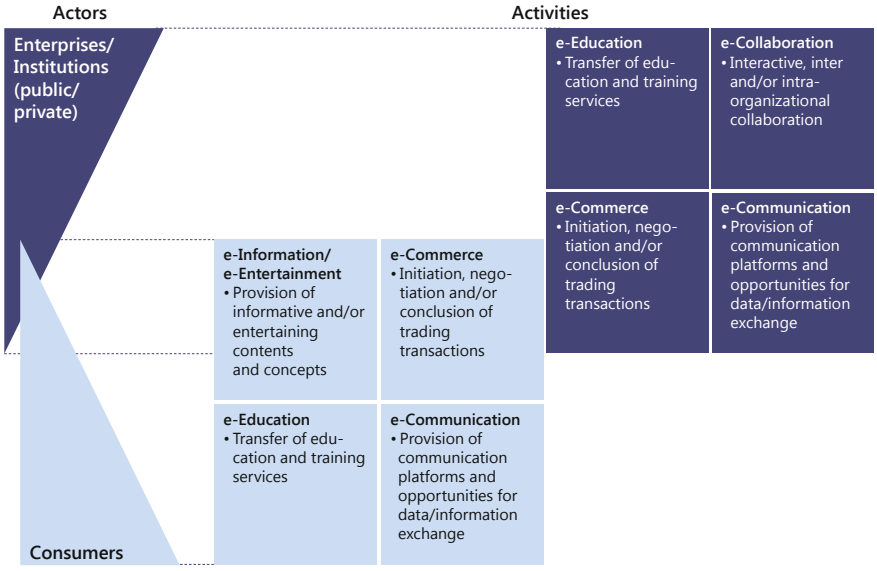

Fig. 3.10 Actors and activities of digital business. *Source* Wirtz (2000c, 2018b)

E-commerce includes the service exchange processes of initiation, negotiation and conclusion of trading transactions between economic agents by means of electronic networks. The actors use the opportunities of information and communication technologies to sell goods and services, as well as to simultaneously avoid

the costs of physical presence (Turban et al. 2015). The aim of e-commerce is to realize efficiency gains, potentials of cost reduction and convenience benefits during a (trading) transaction (Hsu et al. 2006). This does not only apply to the intra- and interorganizational field, but also pertains to the efficient arrangement of company-to-end customer relationships.

E-commerce activities, for example, refer to electronic price negotiations or signing supplier invoices by means of digital signatures. E-commerce involves the electronic support of activities that are directly related to the purchase and sale of products or services through electronic networks. E-collaboration refers to electronic, network-based, interactive and intra- or interorganizational cooperation. E-collaboration enables time and distance-independent cooperation by supporting processes of cooperation and adapting them to business activities (Wirtz and Vogt 2003). Furthermore, the possibility of intermediate storage allows to coordinate the results of cooperation and to transfer information-based components.

E-communication refers to the paid and non-paid provision and use of network-based and electronic communication platforms. E-communication aims at providing communication opportunities for task-related or interest-based understanding. The possibility of intermediate storage allows to coordinate communication and make it more flexible. Communication may not only occur at the intra- and interorganizational level but also at the retail level. The one or two-way communication process takes place by means of information and communication technologies, such as email, video conferencing and the new opportunities of social media.

E-education refers to the transfer of education and training services to third parties by means of electronic networks. The aim of e-education is the resource-efficient delivery of educational services via location and time-independent application of electronic networks. Here, the company itself or third parties outside the company can offer network-based education. With regard to the recipients of education and training services, one can distinguish between individual concepts of education and training, as well as concepts designed for a mass audience.

E-information/entertainment refers to the provision of informational and/or entertaining content and concepts for third parties by means of electronic networks. E-information/entertainment uses information and communication applications to facilitate access for recipients to decision-relevant, time-sensitive or stimulating and entertaining content. Due to its attributes, this content is an intangible good that is not consumed even when it is used multiple times. When producing, reproducing and distributing content, efficiency and cost advantages can be realized that result from the characteristics of the Internet economy.

The above-mentioned definitions delineate the digital business activities from one another and describe their “pure forms”. Thus, the demarcation of e-commerce, e-collaboration, e-communication, e-education and e-information/entertainment reflects the phenomenon of digital business from a theoretical and conceptual perspective. However, companies usually apply these activities in combination in the corporate practice. Moreover, a clear distinction is rarely possible, so that overlaps may occur.

- Success Factors of Digital Business

Through the development of innovative information and communication technologies, fundamental new business approaches have emerged on the Internet (Onetti et al. 2012). Numerous factors affect the development and success of digital business (Wirtz et al. 2003). On the one hand, these factors are prerequisites for the formation and development of digital business. On the other hand, some factors possess catalytic attributes that further accelerate the current development of digital business (Laudon and Traver 2017).

The digital business environment that is strongly influenced by technological innovations demands the dynamic capabilities and resources of a company (Zhu et al. 2006). The definition and implementation of an digital business strategy significantly contributes to success and can ensure a company's long-term success under these ever-changing conditions (Beheshti and Salehi-Sangari 2007). Such strategy especially demands four dynamic abilities: digital innovativeness, strategic and organizational flexibility, networking and integration capability, as well as ease of use.

The variety of technological innovations in information and communication technology forces companies to follow closely the market and assess the opportunities and risks of these innovations. The mere ability to innovate does not secure long-term market success. The product and process design in digital business rather requires to take into account a combination of pricing strategy, customer benefits and tradability of goods (Chen et al. 2004). In this context, not only physical but also digital goods or content need to be considered. This is crucial for the success of digital business.

Providers of interesting content will be able to win customers easier, if the latter perceive the content as attractive and novel. Since the usage intensity is frequently decisive for success, e-businesses need to set themselves apart from the content offered by the World Wide Web as a whole. Therefore, they also need to differentiate themselves from traditional distribution channels, for example, by designing an innovative, experience-oriented shopping offer (Park et al. 2012; Azam 2015).

The strategic and organizational flexibility is a further key success factor for companies in the context of digital business (Camra-Fierro et al. 2012). While in the traditional economy, companies were often surrounded by a relatively rigid environment, they now face a continuous change in the Internet economy. Accordingly, the corporate processes and organization structures need to take account of this in order to meet the market demands as quickly as possible. Thus, companies should increasingly focus on the customer.

The possibilities of digital business are much more than an additional distribution channel for traditional products. On the one hand, the digitalized world provides the potential to develop and sell new offers. On the other hand, the value of physical or traditional products increases by means of digital value-added services through which a company can generate competitive advantage. Furthermore, digital business has the potential to offer numerous product variants in mass markets (Chaffey 2015).

In this context, a company's flexibility to be able to react to current trends is a crucial success factor of digital business. The efficient integration of information, services, products and processes represents a basic idea of digital business. Electronic networks allow to avoid media disruptions and connect numerous users. Accordingly, the networking and integration ability is a critical component of doing digital business.

Companies need to customize an offer at the technological and content level that combines functionally relevant information and processes, which generate an added value compared to traditional business. Here, interconnectedness, for instance, in terms of network effects may serve as a driver of digital business process development or may also be applied through platform-specific lock-in effects as a customer loyalty instrument.

An example of a network effect is the increasing diffusion of the instant messaging client WhatsApp. Given that the value of a product or service is dependent on the number of others using it, the growing number of connected users increases the benefit for each individual because they can reach a higher number of users. However, the number of users needs to reach a certain critical mass in order for them to reap the benefits of their network (positive network effect).

Customers or users using products or services that are reliant on the reach of a critical mass are frequently locked-in. This so-called lock-in effect refers to the situation where the customers or users can only consume the aftermarket goods produced by original equipment manufacturers, because the compatibility between primary and aftermarket goods is associated with switching costs with regard to the original equipment.

A lock-in effect, for example, can be seen in Apple's mobile platform AppStore for the iPhone or iPod Touch. The platform-internal interconnection of clients creates the basis for a market of third parties that offer additional functionality for devices. As a result, the attractiveness of devices increases, leading to the effect that more customers choose to use the Apple platform. In addition, it binds customers permanently to the platform.

The ease of use of digital business applications is another key success factor. In this context, the design of business processes and navigational interfaces are considered under the aspects of efficiency and general accessibility. Since digital business applications aim to simplify economic transactions, the design of their electronic processing should not replace old problems by new ones.

For instance, it is reasonable to maintain the basic logic of individual business processes in digital business. The digital shopping cart used by online stores is a good example in this context. From offline transactions, customers are used to collect single shopping items until leaving the store in order to pay at the end of their purchase. Therefore, customers or users also expect this functionality in online transactions. Overall, companies need to focus on customer or user needs when it comes to ease of use. Figure 3.11 presents a summary of the four key success factors.

Digital Innovation Capability	Strategic and Organizational Flexibility
• Market analysis/customer needs • Evaluation of risks and opportunities of a innovation • Physical vs. virtual goods	• Dynamic environment of the Internet economy • Focusing on customer relationship • Capability of adapting to market structure at different company levels
Capability for Networking and Integrating	**Ease of Use**
• Digital combination and processing of information • Resources and time advantage through electronic networking without media disruption • Network effects and lock-in effects	• Efficiency of and access to business interfaces • Transfer of offline basics to e-business • Focus on customer/user needs

Fig. 3.11 Success factors of digital business. *Source* Wirtz (2010b, 2018b)

3.3 Forces of Digital Development

Along with innovations in the area of information and communication technologies, digital business has gained significant importance (Zhu et al. 2006). With boosting processing power and transmission, enhanced capacities of computers and networks, as well as increasing demand for electronically provided information and services from customers and businesses, the first electronic service offers began to run in the mid-1990s.

As a technology-enabled part of the business model, digital business quickly became a powerful innovation that can provide manifold benefits, since it allows unattended customer access to information and services, improves B2C and B2B interaction, fosters efficiency and effectiveness and forms the basis for e-markets from a technological point of view (Schneider 2017). Furthermore, its digital platform character for B2B and B2C interaction promotes standardization and thus reflects the demand of customers for more transparency and accountability.

Today, digital business is an inherent part of the market worldwide because it is highly relevant in addressing customers' desires and requirements. In this context, implementing digital business is especially relevant to the economy since the availability of online services is an important factor within global competition (Chaffey 2015). The Four-Forces Model of digital business explains the driving forces behind this situation that requires change for businesses by aggregating relevant drivers to four key developments: convergence and technology, digitalization and innovation dynamic, market complexity and customer empowerment (see Fig. 3.12).

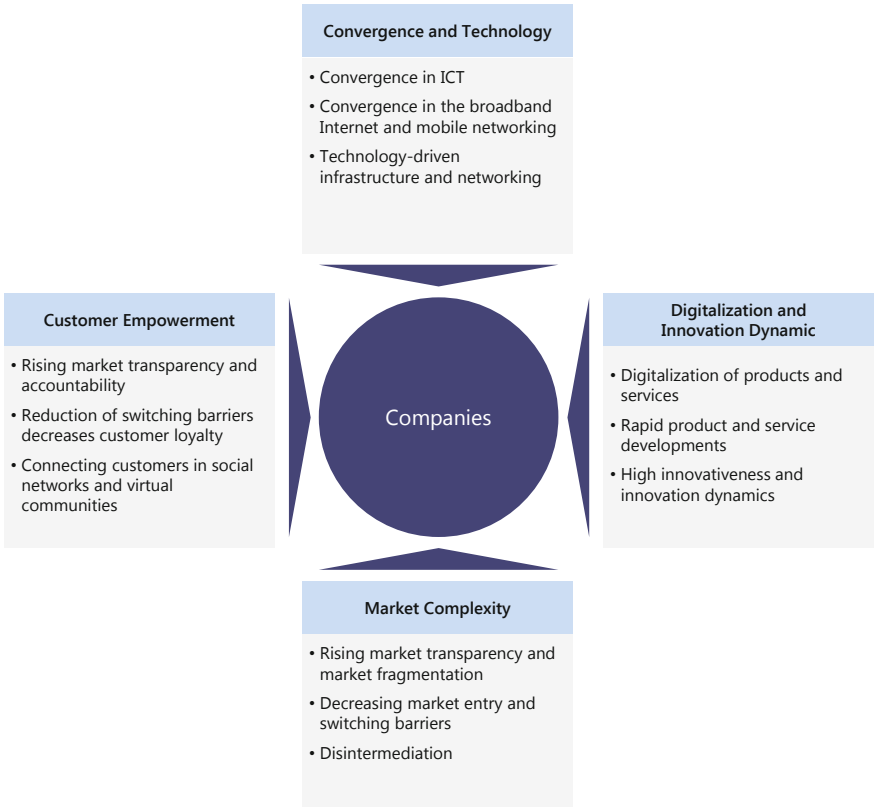

Fig. 3.12 Four-forces model of digital business. *Source* Wirtz (2000c, 2018b)

- Convergence and Technology

The first force of the digital business model is convergence and technology. Although all of these developments are crucial, this is the most significant one, since it covers the fundamental breakthrough of making e-business technologically possible. Convergence describes the approximation of underlying technologies, diminishing boundaries between sectors, networking of different areas of value creation and finally the integration of sectors, business units, organizations, products and services (Denger and Wirtz 1995a). Depending on the respective level of aggregation, convergence can be divided into different types (see Wirtz 2000d, 2015a):

(1) Sector level: convergence of a growing number of companies within related sectors leads to the convergence of the corresponding sector. (2) Company level: convergence forces companies to reposition their value chains and core activities, which results in modified institutional boundaries. (3) Business unit level: convergence relates to various units of the company. (4) Product/service level: convergence

of products/services (e.g., convergence through integration of functionalities) or distribution channels. Figure 3.13 illustrates the respective Four-Level Convergence Model by presenting the different convergence types and showing the level of aggregation.

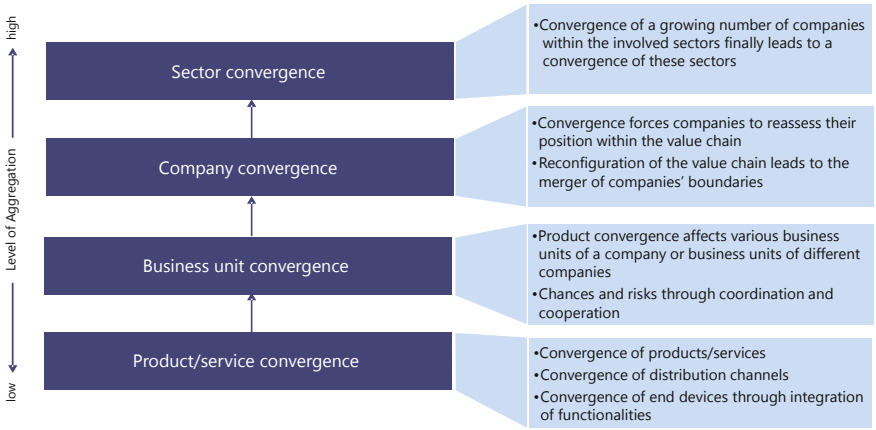

Fig. 3.13 Four-level convergence model. *Source* Wirtz (2006, 2017)

Several drivers such as digitalization of services and technology-driven networking have initiated this ongoing trend, causing a paramount strategic and operative change in all forms of digital business, which is by no means over yet. The already existing powerful and continuously developing broadband and mobile networking infrastructure constantly drives new networking applications and innovation.

- Digitalization and Innovation Dynamic

The second force is digitalization and dynamics in innovation. The key drivers are the increasing digitalization of products and services, the rapidity of product and service developments and the high innovativeness and innovative dynamics. Innovation is one of the key figures of the Internet economy and digital business. The dynamic changes in the business environment in the Internet economy lead to innovations that occur increasingly shorter and at discontinuous intervals. Therefore, companies need to have a considerable adaptability in the marketplace.

The initial starting point of this increasing pace of innovation is technological progress, especially due to the high speed at which the available hardware and software is developing and the increasing use of electronic networks. This technological development leads to completely new forms and possibilities of information processing that allow to capture, store and process larger quantities of data.

The increasing digitalization of products and services in the Internet economy refers to two dimensions: The cost structure of digital goods and their general

intangible structure. The latter has implications for the distribution and production processes, which in turn affects the organization structure of companies.

Besides the influence of new product structures on the organizational design and structure of companies, there is a further important influencing factor: The changed coordination possibilities of corporate processes induced by information and communication applications considerably change the optimum ratio of specialization and coordination. Figure 3.14 presents these relationships.

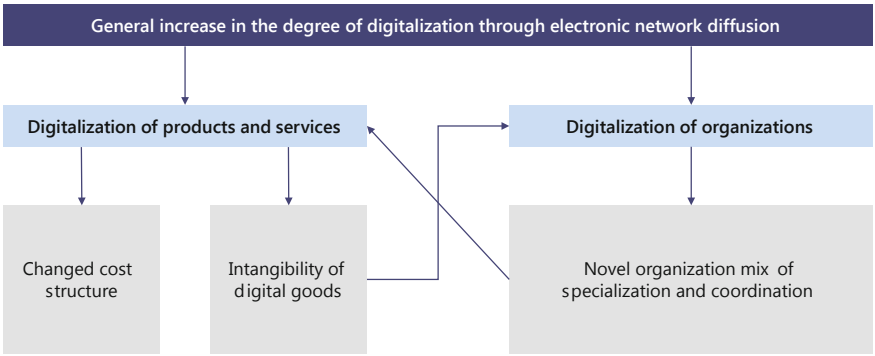

Fig. 3.14 Impacts of digitalization. *Source* Wirtz (2000c, 2018b)

- Market Complexity

The third force is market complexity. Its key drivers are rising market transparency, increasing fragmentation of markets, decreasing market entry and switching barriers (particularly with regard to the e-service sector) and disintermediation. In traditional economics, markets are usually characterized by a low to medium level of market transparency and there is generally an information asymmetry between buyers and sellers. Due to their superior market position, sellers may exploit their information advantage by mostly skimming customers' surplus by means of price discrimination (Mukhopadhyay and Setoputro 2004). In the Internet economy, this situation has changed fundamentally due to the largely free flow of information.

Consequently, market transparency increases in the digital business environment because the products traded are more manageable. By providing easy access to information, these markets bring along a better comparability of products and services than traditional markets (Jelassi and Enders 2004).

The characteristics of computer networks are the driving force behind a high market transparency, which enables customers to retrieve any information at any time from any location. This means that market penetration is easier and particularly less expensive and time-consuming. The search costs of market participants for observing and analyzing the market are hence very low.

In contrast to the traditional economy, where product-based information rests upon the seller's consultation, electronic markets allow customers to collect information without much effort by using, for example, price comparisons, digital communities or test reports of online products. The customers are able to adjust their level of information to that of the seller and are no longer dependent on filtered information. This phenomenon is known as reverse markets. However, market transparency also results in a vast amount of information that is difficult for customers to manage and structure. This so-called information overload partly undermines the advantages of transparency.

Besides product information, customers can also easily search for price information in electronic networks, so that price comparisons are sustainably facilitated. Shopping robots or shopbots catalyze this development. These are companies specializing in price research and comparison on the Internet. The user may extend the search to various auction websites. After a few seconds, the user receives a list containing the online shops that offer the product and the respective prices. One of the most popular price comparison websites is pricegrabber.com, for instance.

Fragmentation of markets refers to the individualization of market participants and their consumption preferences, which has particularly taken place since the emergence and development of the Internet economy. Consumer behavior is increasingly individualized to the effect that customers and users demand products that they perceive as unique or that are tailored to their individual preferences. These tendencies towards individualization in companies have far-reaching implications for marketing, product development and design.

An important marketing tool with respect to customer individualization is one-to-one marketing. Instead of addressing customer groups or masses of customers, here the individual relationship to the customer is at the center stage of marketing activities (Wirtz 1995a). However, one-to-one marketing not only refers to an individual customer, but also particularly to individualized product development and design, which is known under the apparently contradictory keyword mass customization (Wehrli and Wirtz 1997). Companies seek to exploit the cost advantages of mass production by means of mass customization and try to give their products an individual character. An example of mass customization is NIKEiD that enables customers to configure their individual and personalized sneakers.

Another aspect of market complexity are decreasing market entry barriers for digital business companies. Decreasing market entry barriers lead to an increase in the number of competitors and thus in a higher competition intensity. The access to international markets and the sourcing of services worldwide enables companies to easily become active in the Internet. Low entry barriers pose risks to established businesses. Moreover, the supply chain demands less intermediation. The incorporation of other companies such as retailers can be omitted through the Internet since e-commerce enables companies to sell directly to customers.

Market entry barriers are characteristics of a market or a market segment, which tend to be suitable to discourage new competitors from entering the market or at least to impede them in doing so. Baumol et al. (1988) define a barrier to market entry as "[…] anything that requires an expenditure by a new entrant into an

industry, but imposes no equivalent cost upon an incumbent". Market entry barriers comprehensively reduce the attractiveness of the market for potential newcomers.

The final aspect of market complexity is disintermediation, which can be explained by means of the value chain concept. A value chain describes all steps that a product undergoes from the manufacturer to the end customer (Porter and Millar 1985; Rayport and Sviokla 1996) and comprises three steps: (1) subcontracting (production of components), (2) production (aggregation of components to a marketable product) and (3) retail (provision of the product to the customers). The role of retailers is very important within the value chain since they act as mediators between manufacturers and customers (Prajogo and Olhager 2012).

Retailers perform four essential distribution tasks that the manufacturer is not able to perform efficiently, in particular, the spatial, temporal, quantitative and qualitative transformation of products. In the context of spatial transformation, retail companies provide the products at the point of demand, so that the manufacturers do not need to establish their own distribution chain. The retail companies render a temporal transformation in terms of their warehouses since they store large quantities in order to continuously provide products to customers.

The quantitative transformation is a particularly relevant distribution task as it provides the products demand-oriented and in small quantities to the customers. Finally, the qualitative transformation is important in terms of convenience benefits for the customers since retailers bundle or unbundle products and create different assortments. Hence, retailers are able to supply the customer with products and act as a single transaction partner.

Traditionally, retailers have much power over manufacturers due to the access to the customers of the manufacturers. This relationship is known as intermediation. However, because of increased market transparency and the declining market entry barriers the Internet economy undermines the power of retailers. Manufacturers have created new opportunities themselves to carry out the distribution and its value creation process. Since the intermediaries are eliminated in this case, this phenomenon is called disintermediation, which is illustrated in Fig. 3.15.

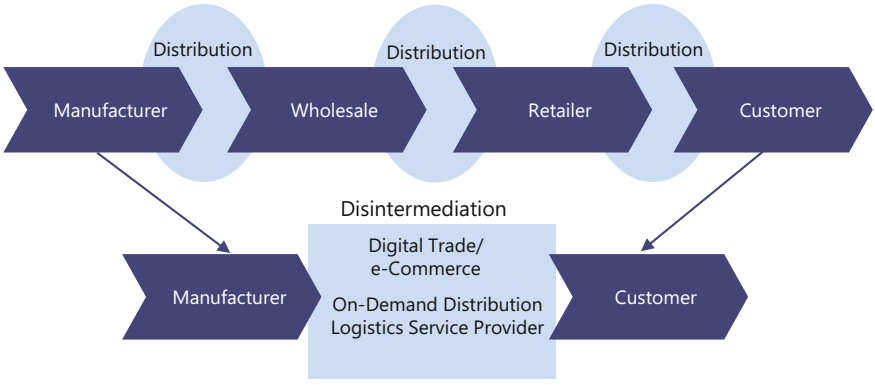

Fig. 3.15 Disintermediation. *Source* Wirtz (1995b, 2018b)

Disintermediation means that the intermediary role of trade between manufacturers and customers is threatened, as manufacturers may have direct access to their customers by means of information networks such as the Internet (Wirtz 1995b). Therefore, manufacturers have the ability to completely take over the intermediary function of trade. Particularly the Internet can help manufacturers to comply with the four basic tasks of trade by means of direct distribution (Rayport and Sviokla 1996).

- Customer Empowerment

The fourth force driving the digital business development is customer empowerment. This change in the business environment mainly concerns the customers themselves. The rising transparency and accountability of actions and the possibility that customers can exchange their desires and opinions and unite in social networks and communities all became possible due to modern information and communication technologies. Customers not only particularly claim more participation in production and design, but also a renewed B2C interaction. Here, companies have to act, for instance, by providing a more transparent form of production, management and development by integrating customers.

Another challenge of digital business companies is decreasing customer loyalty that results from declining switching costs and switching barriers (Hsu et al. 2013). The already described increase in general market transparency and accountability enables customers to make competent and informed purchasing decisions. Although companies also have access to this comprehensive information, an opposite development partially offsets the benefits. Thus, while the increasing diffusion of digital business offers the opportunity to create an overview of the market, the complexity of the markets in the Internet economy are steadily rising at the same time.

Reducing switching barriers for customers in the Internet economy is closely related to the increase in market transparency. Switching barriers refer to factors generated by companies or incurred by features inherent in the system of markets or industries, binding customers to specific suppliers and preventing change to another provider without friction. In the Internet economy, switching barriers consist of three main categories: (1) technological switching barriers, (2) qualification-related switching barriers and (3) psychological switching barriers. Technological switching barriers arise when customers are bound to other products available on the market due to the lack of technological compatibility.

This is the case when, for example, product components of different companies cannot be used jointly or across systems. A popular example are the products of Apple Inc. All products of Apple are compatible with each other and mostly incompatible with products and systems of other producers. Therefore, Apple bound their customers to the brand by creating a lock-in effect.

In the Internet economy, the importance of technological switching barriers has significantly changed because users and customers may recognize a lock-in situation a priori and may therefore avoid it for the sake of comprehensive information

access. Consequently, the increase in market transparency mentioned earlier reduces switching costs due to the decrease in search costs.

Qualification-related switching barriers rest on investments in system-specific training. This not only represents the knowledge acquired in the context of training courses, but especially the experience gained in terms of system use. These barriers have the same effect like learning effects known from production management, since they enable steady increases in efficiency when using the system. When changing the system, both the acquired knowledge and the gained experiences partly get lost since these are usually not at all or only to a small degree transferable.

The development of the Internet economy has a degenerative impact on the qualification-related switching barriers, since the information society is not only characterized by a much wider diffusion of knowledge, but also by a generally higher level of staff education with regard to information and communication technology. In addition to these objectively measurable switching barriers based on technology and training costs, there is a third type of switching barriers that does not belong to the main group of value-based barriers. This type refers to psychological barriers such as the commitment to a brand or company for the purposes of identification (Wirtz 2000a).

In the Internet economy, the psychological barriers begin to erode, especially the traditional switching barriers such as loyalty and commitment to a retailer (Toufaily et al. 2013). This is mainly a result of increasing homogenization of product offer in the markets, an improved objective comparison of products and the anonymity of customer/supplier relationships. A customer therefore usually chooses the product with the best price-performance ratio. Due to the homogenization of product offers, the price has become the primary selection criterion in the Internet economy (Shapiro and Varian 1999). The resulting decrease in customer loyalty and the associated issues of customer retention in the Internet economy represent the core task of marketing and customer relationship management in digital business (Timmers 1999).

The main objective of marketing is therefore to build strong brand identities and to identify new psychological switching barriers to compensate for decreasing customer loyalty and to connect the customers' switch to competitors with significant switching costs. The possibility of exchanging their desires and opinions and unite in social networks and digital communities (including newsgroups and chat forums) is another aspect that empowers customers. Consequently, customers become smart customers and their general market power increases (Wang et al. 2015).

Most online communities are based on websites that are visited on the members' own initiative to participate in discussions and chat forums. The members contribute to the community by providing information in terms of own experiences and knowledge. Hence, they jointly produce a large pool of information that significantly increases with the rising number of memberships.

Digital communities relating to a product, a product category or a brand are particularly relevant for digital business companies. Information about a product or provider spread quickly, so that positive and negative experiences considerably influence the position of the supplier or the product. Digital communities are thus able to change service concepts or even marketing strategies of a provider through their collective feedback (Goh et al. 2013).

In light of the aforementioned four driving forces of digital business, the next section outlines the essential business models that are foundation models of Chaps. 4–9.

3.4 Business Models in Digital Markets

In order to analyze business models consistently and gain an understanding of their respective characteristics, this section outlines a coordinated typology of digital business models particularly designed for the B2C (4C-Net Business Model) and B2B (4S-Net Business Model) area. This typology provides a sufficient orientation, differentiation and classification based on rigid distinction criteria from a conceptual perspective. It may happen that a company indeed has a core business model but has some overlap with the other business model groups. The business models of the Internet industry in the business-to-consumer sector can be classified based on the 4C-Net Business Model into the following segments: content, commerce, context and connection (see Fig. 3.16).

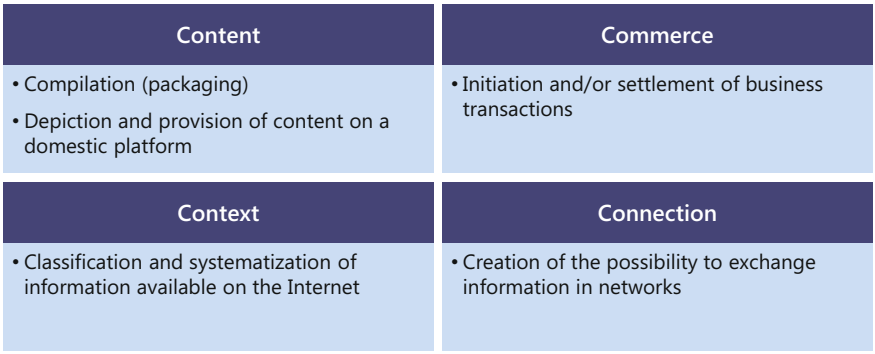

Fig. 3.16 4C-Net Business Model. *Source* Wirtz (2000c, 2016a)

The content business model consists of the collection, selection, systemization, compilation (packaging) and delivery of content on a domestic platform. The aim of this business model approach is to make content accessible to the user over the Internet in an easy, convenient and visually appealing form. The commerce business model entails the initiation, negotiation and/or settlement of transactions via the Internet. In this connection, auction houses (e.g., eBay) and e-commerce platforms (e.g., Amazon) have gained considerable attention.

The context business model focuses on classifying and systematizing information available on the Internet. Context providers in the digital business sector can be further distinguished in that they primarily do not offer their own content, but rather offer navigation aids and increasingly take on the role of an aggregator on the

Internet. In addition to providing essential navigation aids, complexity reduction is also a major task of the context provider. The context provider compiles information according to specific criteria and clearly presents it to the user in a context-specific manner. The objective is to improve market transparency and to continuously enhance the obtained search results.

The connection business model addresses the establishment of options for information exchange in networks. Thus, the services of the connection business model often enable interaction between actors in digital networks, which would not be possible in the physical world due to the prohibitively high transaction costs or communication barriers. Over the last decade, a trend to an integrated business model across all 4Cs has emerged because of the convergence within this industrial sector (see Google/Alphabet case study in Chap. 11).

For example, AOL started out as a pure Internet service provider (connection), Google as a pure search engine (context) and Amazon as a pure bookseller (commerce). The interactive edition "The Wall Street Journal" initially offered exclusively content (content). In contrast to pure play offers, there has been a development towards hybrid digital business models (Weill and Vitale 2013). A former pure player, whose web directory offer originally focused only on the context segment, is Google. Meanwhile, Google also offers different products that can be linked to the other 3Cs.

Business models are highly relevant not only in the B2C area, but also in the B2B sector (Timmers 1998, 1999). The main difference lies in the underlying relationship. While B2C business models are based on a range of services to private end users (private clients), B2B business models focus exclusively on transactions between companies (Kian et al. 2010). The 4S-Net Business Model typology presents an overview of the most relevant B2B business models on the Internet. However, in this context it is important to consider that a rigid and clear separation is not always possible, as companies often choose strategies that follow several models at once. It may happen that a company indeed has a core business model, however with some overlap with other B2B business model groups. Figure 3.17 outlines the 4S-Net Business Model framework.

Sourcing	Sales
• Initiation and/or • Settlement of direct B2B business transactions from buyer to seller	• Initiation and/or • Settlement of business transactions from seller to buyer
Supportive Collaboration	**Service Broker**
• Supporting collaborative value generation • Collaborative research and development • Collaborative production • Collaborative sale	• Support of B2B business transactions • Providing information and marketplaces of third parties

Fig. 3.17 4S-Net Business Model. *Source* Wirtz (2010b, 2018b), Wirtz and Bronnenmayer (2011)

The B2B business model of sourcing consists of the initiation and/or settlement of B2B business transactions from buyer to seller. The aim of this business model is to handle business transactions of procurement management by using the Internet (Camarinha-Matos et al. 2013). A direct service relationship between buyer and seller is required. The B2B business model sales involves the initiation and the settlement of direct B2B business transactions from the seller to the buyer. The aim of this business model is to handle transactions of sales through the Internet but initiated by the seller. Unlike the source model, here the selling entity initiates the direct relationship between buyers and sellers (Rayport and Sviokla 1995).

The B2B business model of supportive collaboration consists of collaborative value generation and comprises the areas of collaborative R&D, production and sale. Thus, the focus of attention is the cooperation and more precisely the joint effort of several companies in the areas of research and development, production and sale. Such approach demands a most direct relationship of the parties involved. An intermediary is usually not involved. The B2B business model of service broker supports B2B business transactions by providing information and marketplaces (Weill and Vitale 2013). Unlike the rest of the 4S-Net Business Model, this model involves third-party providers or intermediaries. Thus, there is no direct relationship between the companies that eventually make deals and conduct transactions, but only via the corresponding intermediary.

The next four chapters outline the different B2C digital business models according to the 4C-Net approach in more detail. Following this, Chap. 8 describes hybrid B2C business model approaches. Against this background, Chap. 9 refers to the B2B digital business models of the 4S-Net approach.

Chapter 4
B2C Digital Business Models: Content

The content business model consists of the collection, selection, systemization, compilation (packaging) and delivery of content on a domestic platform. The aim of this business model approach is to make content accessible to the user over the Internet in an easy, convenient and visually appealing form (Wirtz and Kleineicken 2000). Section 4.1 provides an overview of the content business model in general.[1]

The content offered can be informative, educational or entertaining in nature. The content business model accordingly comprises the subcategories e-information, e-entertainment and e-education. A fourth subcategory is e-infotainment that highlights a hybrid of informational and entertainment content. These subcategories are explained separately in Sect. 4.2.

There are numerous core assets and core competencies that are relevant for the above-mentioned business activities in order to provide offers that create value for the customer. Section 4.3 describes those value chain aspects, as well as the requested core asset competencies.

Mixing the different service offers or content business model types can result in synergy effects that content providers can use for their actual core business model to foster their business success (Wirtz et al. 2011). The complementarity of the service portfolio promotes the general trend according to which customers often expect diversified service offers from a single source. In this respect, it is also comprehensible that a sharp distinction between the individual business model types of the content providers is not always possible, which becomes clear when looking at the practical examples. As an example of the content model, the business model of Wikipedia is described in Sect. 4.4.

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_4

4.1 The Content Business Model

Just like the basic classification of the 4C-Net Business Model, the subcategories of the content business model serve to depict the range of activities of different Internet businesses in ideal-typical structures. Figure 4.1 shows the entire content business model and its respective subcategories.

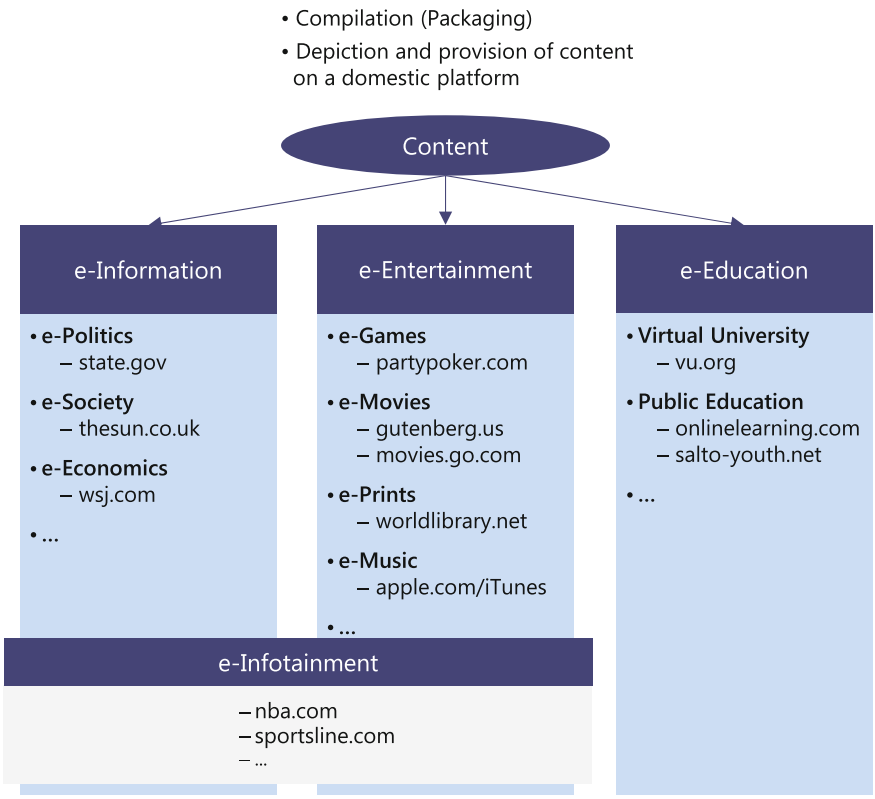

Fig. 4.1 The content business model. *Source* Wirtz (2001a, 2018b)

E-information providers place special emphasis on the informative character of content within their value proposition. Users regard content as informative when it provides information to solve a problem or covers a socially relevant field of general educational value. Politicians, for instance, seek to use the Internet as a means of transmitting information in order to win voters or spread general political information. A higher demand for problem-solving information occurs, for instance, in the field of economic information when credit or investment-related decisions need to be made.

Entertaining content serves users as a pastime or as a source of relaxation and constitutes the core of the service offer in the context of the e-entertainment business model. In contrast to informative content, the information received by users does not contribute directly to the solution of a problem or task.

The core focus of the e-infotainment business model refers to the integration of entertainment and information aspects. This combination of relevant information with entertaining multimedia aspects is largely due to the trend that e-business companies prefer to provide a more diversified range of services, rather than taking on a role as niche supplier, in order to increase the number of active users. This strategy still draws on the revenue model of indirect and mainly advertisement-based revenue, which is commonly used by content providers to supply their content for free (Pauwels and Weiss 2008).

In general, educational content can of course also be inspiring and entertaining. However, in the context of electronic educational content (e-education), there is a delimiting feature, in particular, that the content is didactically geared towards a learning process, which often is associated with a certification that confirms that the user has undergone the respective learning process (Turban 2015).

Building on this general framework of content types, the following considers the general value chain of a content provider and its core assets and competencies, before addressing the specific service offers of the content-based business model types in detail. The presentation of content-based business models then concludes with the practical example of Wikipedia.

4.2 Content Business Model Types

The service offers of the business model types, e-information, e-education, e-entertainment and e-infotainment as business models of the content type are specified in the following, as shown in Fig. 4.1. In doing so, their respective characteristics are addressed and current practical examples adduced by way of illustration.

- E-Information

E-information places special emphasis on the informational and problem-solving-oriented content. If an information provider concentrates on a specific subject area (Wirtz and Becker 2001), the business model type e-information can be subdivided into service providers with a particular focus on political, social or economic content (e-politics, e-society and e-economics). By concentrating on a specific topic, such as economic information, suppliers of informative content can provide an added value to customers in the form of greater information depth.

Examples of political content providers are the United Nations (un.org) at the international level and the US government (usa.gov) at the national level. Here, one

can find comprehensive information on a wide range of political topics, some of which have also been didactically prepared. Commercial interests are less important for these providers than the information request. However, in addition to the financing by means of public budget resources, user-based revenue forms are also conceivable, for instance, direct revenue through book sales.

The websites museumsusa.org or closerweekly.com offer social information. On the website museumsusa.org, the user can check the museum's opening hours and read short descriptions of current exhibitions or search artist or monument databases. Moreover, the magazine Closer, for instance, focuses on the topics lifestyle and society news in its online edition, using multimedia and networked content, such as podcasts or online voting on lifestyle issues.

E-economics content is concerned with information from and about the economy, as well as information that is intended for the economy. The online edition of the Wallstreet Journal (Wsj.com) represents the first category. The Bloomberg Group that offers magazines, company information, product information and financial information "for the economy" belongs primarily to the second group. The transitions are smooth because information about the economy is also interesting for other economic actors as recipients.

However, a business model type does not necessarily have to specialize in only one branch of information. Similarly, business models are conceivable that offer several information branches. These providers reach a high coverage through a broad range of information across all areas of interest. The Interactive Edition of the Wall Street Journal or the online edition of the New York Times provide cross-thematic information from the fields of politics, society and economy. As a result, they provide a service offer for a wider circle of readers than just for a special professional audience.

An example of an e-information provider is the simplified business model of the Financial Times in Fig. 4.2. The size of the fields in the service offer model indicates the importance of the corresponding area. News agencies report content to the online edition of the Financial Times, which is then collected, selected and compiled. Besides this, the editorial team creates own online content. This content is provided on a separate platform for the customers of the Financial Times. The services of the Financial Times in the field of content include public interest content, special interest content, a live ticker with current economic news and stock prices, as well as various databases. The Financial Times also offers expert forums and recommendation services in the connection area. Revenues are generated through banner advertising and advertising cooperation, as well as through subscriptions of paid newsletters for customers. These services are also distributed via innovative channels, such as smartphone apps or RSS feeds.

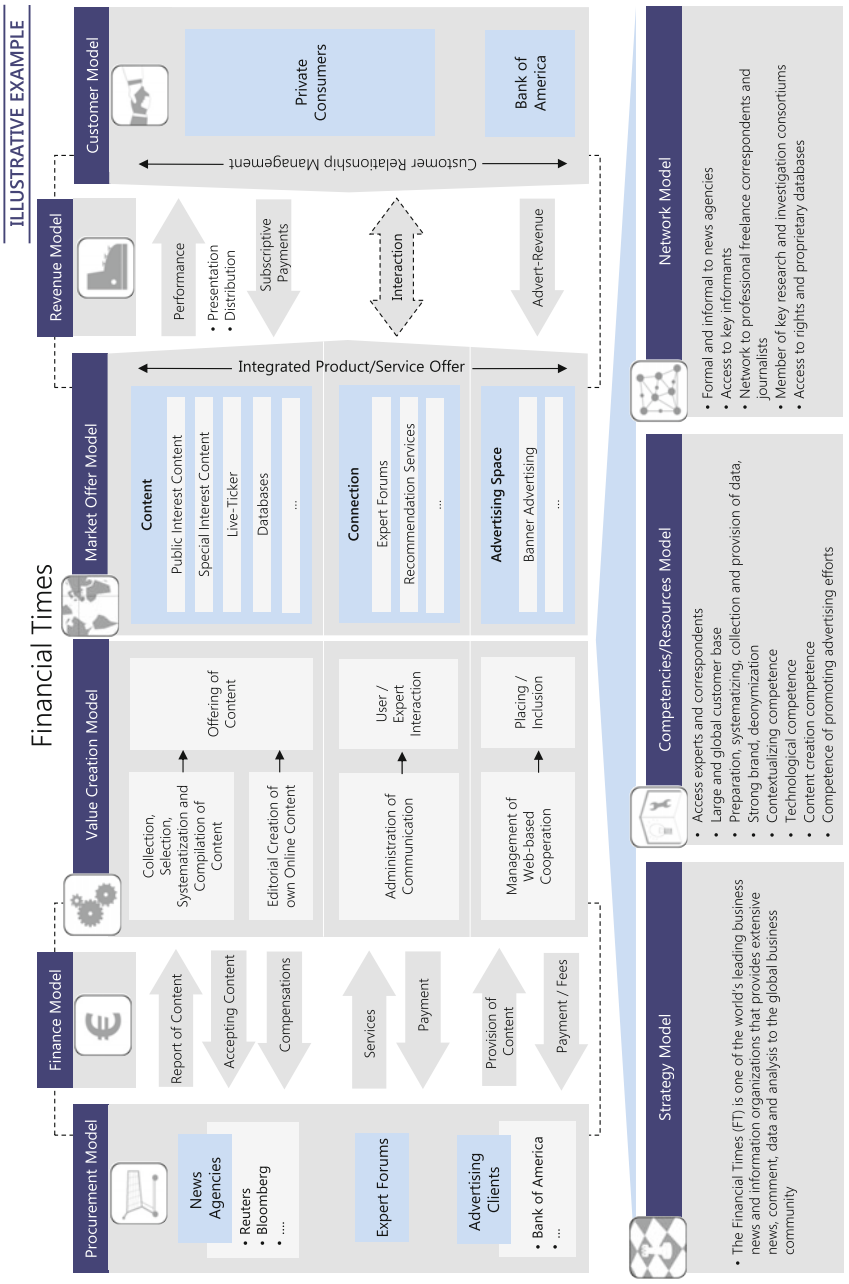

Fig. 4.2 The business model of the Financial Times. *Source* Based on Wirtz (2018b) and own analyses and estimations

- E-Entertainment

The business model type e-entertainment differs from e-information in that providers do not offer informative, but primarily entertaining content. The importance of the Internet as an entertainment medium is confirmed by studies that show that online entertainment is even more popular with teenagers than television in the U.S. market (Turban 2015). E-entertainment includes a broad range of offers and can be divided into subcategories, such as e-games, e-music, e-movies or ee-prints (electronic entertaining prints).

Online games include various forms of games and contents. Here, one can distinguish, for example, between individual or multi-player offers as well as the type of content, for example, adventure, card, sports or classic casino games (Turban 2015; Wirtz 2018b). An example of online games is Americas Cardroom. On the Americas Cardroom website, the provider of various card computer programs offers a platform for virtual card games. The revenue model of Americas Cardroom consists of access fees to the game servers.

The company, PokerStars that is registered in Gibraltar also offers platforms for various online casino games. The PokerStars website offers poker players the opportunity to play against each other in tournaments. There are both play money and real money tables with different magnitude of stakes. The website is available in several languages and contains teaching information about the poker game itself as well as information about the software and the offered tournament types.

The highly profitable poker platform PokerStars generates revenue through advertising and merchandising as well as direct revenues, for example, as a percentage of distributed profit sums or bets. In connection with the legal framework of e-business, it is worth mentioning that the company was forced to cease all real money games in the U.S. market in 2006 due to the Unlawful Internet Gambling Enforcement Act (UIEGA).

The website Movies.com is an example of the business model type e-movies and offers users movie sequences and rankings of current movies, as well as background information about actors and movies.

A very popular example of a platform that offers video content is the YouTube platform. This is also a good example of user-generated content in the context of Web 2.0 and social media, as users can provide private videos on YouTube's servers. These videos are then accessible by keyword search. The main core asset of YouTube is the user community of registered users who want to post videos. The community thereby relies to a great extent on users' self-control. The users can report content that they consider as illegal or inappropriate. YouTube then checks the content and removes it if necessary.

Electronic entertaining prints (ee-prints) includes all readable electronic and entertaining content, ranging from comics in the online edition of the daily newspaper to multimedia content. An example of ee-prints is the portal Worldlibrary.net that offers a comprehensive collection of electronic books (e-books). In addition to classics of literature and entertainment literature, there are also writings by unknown authors from all over the world as well as a collection of nonfiction

books. Another type of e-entertainment is offered by special formats like audio books. In this context, books are read aloud or abridged. Depending on the quality of the speaker and the intended display format, this speech can take the form of an entertaining radio play.

The content-related spectrum of audio books ranges from entertaining literature to text-heavy nonfiction books. Audio books are thereby limited by the fact that visualization possibilities are missing. This can be compensated by combining the audio book offer with other media, such as an accompanying book. Unlike podcasts, audio books are usually also available in stationary retail and designed similar to printed books with regard to their presentation. Carrier media for such editions are usually audio CDs. Audio books for download on the Internet are also usually available as paid content, but sometimes also free of charge, for instance, when their copyright terms allow it due to their age. A major supplier of audio books in the U.S. market audiobooks.com.

While the acquisition of digital audio data is still dominated by illegal online file sharing in peer-to-peer networks, platforms become increasingly established that allow the legal download of copyrighted music. One example is the online platform Napster. The offer of such platforms is often complemented by text contributions about artists and albums. The pioneer with regard to the business model of digital music download with respect to digital rights management is the company Apple with its platform iTunes. The iTunes platform is particularly adapted for the use with the iPhone, iPad and iPod and benefits from the core competencies of Apple in the IT sector.

- E-Infotainment

The separation between informative and entertaining content is not always possible. In light of the increasing amount of data and information, playful learning and the entertaining presentation of information are becoming increasingly popular particularly on the Internet. Especially due to commercial interests of content providers, it is important to make the offer attractive, in order to bind as many users as possible over a longer period to information-oriented websites.

If the users appreciate this format, their increased willingness to pay improves the chance of generating direct revenue. The retention and extension of the user base simultaneously increases the possibilities of generating indirect revenues. In addition, the value of a network increases with the number of users and the usage intensity. These business model types thus represent a mixed or hybrid form between e-information and e-entertainment and are accordingly referred to as "infotainment".

An example of the business model type infotainment is the website of the television station Fox (Fox.com). Besides program information, Fox.com offers entertainment elements in the form of background stories about popular television series of the channel. A very vivid mix of information and entertainment as well as

the convergence of the media television and Internet is the documentary series "Come Dine with Me".

While entertainment is the focus of TV series, users can download detailed information on cooking recipes from the programs on the website. In addition to community functions, such as chat and forum as well as an own mailbox, there is also content exclusively offered to registered users that is supposed to lead users to register due to an expected added value.

Another example is the website of the football-oriented print magazine Pro Football Weekly. Profootballweekly.com offers comprehensive information on the U.S. National Football League as well as background information and football related news. In particular, the UPickem contest is very popular. Here, the players can bet on game results. Since these results are based on real sports events, the participants are encouraged to follow the real results on the websites of Pro Football Weekly or to purchase the print edition. This supports the objectives of user retention in terms of usage frequency and usage time.

A group-specific component is particularly attractive in this context. Individuals such as friends or colleagues can form groups and compete against each other. However, the registration in the Pro Football Weekly community as well as the compilation of the teams and bets are associated with a high expenditure of time, which in turn can be interpreted as a lock-in effect.

- E-Education

A further business model subcategory of the content segment is e-education. Two characteristics distinguish e-education from the other content offers. First, education does more than merely present information. Information should be passed on to learners in a didactic manner and be internalized by them as knowledge. Learners should also learn analytical skills, structured thinking and problem-solving competencies. The second distinguishing characteristic refers to awarding titles or certificates based on the performance and the respective specific syllabus.

The aim of e-education is the resource-efficient delivery of educational services via location and time-independent application of electronic networks. Here, the company itself or third parties outside the company can offer network-based education. With regard to the recipients of education and training services, one can distinguish between individual concepts of education and training, as well as concepts designed for a mass audience.

Digital offers and e-education platforms from universities and institutions, such as online-learning.com, are widely spread worldwide. The global e-education industry market had a compound growth rate of 9.2% from 2010 to 2015 (elearningindustry 2016). An example of an e-education offer is the website vu.org, a purely digital university, which provides a study program and a recognized certificate awarded upon successful completion. Participants receive course material either via email or by postal mail.

Especially in light of growing financial restrictions, providers of education services are increasingly forced to supply their services cost-effectively. They are also required to deal with greater competition due to the increasing demand for educational services. E-education is particularly able to cope with these restrictions and challenges due to the technological possibilities of the Internet economy.

On the one hand, the digital educational infrastructure allows developing new training tools and concepts, such as multimedia learning modules for self-controlled learning progress or online exchange processes with teachers and instructors for feedback and improvement of educational processes. On the other hand, existing functions, such as the aggregation and distribution of educational content, can be designed and performed more efficiently (Twigg and Miloff 1998).

Finally, there are some mentionable particularities with regard to the revenue models. In contrast to the other subcategories of the content business model, e-education offers are mainly characterized by direct forms of revenue, especially course fees. Many offers particularly with regard to media competence are supplied by public institutions that are financed by budget funds.

The variety of education offers makes it difficult for public institutions to follow the principle of subsidiarity and not to compete with commercial providers of education offers. Figure 4.3 shows the start page of the e-education provider online-learning.com. The provider offers two different types of courses: instructor-led courses and self-paced courses. While instructor-led courses run at specific times and require registration, self-paced courses can be booked and attended at any time. These courses contain diverse learning material, quizzes and examples.

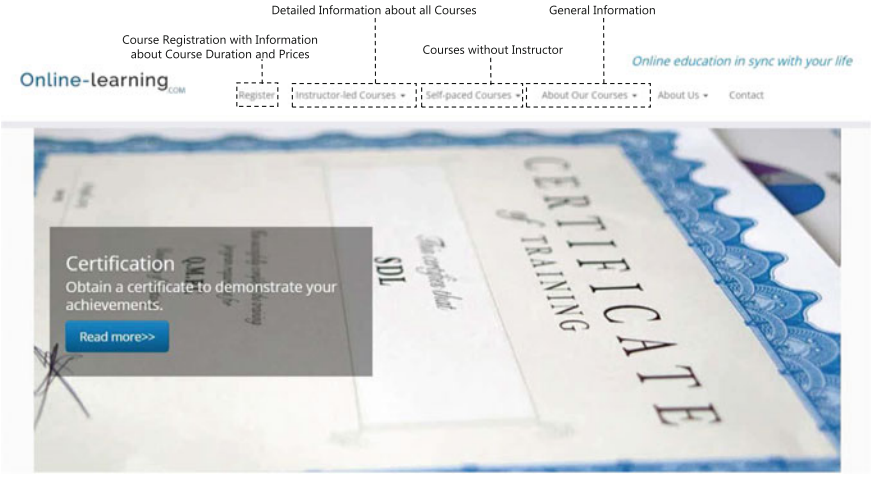

Fig. 4.3 Service offer from online-learning.com. *Source* Online-Learning (2017)

4.3 Value Chain, Core Assets and Competencies

When presenting the content value chain, we not only discuss relevant aspects of the value chain, but also implicitly address the respective partial models of a business model, in order to comprehensively understand the core activities. Figure 4.4 illustrates the value chain of an ideal-typical content provider.

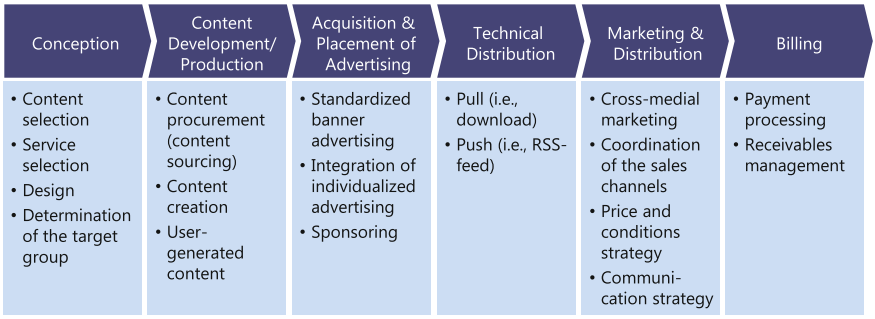

Fig. 4.4 Aggregated value chain of the content business model. *Source* Wirtz (2018b)

The beginning of the value chain is characterized by reflections on the conception or design of the service offered. In this connection, a content provider must decide which content and services shall be offered in which format to what type of customer (Wirtz 2015b). A supplier of general information can, for example, categorize provided services as free content, pay-per-view-content or paid subscription content and thus diversify the range of services (Prasad et al. 2003).

These different forms of usage can still be enriched with supplementary services, provided that the customer can clearly identify the added value of the premium offer for each form of usage (Choi et al. 2015). In addition to the considerations in connection with the service portfolio and service differentiation, the content provider needs to decide on the form of presentation for each type of content (format design).

For instance, a specific online learning platform for students will, for didactic reasons, be designed differently than a website for interested voters providing general information on political parties and its members. Moreover, the available broadband capacities enable the use of different formats. Especially infotainment providers complement purely text-based formats with audio and video files to create a multimedia environment that can attract more users.

The selected online content for the offers can either be purchased on the market or produced by the company itself. The purchase of general interest content takes place, to a great extent, over news agencies like Reuters. These news agencies usually offer the content to the purchasers and users in digital form, so that they can easily integrate it into their online offer without technical problems. An example in this connection is the video offer by the New York Times.

The creation of content by the content provider can increasingly be observed in the context of special interest offers. The financial platform Onvista, for example, provides general financial market information and produces videos with regard to selected stock topics. Furthermore, the Web 2.0 and social media have significantly changed the production of content. Examples of this are the various forms of opinion formation in the context of customer recommendations at Amazon or the contributions of users to the online encyclopedia Wikipedia. These forms of content are called user-generated content (Wirtz and Ullrich 2008). In this connection, a content provider needs to pay special attention to questions of copyright and exploitation rights with regard to the information or content provided by the users.

Depending on the content provider's selected service and price differentiation that influences direct revenues, content providers often have to deal with indirect revenues from advertising or sponsoring. In this context, the management needs to pay special attention that the paying users are not exposed to too much advertising in order to justify the premium offer (Prasad et al. 2003). In doing so, content providers can choose from a variety of different advertising formats (Turban 2015). For example, they can select standardized formats that are displayed depending on the type of user (e.g., banners, buttons, pop-ups) or designed individually, for instance, in the form of flash animations integrated in the content.

In the connection with user-generated content, platform providers can, to a great extent, only generate indirect revenues. The video platform YouTube is an example where the advertisement is fine-tuned to the video in order to create the highest possible fit between the current interest of the users and their consumption desires. Usually, blogs also do not generate direct revenues through payments by the users, but instead are financed indirectly through advertising revenues. Other offers in the context of user-generated content are free of ads and financed instead through donations, such as the online encyclopedia Wikipedia. Here, it is important to note that first-copy costs are crucial in connection with digital content and the costs of reproduction and distribution are only marginal.

The distribution of content can generally take place in two ways. In the first case, the user actively accesses the content (pull) by retrieving it directly from the Internet to use it online or offline. This also includes the mere viewing of content on the platform of the content provider. In the second case, the content provider decides when the content is made available to the customer. The provider usually pushes (push) the content to the users. Generally, the users must have logged into this service or have given their approval to receive this content. In this context, it becomes apparent that the Web 2.0 or social media and the accompanying changes in the Internet have a significant impact on content distribution.

While the content mainly used to be transferred in a B2C environment, one can now increasingly observe C2C content transfers. In this connection, the content can be transferred via private networks (VPN) or directly between mobile devices. It therefore makes sense for content providers to provide several different distribution channels and include C2C distribution (Feng et al. 2009) in order to exploit further marketing potential.

After securing the service offer and the technical requirements of content distribution, marketing and sales ultimately need to realize the designed service and

revenue models. The holistic understanding of marketing that underlies these steps contains all marketing-oriented activities of a company, as well as the consideration of the entire marketing apparatus.

In addition to the usual online marketing activities, companies can also carry out cross-media and offline activities in order to gain attention from potential users. The New York Times, for instance, advertises its content offer nytimes.com not only in the news subscriptions of Google News, but also particularly on private TV broadcasters in the context of special program topics. In this connection, the distribution also needs to be managed. This particularly includes the coordination of distribution channels, the pricing and conditions policy, as well as the communications policy in order to ultimately acquire potential customers.

The last component of value creation that directly emerges from distribution refers to billing. This includes aspects with regard to the payment system and receivables management of the acquired license agreements. Here, several forms of payment are conceivable. While a credit card is commonly used in connection with pay-per view or PayPal, a content provider can also offer its subscribing customers payment through billing or direct debit. This can reduce the fairly high transaction costs of credit card payments for content providers, particularly in the case of a small payment amounts (Turban 2015).

After having presented the value chain of an ideal content provider, the following addresses the core assets and core competencies, which are important requirements for content providers to successfully and sustainably survive in the highly competitive market.

- Core Assets and Competencies

The major core assets of content providers include their offered content and their exploitation rights, as well as the associated brands. In relation to self-created content, the responsible employees can also be regarded as core asset. Moreover, particularly networks are also core assets of content providers. According to the definition of the content business model type, the content is an essential component of the value creation and service offer.

In the case of general interest provider, the ability to combine own content and purchased content is a core asset. Content purchased from news agencies can generally not be understood as a core asset, because competing providers can also acquire this content. The use of synergy effects by means of purchased content is also understood as a core asset in the case of general interest providers. For instance, different multimedia content is shared between usatoday.com and STUDIO Gannett and the different Internet offers of the Random House publishing group increasingly draws on purchased content.

In the case of special interest providers, by contrast, the self-created content and related exploitation rights are a core asset. Special interest providers can resell these rights to other content providers or establish a unique selling proposition for themselves. In context of the web 2.0 or social media, the associated user-generated content is also a core asset. Without the active participation of the numerous users worldwide, offers like YouTube would not exist.

A core asset that is usually even more important than the actual content is the content provider's brands. In this context, a brand has different meanings. Here, professional brand management can create preferences for the own service offer and distinguish it from competing offers (Park et al. 1986). Brands represent a value proposition and are associated with certain, mostly positive product characteristics by the customers.

In the context of information services, source credibility is an important product feature to set oneself apart form competitors. Their significance is enforced by the medium Internet, in which contracting partners do not interact face-to-face but only virtually (Jevons and Gabbott 2000). A good reputation has a positive effect on the value of the created content, which in turn can be understood as a core asset.

Employees are know-how carriers and often have specific skills that distinguish a company from its competitors. The combination of individual skills within a team can improve service delivery and thus yield a competitive advantage (Manville and Ober 2003). Here, the content creation in the editorial sense and the selection of content, as well as the focusing of the employees within the scope of online learning offers is particularly relevant. For instance, if a renowned professor is willing to lecture in a virtual university, this can be also understood as a core asset.

Networks serve content providers particularly for information procurement in order to acquire input for the creation of content. Networks not only require intensive care and often personal commitment, they are also grown historically and therefore difficult to imitate. In addition, the lack of potential network partners limits the imitation opportunities. Networks are also a core asset, provided that they are highly important for service provision and give content providers a differentiation or cost advantage (Wirtz 2015b).

The use of core assets requires core competencies. Content providers' core competencies particularly refer to content sourcing, content creation, product development and distribution. Technology competence is only of minor importance to content providers and may be purchased on the market. Hence, technology competence is not a core asset.

Content sourcing competence describes the ability to gain high-quality information and entertainment content, as well as authors or producers as input for content production. Competitive advantages particularly arise when exclusive content can be procured. This pertains especially to providers of special interest content, because they can achieve greater differentiation from competitors. In this context, the ability is helpful to connect a large number of users to a network and provide a platform for people or companies, especially when the users contribute content (user-generated content).

Successfully creating online content requires a strong content creation capability. While here different sub-competencies can be distinguished, the trend and refinement competence are particularly important to content providers on the Internet. Trend competence represents the ability to pick up on social developments at an early stage and convey new content to the interested recipient. However, the transformation of general information into high-quality informative or entertaining online products, such as podcasts or blogs, is referred to as refinement competence.

Overall, these sub-competencies are highly media, genre and format-specific because the factors that make content attractive from the audience's point of view are different, depending on the purpose of media use and the target group. For instance, the production of informative content requires the use of other skills than the production of e-education materials.

The content creation competence is strongly influenced by the implicit knowledge of the employees and by organization-specific routines. For outsiders and especially competitors, these mechanisms of action are hidden and difficult to understand, thus making this competence difficult to substitute or replace.

The product development competence contributes to an advantageous positioning on the recipient and advertising markets. It consists of the ability to develop promising formats and to position them in the relevant markets. In addition, the product development competence requires a great deal of knowledge about specific market segments and in part rests upon the trend competence of the content provider. The specific knowledge, in turn, is only available in terms of implicit knowledge in the company and is therefore not transferable.

A balanced product portfolio is of considerable importance in the sense of a business model that is intended to generate sustainable and steady income streams. The distribution competence includes the cross-media exploitation competence and the ability to actively integrate a C2C distribution into the content business model. It generally refers to the ability to the timely delivery of content in the desired quantity and through the appropriate channel for the recipient. On the one hand, content often needs to be adapted to the respective target group in a channel-specific manner. On the other hand, content providers in the context of e-business also have to be able to control the technology and logistics of the distribution channels. Figure 4.5 summarizes the core assets and core competencies of content providers.

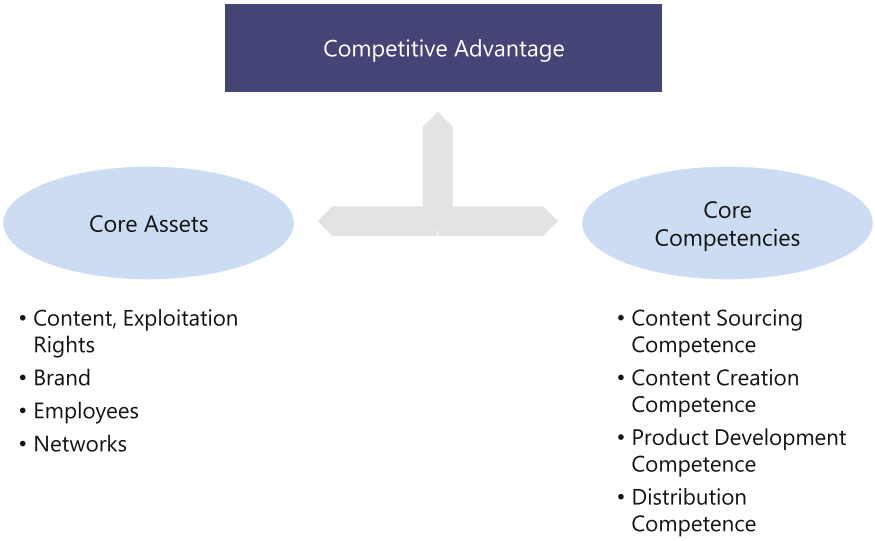

Fig. 4.5 Core assets and competencies of the content provider. *Source* Wirtz (2018b)

4.4 Case Study: Wikipedia

The following section describes the business model of Wikipedia as an example of the content model. Wikipedia is a non-commercial Internet-based online encyclopedia that provides free and freely accessible information. As a knowledge platform focusing on collaborative information exchange, Wikipedia belongs to the content business model and the business model type of e-information.

The online encyclopedia Wikipedia was founded in January 2001. It is based on the Internet project "Nupedia" of Jimmy Wales and Larry Sanger, which was realized by the Bomis Company (Wikipedia 2017c). Originally, Wikipedia was only available in English language, but in March 2001 versions were also available in other languages. Meanwhile Wikipedia is among the top 50 of the most visited websites worldwide. In April 2017, it consisted of more than 45 million articles in around 300 different languages (Wikipedia 2017c).

Wikipedia is formally managed by the non-commercial Wikimedia Foundation Inc., which was founded by Jimmy Wales in June 2003. The Wikimedia Foundation is headquartered in San Francisco, USA and is dedicated to the promotion of free knowledge. In addition to the foundation, there are also independent Wikimedia associations in many countries, which are closely connected with the Wikimedia Foundation (Wikimedia Foundation Inc. 2017a). The Wikimedia Foundation employs around 280 people, as well as additional, non-foundation personnel in the individual, globally represented Wikimedia associations.

According to their own statements, the free and collaborative encyclopedia is financed almost exclusively by donations. Most of these are donations from private persons and companies. The Wikimedia Foundation also receives further support in the form of money and material contributions from other foundations (Wikipedia 2017d).

In addition to the free encyclopedia of Wikipedia, the Wikimedia Foundation also runs other projects: Wiktionary (online dictionary), Wikibooks (online library with free educational books), Wikiquote (online collection of quotations), Wikisource (online collection of free and open content texts), Wikispecies (online content catalog of all species), Wikimedia Commons (online database for images, videos, music and spoken texts), Wikinews (online news source), Wikivoyage (online travel guide) Wikidata (online data collection) and Wikiversity (online learning, teaching and research platform) (Wikimedia Foundation Inc. 2017b). In May 2017, Wikipedia had more than 2.4 million "wikipedians" (authors with more than ten contributions) worldwide (Wikipedia 2017c).

The Wikipedia website has a simple and clear user interface with different functions. These are shown by way of example in Fig. 4.6. There is a simple search function to quickly and comfortably find and provide the information desired. Furthermore, a login area offers partially personalized applications. In addition, there is a discussion forum, and the possibility to edit articles anonymously or via the login area.

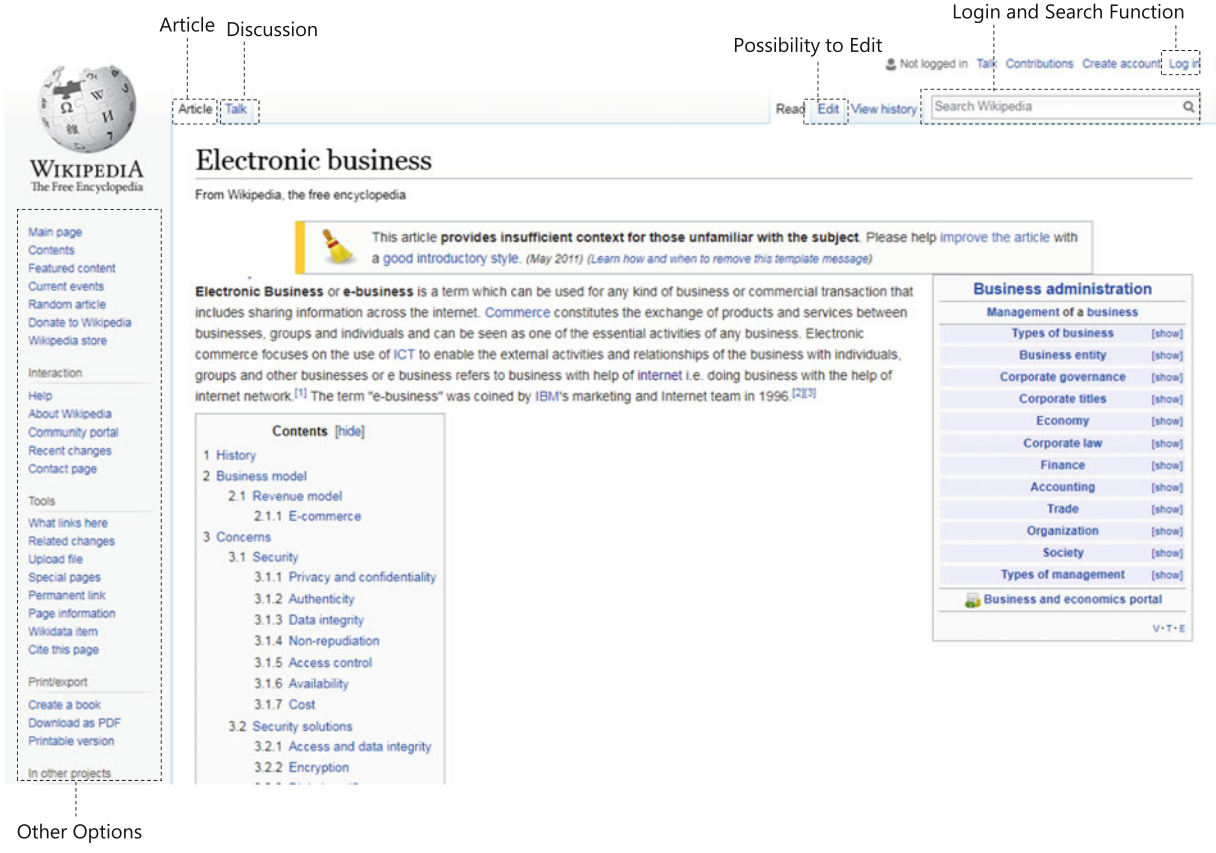

Fig. 4.6 Functions of Wikipedia. *Source* Wikipedia (2017a)

In addition, an author/version mode allows to trace back which users have created an article or when certain parts of the article have been edited or submitted. Furthermore, the user can always access the desired article in other languages and use different tools, such as a PDF creation feature. Currently, the content of Wikipedia particularly comprises text content, images, tables and drawings is supposed to be complemented by animations and videos in the future.

Wikipedia is technologically based on the functioning of a wiki system. This is a hypertext-based content management system for websites, which allows individuals to easily receive and actively participate in the text design through its high user friendliness. In addition, a version control enables to keep changes transparent and thus reversible (Wikipedia 2017c).

Unlike the Google offer, which is also free, Wikipedia does not have a commercial, revenue-based business model. In contrast to the concept of Wikipedia, Google generates billions of dollars in revenue and profits from the sale of search results that are needed for context-intensive online advertising. Wikipedia can be understood as a counter model to the commercial primacy of the disposition of knowledge and information, which is particularly illustrated by its political and social significance.

The business model of Wikipedia is based on the idea of cooperative information generation by the user and is primarily attributed to the pure content area, although one can discern certain intra-connection characteristics in the integrated community tools and discussion pages.

Wikipedia mainly focuses on the informational and educational aspects of its content. Accordingly, the business model type of Wikipedia belongs to the business model type of e-information. E-information places special emphasis on the informational, problem-solving-oriented content. As an information provider, Wikipedia does not focus on a specific subject area, but primarily acts as a free knowledge-based navigator across a wide range of areas.

As shown in the simplified business model of Wikipedia in Fig. 4.7, the fundamental objective of the company is to offer users information easily and conveniently in an encyclopedic form and free of charge. In addition, users not only have the opportunity to receive but also to edit this information. The content of the online encyclopedia is collectively created by a voluntary and honorary author community and made available on the website of Wikipedia.

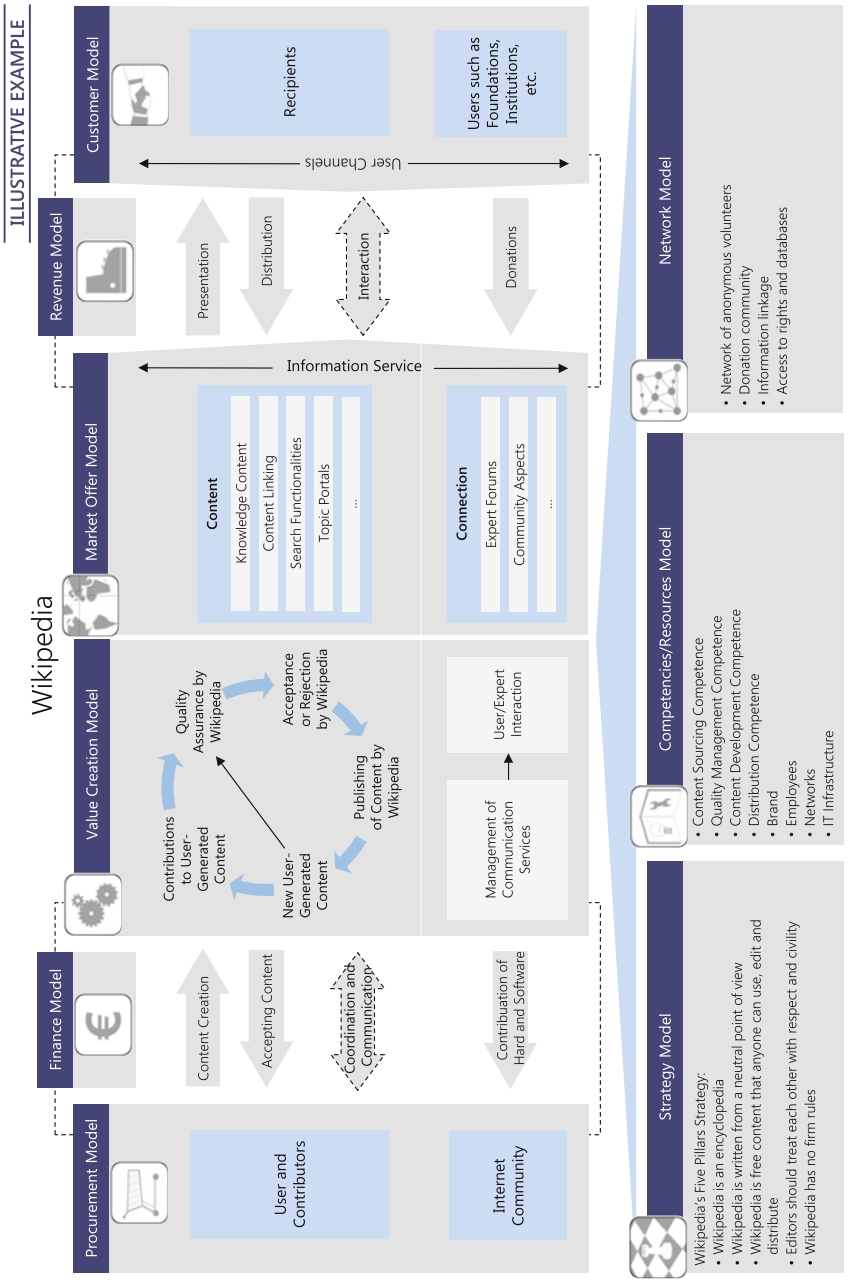

Fig. 4.7 The business model of Wikipedia. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

This added value can serve as an example for user-generated content in the context of Web 2.0 or social media. In this case, Wikipedia is solely responsible for recording the contributions as well as providing the hardware and software. The coordination of communication within the community or the discussion forums is mutually realized and primarily shaped by user interaction. Within the revenue and distribution model, the financing is primarily based on donations from private and institutional sources.

The core assets of Wikipedia include the easy accessibility of the information and the technological infrastructure of the project. The website of Wikipedia is particularly characterized by ease of use and a user-friendly user interface. This allows to change the text directly in the web browser, without prior technical knowledge. In addition, one of the core assets of Wikipedia is the high level of awareness and information leadership in the field of knowledge. This is associated with an extensive collective accumulation of knowledge and requires a high level of activity of the intrinsically motivated authorship.

Another core asset is the clear scalability of the work processes outside the community and the associated low personnel costs within the foundation. The core competence of Wikipedia especially refers to its content sourcing competence. This includes the ability to gain high-quality information and entertainment content, as well as authors or producers as input for content production. Figure 4.8 summarizes the strategic orientation of the company, as well as its business model, service offer and success factors.

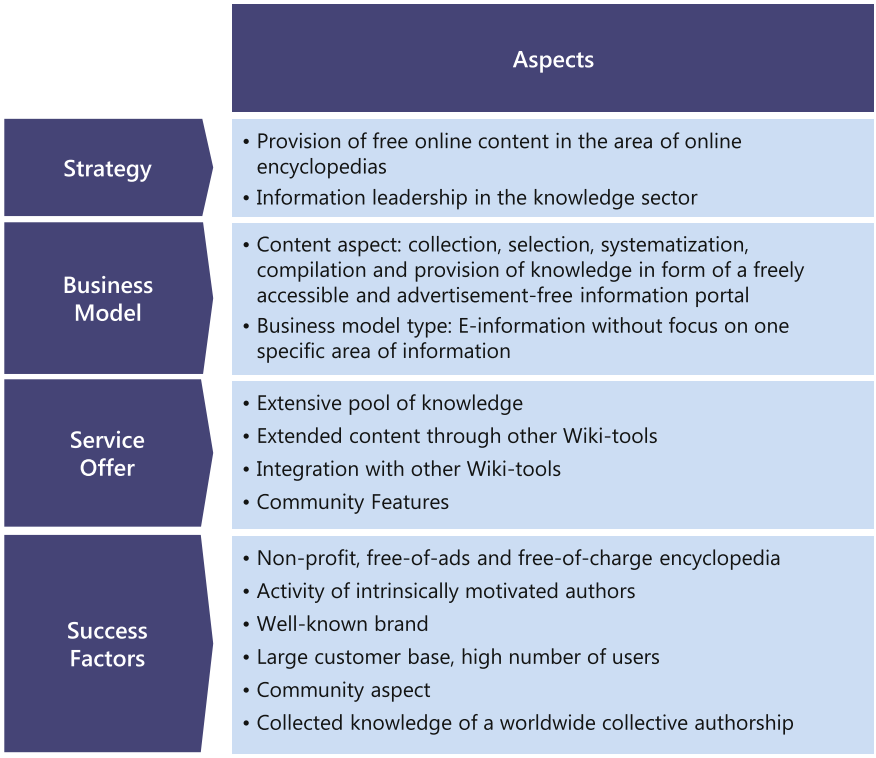

Fig. 4.8 Strategic orientation of Wikipedia. *Source* Wirtz (2018b)

Chapter 5
B2C Digital Business Models: Commerce

The commerce business model deals with the initiation, negotiation and/or settlement of transactions over the Internet and is a very important partial model of the 4C-Net Business Model. While Sect. 5.1 initially outlines the basic features of the commerce business model, Sect. 5.2 describes its different types. Section 5.3 explains its underlying value chain based on different core assets and competencies. Finally, Sect. 5.4 provides a case study of the online auctions platform eBay.[1]

5.1 The Commerce Business Model

The commerce business model entails the initiation, negotiation and/or settlement of transactions over the Internet (Solaymani et al. 2012). Its aim is an online-based supplement or even substitution of traditional phases of a transaction (Wirtz and Kleineicken 2000). The business model can be further subcategorized into the business model types e-attraction, e-bargaining/e-negotiation and e-transaction. E-tailing, as a further type, covers the entire process of selling goods and services to consumers over the Internet. Figure 5.1 provides an illustration of the commerce business model.

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_5

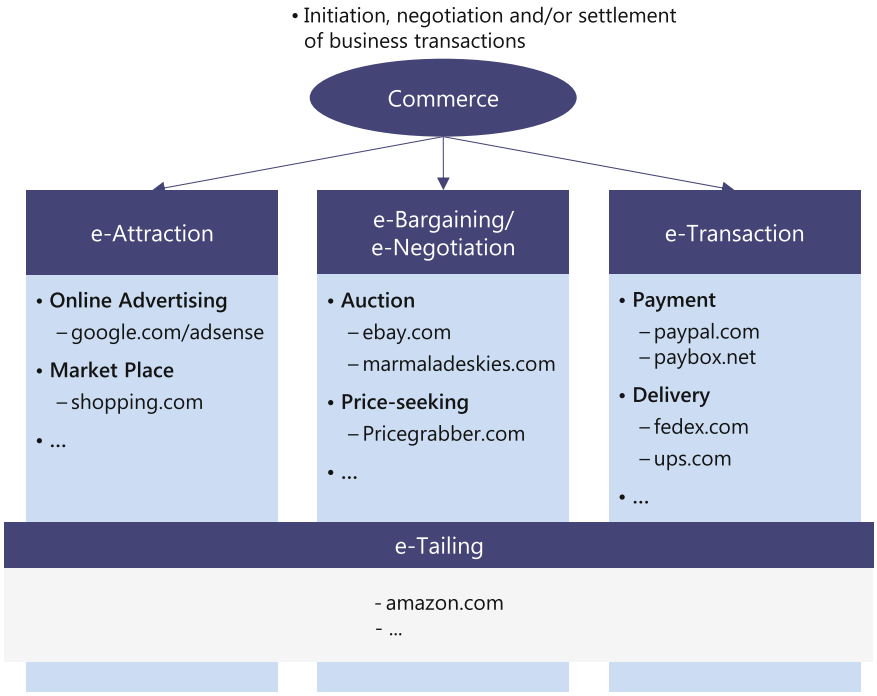

Fig. 5.1 The commerce business model. *Source* Wirtz (2001a, 2018b)

The business model type of e-attraction refers to all measures that support the initiation of transactions. These factors, for example, include online advertising (e.g., banner placement) and the provision of marketplaces. Hence, other commerce business models are, in turn, possible in these marketplaces. In this connection, the sector pertaining to the business relationship among consumers, so-called C2C-relationships, is becoming increasingly relevant. Such relationships arise, for example, over the eBay platform when a private provider sells to a private bidder. Since a large number of professional providers meanwhile also use eBay, the latter also handles B2C transactions and even B2B.

The business model type of e-bargaining/e-negotiation focuses on the negotiation of terms and conditions. An important parameter that is often subject to negotiation with regard to a given product or service is often only the price or other conditions of purchase. Auctions represent a pricing mechanism frequently used in this context. The provider of the service does not necessarily have to moderate or take on the role of conducting the negotiations in such business models. The well-known example of the auction house eBay shows that the subject of the business model can already pertain to the provision of the technical platform, on which the providers and buyers then conduct their negotiations.

Price-seeking is another approach of the bargaining/negotiation type, in which customers make their offers known for the desired product. Then, the company determines the fairest offer for the product selected. Price-seeking offers have gained increasing relevance in recent years. An example of this business approach is pricegrabber.com.

The business model type of e-transaction addresses the settlement of transactions conducted via the Internet. The transaction type, in turn, can be subcategorized into payment and delivery. A payment system specifically designed for settling transactions via the Internet is, for example, PayPal that enables Internet users to send and receive money in over 200 countries (PayPal 2017).

In addition to payment, delivery may also count as a subcategory of the transaction type of the commerce business model. The distribution of information-based products such as software takes place directly over the Internet. Physical products, in contrast, are shipped by traditional means to the customer. As far as the domestic distribution capacities of the manufacturer or another dealer are not used, the assumption of the shipping services is borne by external service providers, such as FedEx or United Parcel Service (UPS).

Electronic retailing (also referred to as e-tailing) covers the entire process of selling goods and services to consumers via the Internet. Online retailers therefore often offer integrated solutions, comprising multiple commerce services—from the presentation of the offer up to the settlement of the transaction. Some major online retailers meanwhile even provide e-bargaining offers. Amazon.com can be cited as an example of a successful online retailer.

Although the offer mainly pertains to books, DVDs, CDs and computer games, it also includes electronic devices, toys and garden accessories. After various manufacturers have added their products or services to the Amazon platform, they are collected and then systematically presented to the customer. Incoming customer orders are processed upon payment (e.g., direct debit or bank transfer) and further internally routed, before the products are packed and shipped.

5.2 Commerce Business Model Types

The following presents the services offered by the different business model types e-attraction, e-bargaining/e-negotiation, e-transaction, and e-tailing in more detail. The explanations are dedicated to the characteristics and specifics of the individual business model types and examples are given for a better understanding.

- E-Attraction

The initiation of transactions is the core of the commerce business model type of attraction. In this context, the design, marketing and placement of advertising space on the Internet is the core of the activity that is offered by Internet attraction providers.

A usual service that is offered by many firms is general promotion and advertising on the Internet. Specialized firms, such as the company GLISPA, offer various online advertising (e.g., banner advertising) measures, in particular, for mobile devices. There is a multitude of measures that raise attention online. With an increasing use of mobile devices but also of the Internet as such, the attraction type becomes more and more important to retailers, brands and everyone else that depends on awareness.

Google offers advertising services such as Google AdSense and AdWords. Their algorithm analyzes content on the clients' websites and prioritizes the matching search results on the Google result list. It therefore scans content from sites and places ads that are potentially relevant to the target audience.

Figure 5.2 shows the example of a search on Google for the search term "digital business models". The search results are complemented by a related ad of Accenture an IT consulting firm. The appearing ads vary when the search is repeated.

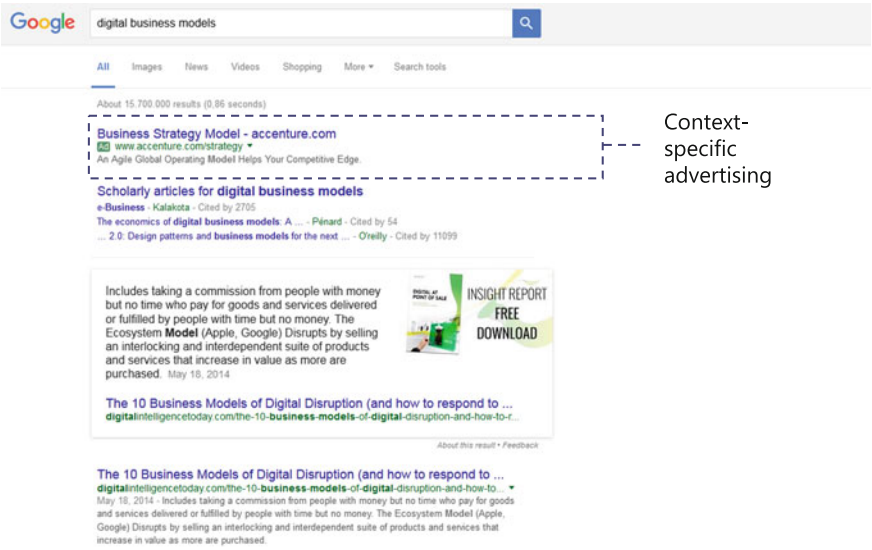

Fig. 5.2 Example of context-specific advertising of Google. *Source* Google (2016)

Another way to support the initiation of transactions is the operation of market places on the Internet. A respective provider offers suppliers/retailers a platform to present their goods and services on the Internet. An example of a market place is shopping.com. It allows to customers to search for particular goods. Once a potential product is identified, shopping.com forwards the customer to the respective webshop.

Market place operators generate revenue primarily through retailing or commissions from providers for the goods traded through their platform (pay-per-transaction) and in some cases charge monthly fees for their services. In addition, advertising banners and links to the websites of the manufacturers of offered products are possible, whereby the market place operator usually requests a fee per click (pay-per-click). In addition, data mining revenues based on user and customer profiles that emerge from their business transactions.

- E-Bargaining/E-Negotiation

The business model type e-bargaining/e-negotiation focuses on the negotiation of business transactions. In the case of a given product or service, the price or purchasing conditions are often considered to be important parameters to be negotiated. Essential pricing services are auctions and the search for the cheapest product or service (price seeking).

An auction service, well-known due to the success of the online market place eBay, is using an interactive price-setting approach. An important advantage of auctions is that they offer a standardized mechanism that reveals supply and demand in a market. The consequence is an increase in market transparency. In addition, online auctions are suitable to attract a large number of bidders, due to the amount of people using the Internet. Four basic types of auctions can be distinguished on the basis of the number of actors on the buyer and seller side. Figure 5.3 illustrates these types of auctions.

		Seller	
		One	Multiple
Buyer	One	Not applicable	Reverse Auction
	Multiple	Forward Auction (English or Dutch Auction)	Double Auction

Fig. 5.3 Types of auctions. *Source* Wirtz (2010b, 2018b)

Only three of the combinations illustrated describe auctions in the strict sense. In the event that only one buying party meets a selling party due to a lack of alternatives, their respective market power determines the price and no auction takes place. This constellation hardly plays a role on the Internet, due to the high number of potential buyers or sellers that are available as possible alternatives.

The standard case of online auctions is the English auction, in which one supplier faces many potential buyers. The bidding can take place in two ways: In the case of the ascending auction, the potential buyers make bids and at the end of a fixed time frame the highest bid wins the auction. In the case of the descending auction, the sales price drops at certain time intervals until the first buyer places a bid (Dutch auction). On eBay, the English auction is the usual auction procedure.

The reverse auction is the basis of a public tender: A demanded service is circumscribed and potential suppliers bid at what price they could perform or supply the demanded service or product. Without considering other factors, the lowest bid wins the auction. The tendering service: marmaladeskies.com, for instance, allows individuals to enter flight inquiries and private pilots can bid for the flight to be carried out with their private jet. The lowest offer wins the reverse auction.

The best example of double auctions, in which many suppliers meet many buyers, is the formation of stock prices on the stock market, which are now essentially handled via electronic trading platforms. The Internet provides timely information and participation in the market for private and institutional investors. Such a procedure in which several identical items are offered in an auction is the basis of world markets of commodities, shares and bonds.

Strategic price-seeking is another common online approach. It describes a situation in which the customer specifies a desired product and a provider then determines the most cost-effective offer for the selected product. Examples of an implementation of this business model type is Google Shopping (google.com/shopping). Criteria for a listing on Google Shopping are, among other things, that the products offered are available at online stores, shipping costs are priced in and data on customer reviews of the external service is available.

E-bargaining/e-negotiation providers in the area of price seeking can generate advertising revenues and transaction-based dealer commissions. The transaction–dependent commission usually depends on the respective market power of the e–bargaining/e-negotiation provider. E-attraction providers can distinguish between pay-per-transaction, pay-per-click or as a lump-sum model. Auction service providers, in contrast, mainly generate revenue from transaction-related fees.

- E-Transactions

The business model type e-transaction relates to the handling of transactions on the Internet. E-transaction can be divided into payment processing and delivery. A payment system specifically for online transactions is PayPal, for instance. It allows users in more than 200 countries to transfer money via the Internet. Once users have registered for a PayPal account, they can then pay and receive money with their PayPal account that uses direct debit, credit card or bank transfer. PayPal offers the buyer several security measures. Particularly important to most users is that no bank connection or credit card data is exchanged between buyers and sellers. Moreover, PayPal offers a so-called buyer protection. This includes that

payments can be returned if the transaction is not implemented in accordance with the agreed contract.

In addition to payment processing, the delivery of purchased goods is an important aspect. In case of information-based products, such as software, the distribution can take place directly over the Internet. Physical products, in contrast, must be transported to the customer in a traditional way. Unless own distribution capacities of the manufacturers or dealers are used, the transport is usually outsourced to external service providers such as DHL or United Parcel Service (UPS).

- E-Tailing

Electronic retailing, or e-tailing, covers the entire process of initiating, negotiating and handling transactions with consumers via the Internet. Online retailers therefore often supply an integrated offer of several commerce services—from the presentation of the offer to the handling of monetary and physical transactions. Some of the major online retailers are also even include e-bargaining offers.

An example of a successful online retailer is Amazon. Starting out as an online bookshop, Amazon.com emerged as the world's most valuable retailer, surpassing Walmart in 2015 (Kantor and Streitfeld 2015). Nowadays, Amazon no only offers a wide range of services and products such as cloud computing, tablet computers, books and toys it also offers a market place to other retailers.

Apart from Amazon and other pure online retailers, traditional retail companies with real-world shops increasingly establish e-commerce platforms on the Internet. Websites such as walmart.com offer customers products online that can be either delivered to the buyers' home or can be picked-up at the store right away.

Particularly suitable for the distribution over the Internet are goods with the following characteristics: High brand value, for example, through high brand awareness or guarantees; digital goods (e.g., software and music); rather low-value as well as regularly acquired and standardized goods (for example, office materials, books), where an assessment of the physical product is unnecessary before the purchase. The same applies to goods in standard packages that are known from classical retail trade and generally not opened or inspected there.

Since the travel and tourism industry is one of the most successful business segments online, it serves as a good example. Online travel booking and planning includes both flight and hotel bookings as well as all other travel services, such as car rentals or related insurances. Travel websites such as expedia.com offer a wide range of travel-related services as indicated in Fig. 5.4.

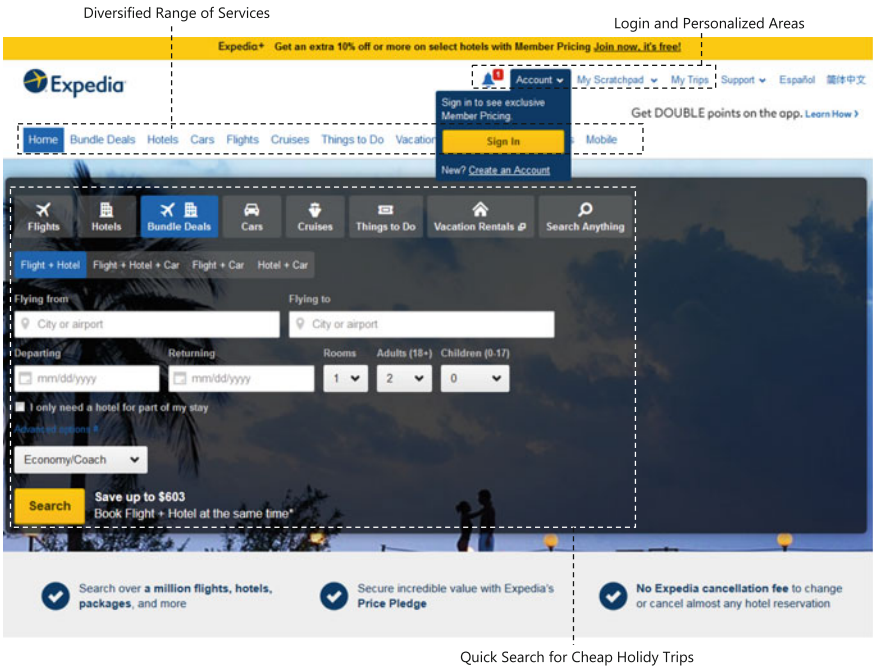

Fig. 5.4 Services of Expedia.com. *Source* Expedia (2017)

These travel services are usually standardized products that need little explanation beyond the information available online. For hotel reservations, there are specialized online hotel booking services such as booking.com that offer comprehensive hotel booking, review and payment services with listed hotels in most places around the world.

5.3 Value Chain, Core Assets and Competencies

This section presents the characteristics of a commerce-oriented digital business model. As presented in Sect. 2.5, a business model is based on the concept of providing value to respective customers. The value chain describes this value creation. The value creation process itself results from the right usage of company resources, i.e. a company's core assets and competencies. This section describes both aspects for the commerce model.

- Value Chain of the Commerce Business Model

The general value chain presented can be adapted to the specifics of a commerce model in e-business. Just like in the case of content providers, the value chain of this business model type encompasses specific commerce aspects of all essential partial models, as indicated in Fig. 5.5.

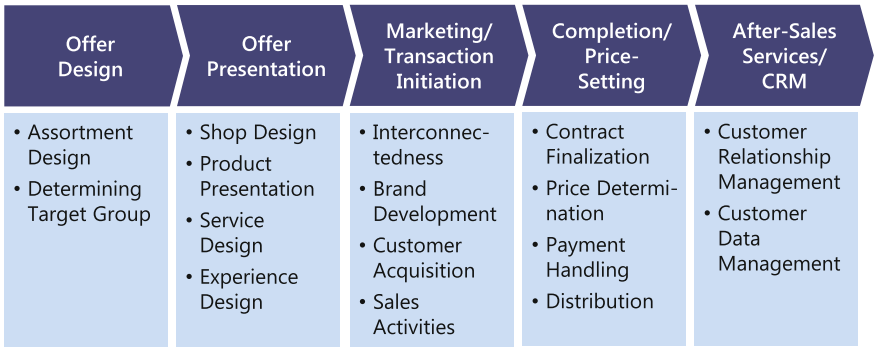

Fig. 5.5 Value chain commerce business model. *Source* Wirtz (2010b, 2018b)

Designing a business model starts with the intent to create value for the recipient. This is why the beginning of the value chain is marked with considerations on the contribution of the company. In other words, which services or products are to be offered to which target group? The service offered by the commerce business model can be traced back to the areas of initiation, negotiation and settlement. The service offer can be understood as a service to help the target groups to purchase the desired products online. In this context, the assortment design is of particular importance. Certain strategies such as service/assortment differentiation and niche retailer are of particular interest.

While Amazon, for example, is an allround provider on the Internet, specialized e-commerce businesses such as inkjetsuperstore.com are focusing on specific products, such as toners and cartridges for computer printers. The selected strategy strongly also determines the relevant target group. While inkjetsuperstore.com is predominantly targeting price-conscious customers and small companies as buyers, the target group of Amazon is more heterogeneous, thus making a concrete target group determination rather difficult.

Once the segment, the assortment and target groups are defined, the service offer must be presented to the target groups within the next step of the value chain. In this context, the e-shop design is particularly important in order to be successful on the Internet. In order to achieve a successful, virtual shop design, the aspects of product awareness, service quality, shopping experience and customer risk must be taken into account. Product perception depends, to a large extent, on the presentation of goods on the Internet.

In this context, it is necessary that the presentation of goods is carried out in a way that is appealing to the customer and that the product details as well as the price are presented in a uniform and clear manner. The quality of the presentation of goods determines the perceived service quality. In addition to the user-friendliness and the quick response time of the website, a simple purchasing process is crucial for successful e-commerce services, as it makes shopping easier for customers and increases further sale opportunities.

The repeated use of the e-commerce offer also depends on the buying experience itself. E-commerce vendors therefore must increasingly integrate an experience design into the presentation of the offer. For example, the auction process on eBay to determine the product price is a special experience for many users, since the price can be actively influenced and thus may be perceived as exciting. Other providers on the Internet deliberately rely on the world of multimedia experience and integrate product videos and feedback systems and other interactive features into their presentation in order to offer an experience beyond mere purchase.

Moreover, transaction security and privacy are highly important to the customer. In addition to a positive reputation, the certification of the commerce offer is particularly important in order to be recognized as a trustworthy supplier.

The activity of marketing and transaction initiation increasingly contains the networking through the Web 2.0 and social media, which establishes and maintains a close contact to customer, as well as a constant promotion of brands and sales activities. Due to the ever-increasing networking between users, consumption patterns are also changing drastically. Commerce provides need to take this into account in order to take appropriate marketing measures. In the context of Web 2.0 and/or social media, it is important that customers actively communicate their opinions on products and services to the provider. Positive buying experiences and public customer feedback are important requirements of referral marketing. Internet users' buying behavior is often guides by the opinions of other users rather than by their trust in corporate advertising.

The same applies to the use of brands. Brands are also of particular importance in the area of commerce, as they generate reputation effects and create trust. In the case of e-commerce providers, both the own and marketed brands are important. A further aspect that lies within the scope of the e-commerce provider is, the so called product bundling and the individualization of offers. Such measures offer bundles of products that suit the selected product in the cart or the wish list. They may also offer specific products that suit individual preferences that are known from user profiles or other data available. As an example, Fig. 5.6 presents personalized product recommendations on Amazon.

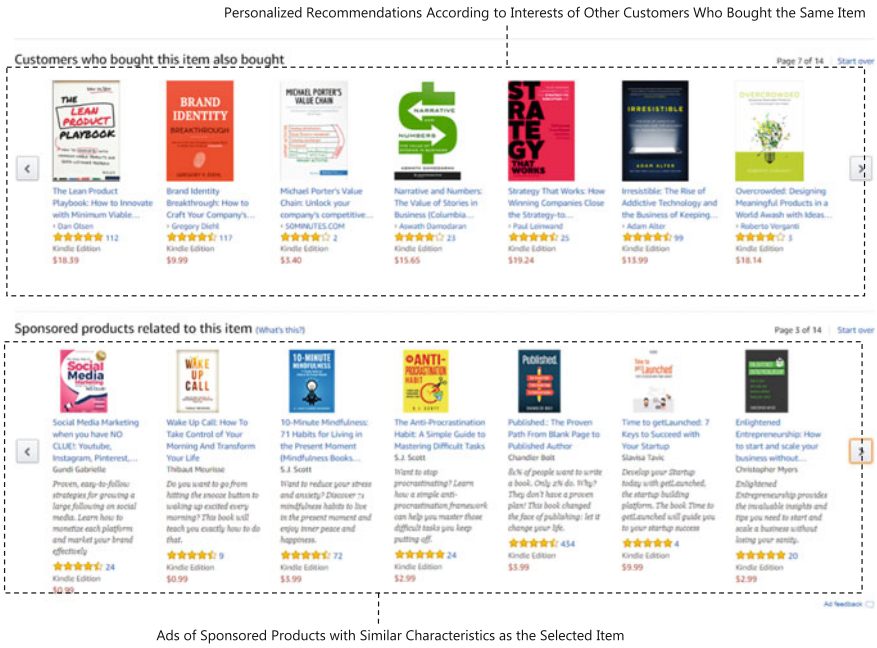

Fig. 5.6 Personalized product recommendations on Amazon. *Source* Amazon (2017)

In the course of marketing and sales, a commerce provider can try to uncover the specific needs of the customer through data mining. This is done by analyzing the shopping behavior of the customers and by identifying similar patterns of other customers. Further information can be drawn from customers profiles or third-party data, for instance of linked social media profiles.

Once users are aware of the e-commerce shop and want to conduct a transaction, the next value chain process, the transaction and the pricing process is initiated. In the commerce business model, this means bringing together the suppliers and buyers in order to create a legally binding contract.

Individual e-commerce businesses have their own e-commerce system but usually rely on third-party providers with regard to payment. This can be PayPal or other software that is directly liked with credit card providers such as Visa or Mastercard. Amazon Marketplace, for example, offers external suppliers the opportunity to sell new or used goods at a fixed price on Amazon. Users can shop as usual on the Amazon platform, and use their established payment systems. In most cases, they are also protected by Amazon's warranty against bad service of the providers.

In the case of online auctions, a different type of price-setting is done in an interactive way between the bidders and sellers. Independent platform providers such as eBay have positioned themselves in this sector and have established an infrastructure for auctioning and the subsequent payment processing. Concerning

the payment, eBay, for example, offers buyers and sellers either to process their payment on a platform-independent basis or use the PayPal system that used to be part of the eBay company until 2014.

In order to comply with the concluded purchase agreement, the commerce provider also has to arrange the distribution of the goods. In the case of digital goods (software), this can be done, for example, by means of a personalized data access to protected areas of an Internet platform or a product release code for software on a disc. The delivery of physical goods is more challenging it must be organized and the seller will be kept responsible for it in most cases. In the case of a e-commerce platform, the distribution is usually provided by the external retailer involved, whereby the intermediary in this context can give guarantee services (Amazon).

The after-sales aspect is particularly important for commerce providers, since customer loyalty cannot be reached by means of personal contacts, local proximity etc., like in traditional retailing. Concerning personalization, data mining and analysis is considered to be one the most important elements in the after-sales area, as companies can analyze the needs of their customers and anticipate respective purchasing behavior.

In this context, a best practice example is Amazon that derives customer wishes by analyzing their customers' purchasing history and surfing behavior, offering them personalized product recommendations. In doing so, preferred genres of the customers or the last articles viewed are repeatedly displayed in order to encourage the user to buy. There is also the possibility to place discounts and incentives for goods in order to influence the resale behavior.

- Core Assets and Competencies of the Commerce Business Model

In addition to a customer base or network, core assets of businesses that follow the commerce model are, for instance, customer data, sales and technical infrastructure, all of which are crucial factors for success in the Internet.

The attractiveness of an online presence for commercial partners largely results from its popularity indicated by the number of visitors and thus the potential customer base of the market place. If customers are registered, they have confirmed their interest in purchasing and provided crucial data to the platform. The more potential customers are registered on a commerce platform and use it on a regular basis, the greater the probability of purchasing. In this context, a core asset of a business that follows the commerce model is the scope of its customer base.

This critical size of a customer base is closely connected to the networks of its customers. The permanent linking and collective opinion formation among users in the context of Web 2.0 or social media makes shopping experiences or service quality increasingly public and may trigger network effects. In the case of positive feedback from the customer base, it can be assumed that the number of users and thus the potential customer community of a commerce platform increases through

word of mouth. Strong brands with a good reputation can further strengthen the positive attitude towards the business.

The customer database is one of the major core assets. Data mining techniques enable to identify structures, patterns and relationships that are economically usable. Such information may be either sold or used for company-specific purposes of customer relationship management, in particular, for individually promoting products and services. Companies that recognize cross-selling and up-selling (sales of supplementary or higher-quality products) potential among customers at an early stage can increase sales through a targeted promotion approach.

Finally, the sales infrastructure, such as a joint payment system of the marketplace or concerted marketplace advertising is important for the development of core assets of a digital commerce provider. In this way, synergy effects can be exploited on a platform-wide basis through a uniform payment procedure and, in addition, the risk perception of the buyer can be minimized. This, in turn, can lead to a higher service quality and thus to a larger customer base.

In addition to transaction processing, the sales infrastructure should also ensure the rapid and reliable distribution of the products. It is a core asset of a business to have a smooth physical distribution system that minimizes distribution costs, for instance, through long-term agreements with logistics service providers.

The customer base in the commerce area can only be maintained through efficient price benchmarking with direct competitors or relevant incentives, for example discounts or special services. A closely connected capability is the bundle competence. In this context, an additional service can be provided to the customer when the retailer submits proposals for complementary products based on historical consumer data. This ability is also expected to include similar products and the use of cross-selling or up-selling potentials. In addition to the conception of product bundles, bundling of prices in the commerce sector is of particular importance.

The ability to develop experiences is also a core competence in light of the increasing experience orientation among consumers. This can be achieved, for example, through a special design of the webshop or through the aforementioned aggregation of various service offers. For this purpose, the special properties of the Internet can be used in a targeted way, for example, through multimedia content, such as images, music or video sequences. In addition, involving actors and other users in the platform offer, may lead them to identify themselves with the platform in the sense of belonging to a community, thus creating a lock-in effect.

For a commerce vendor, the ability to efficiently manage the existing technical infrastructure is important. In this context, both the hardware and the software used for the technical infrastructure can be expected. The simultaneous access of various stakeholders to the commerce offer means that the provider must ensure that the technology used is functioning properly.

The software used must also enable error-free and intuitive data management for potential external suppliers to provide the product. Figure 5.7 summarizes the core assets and core competencies of the commerce model.

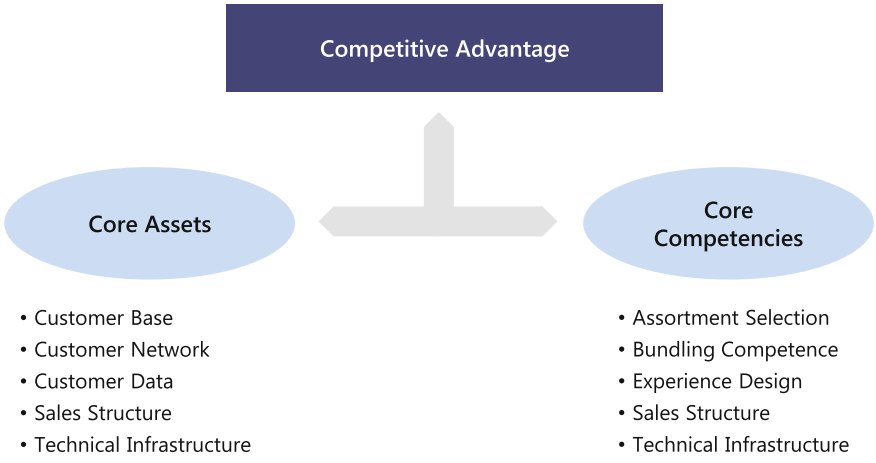

Fig. 5.7 Core assets and competencies of the commerce model. *Source* Wirtz (2010b, 2018b)

5.4 Case Study: eBay

eBay is currently the most successful online platform for online auctions and is also one of the first Web 2.0 applications ever. The auction house is primarily the product of the joint activities of its users who can purchase and sell items on the digital marketplace.

The U.S. company eBay Inc. was founded by Pierre Omidyar in San José, California in September 1995. Already in September 1998, eBay had its successful IPO with listed shares on NASDAQ (eBay Inc. 2016). Since then, eBay's expansion course has continued steadily.

For example, eBay Inc. acquired the Internet payment service PayPal and the real–estate portal Rent.com in 2004. A year later, the purchase of Shopping.com and Skype followed and a continuous purchase of foreign auction sites (eBay Inc. 2016). In 2015, PayPal was separated from eBay as independent and listed company.

Besides the acquisition of various companies, eBay Inc. also focused on takeovers that the global company successfully integrated into its own business model. In 2004, eBay Inc. acquired the German online advertising market for vehicles, mobile.de, the Swedish Internet-advertising portal Tradera.com and the auction-processing tool Afterbuy in 2007. Further acquisitions by eBay include the local shopping search engine Milo in 2009, the shopping portal brands4friends in 2010, as well as the e-commerce company GSI Commerce in 2011 (eBay Inc. 2016). Since its foundation, eBay has become one of the largest marketplaces on the Internet and a profitable company. According to its own figures, it is the most high-selling online auction provider in the world with more than 171 million active

users worldwide (eBay Inc. 2017). In the second quarter of 2017 alone, the value of services and goods reached 21 billion USD (eBay Inc. 2017).

The user interface of eBay is continuously changing in accordance with long-term design trends, product trends, the country it is used from or the respective season of the year. Due to the wide variety of products it is necessary to structure the website in a way that users can intuitively find the products demanded. There are two ways of identifying the respective product: the search function and the category search. After entering a specific search term, a list of offers appears. While some offers can be purchased immediately (fixed price offers), others can be acquired by means of an auction.

eBay's business model is based on providing an online platform for the purchase and sale of any commodity. In doing so, the company itself does not act as a seller, but only provides the infrastructure that sellers and buyer can use. Since the platform acts as an intermediary for sales, it can be regarded as a service. The digital good that eBay provides is therefore the use of the auction and sales platform, which together with the brand name of the digital marketplace generates a high number of potential customers.

The business model of eBay is clearly assigned to the commerce business model. This approach can be divided in the processes initiation, negotiation and processing of business transactions. The services within the framework of the commerce business model can be subdivided into three further business model types, whereby eBay as an auction platform mainly belongs to the type of the e-bargaining/e-negotiation. The business model type of e-transaction is also applied through the purchase of the Internet payment service provider PayPal, which has been integrated into the eBay business model. The focus of the eBay business model is, however, on the e-bargaining/e-negotiation.

Starting out as a pure C2C platform, eBay has later also become a platform for professional sellers and thus expanded to a B2C platform. There are three possible sales variants: selling to the highest bid (auction), selling at a fixed price (immediate purchase) as well as a permanent offer. Figure 5.8 shows the simplified business model of eBay.

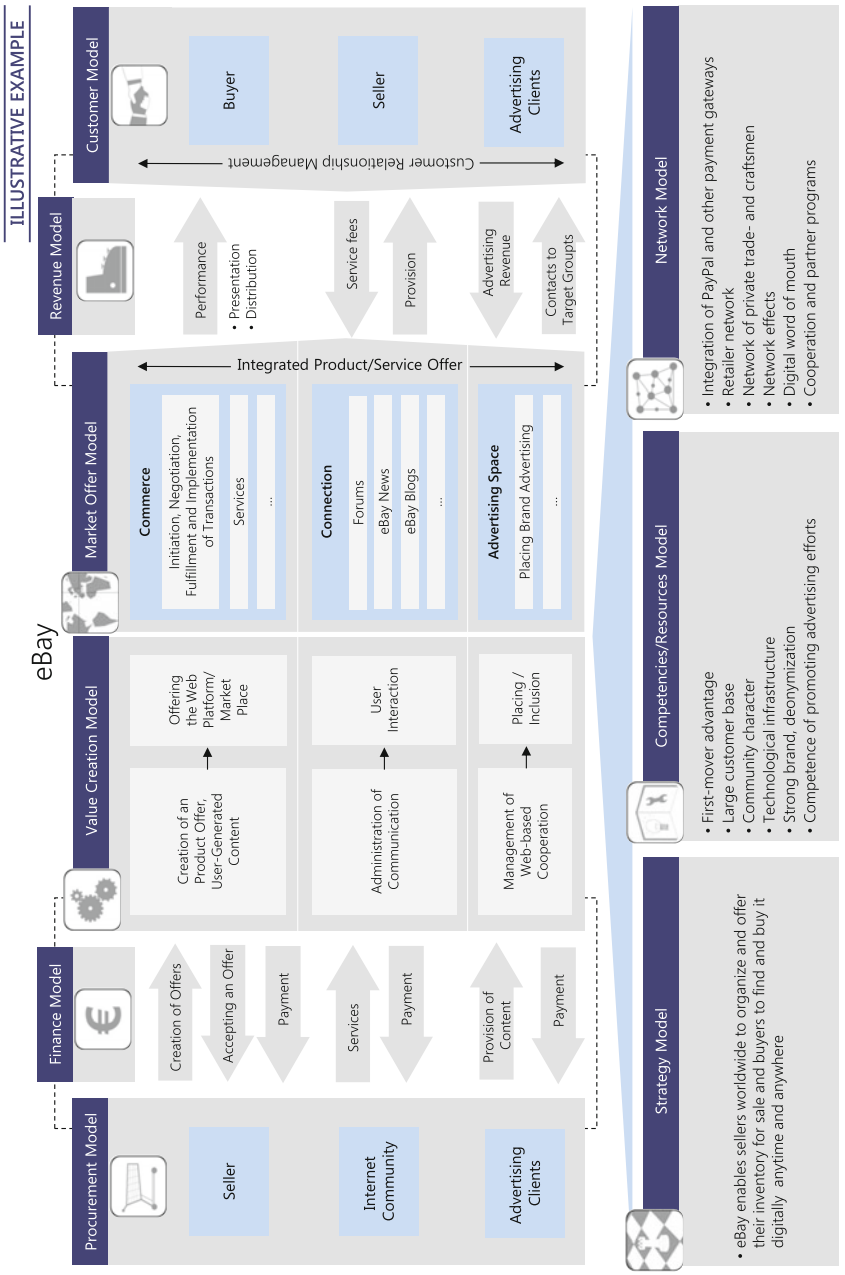

Fig. 5.8 The business model of eBay. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

Commercial suppliers usually do not use the auction type, but rather the immediate purchase. This type of offer largely corresponds to the classic webshop. In the case of a permanent offer, the so-called eBay shop presents the offers that are for sale without a specific end date.

eBay's revenue rests mainly on fees. In addition, eBay generates revenue through advertising placed on its websites. The seller fees consists of a so-called setup fee and a commission. Thus, the supplier has to pay a non-refundable charge and a charge depending on the starting price. Additional setting options, such as highlighting the auction offer in the search results, an exposed placement of the auction or a higher number of several images, are subject to additional costs, but can, in turn, generate higher auction prices. Apart from the setup fee, eBay charges a commission between 2 and 12% depending on the final price.

An integral part of eBay's business model and a major core asset of the company is the online community or the wide customer network and the large customer base connected by various additional services. This also relates to the company vision that seeks to create and promote a web community.

The customer base of eBay results from the large number of users that have sold or purchased on eBay over the last 20 years. Additional confidence-building measures between buyers and sellers, such as the internal rating system, have further reinforced the standing of eBay. Those aspects are the basis of the success of this digital marketplace. The large number of users is the central argument for using eBay as a sales platform. Sellers accept the relative high transaction costs due to the large group of potential buyers, which would be difficult to reach with a classic webshop.

The successful use, combination and development of core assets requires core competencies. These lie mainly in the provision and operation of the technical infrastructure, in particular, the smooth use of the Internet platform as well as the broad assortment design, which attract a large number of users. Another core competence of eBay refers to its successfully implemented and efficient customer. Figure 5.9 shows eBay's strategic orientation, its business model, as well as its service spectrum and the success factors.

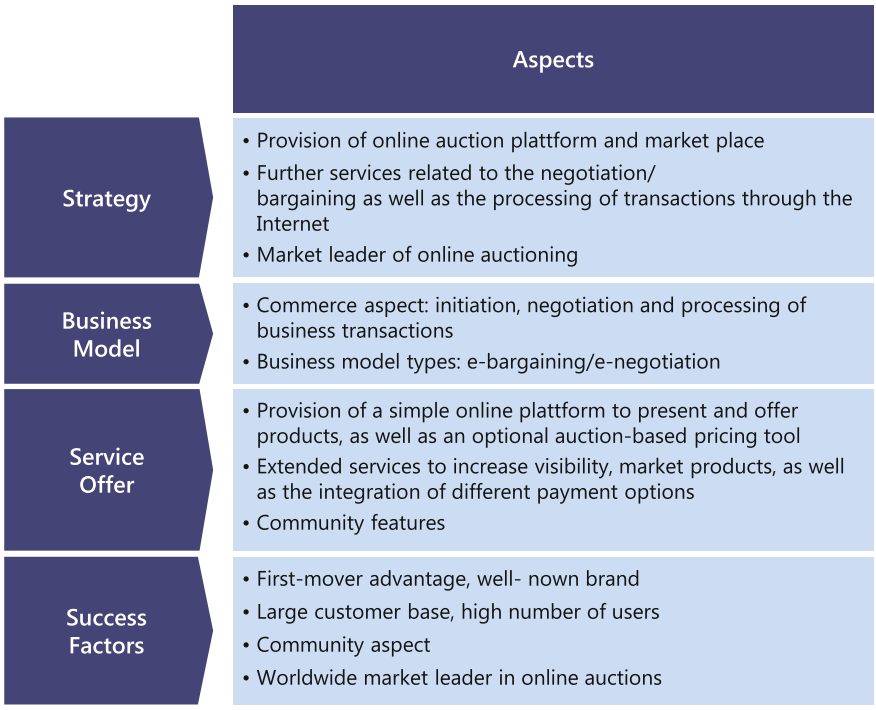

Fig. 5.9 Strategic orientation of eBay. *Source* Wirtz (2010b, 2018b)

Chapter 6
B2C Digital Business Models: Context

The context business model focuses on classifying and systematizing information available on the Internet. While Sect. 6.1 outlines the relevance of the context business model, Sect. 6.2 describes the various types of this business model and Sect. 6.3 presents the underlying value chain. Finally, Sect. 6.4 provides a case study of the Internet search engine Bing.[1]

6.1 The Context Business Model

The context business model focuses on classifying and systematizing information available on the Internet. This function can be subdivided into search engines, web directories and bookmarking services (see Fig. 6.1). The use of context offers has been increasing for years. Google, for instance, is processing more than 3.5 billion search queries daily worldwide in 2017 (Internet Live Stats 2017).

Context providers in the e-business sector distinguish themselves in that they primarily do not offer their own content, but rather offer navigational aids and increasingly take on the role of an aggregator on the Internet. The users consequently often set a context page as their homepage through which they can access information, interaction or transaction offers of other providers. In addition to the essential navigational aid for the user, complexity reduction is also a major task of the context provider. The context provider compiles the information according to specific criteria and clearly presents it to the user in a context-specific manner. The objective is to improve market transparency and to continuously improve the obtained search results.

The e-search business model that comprises the subcategories general search, special search, meta search and desktop search generally represents Internet search engines. The basic function of a search engine relates back to the information

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_6

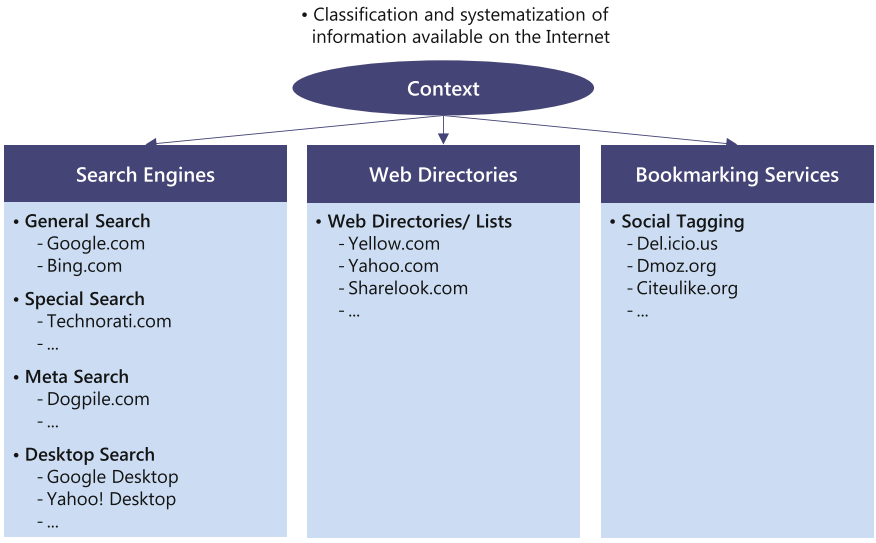

Fig. 6.1 The context business model. *Source* Wirtz (2001a, 2018b)

retrieval system. A person submits search queries to the search provider and obtains search results of the index-based inventory of the collected information sorted according to the frequency of use of other users.

In contrast, web directories as well as the offline versions such as the yellow pages are in most cases subject to editorial control and provide a better average quality or relevance of search queries than traditional search engines. Bookmarking, as a further subcategory in the context sector of the business model, has only gained special prominence due to the developments within the scope of the Web 2.0.

E-bookmarking describes the collaborative indexing of Internet-based information by the users. Therefore, one can assign keywords in the web browsers by means of Web 2.0 or social media applications, so that other users with similar search queries can find the information faster. This type of indexing is particularly successful with respect to well-defined user groups, since one can efficiently filter the information according to the relevance of the target group. Furthermore, the decentralized storage of bookmarks facilitates usage independent from the private device.

After having presented the different types of business models in the framework of context business models, the following explains the aggregated context value chain. The subsequent sections address the specific core competencies and core assets of context providers and specify the particular service offers. The presentation of the context business models concludes with a case study of the search engine Bing.

6.2 Context Business Model Types

The next sections describe the service offer of the context business models e-search, e-catalogs and e-bookmarking. These explanations address the peculiarities and specifics of each individual business model to deliver a practical understanding of the offer. In this connection, special emphasis is put on the search engines that are particularly relevant compared to the other types of business models that is e-catalogs and e-bookmarking, which will be discussed only briefly (Gay et al. 2007).

Search engines are computer systems that automatically search millions of documents according to predefined search terms. Certain programs (softbots) sort these documents into a database that is updated regularly. When a user enters a search query, this term is not searched on the Internet but in the database (Papazoglou and Ribbers 2006). In this context, one can divide search engine providers into general search, special search, meta search and desktop search. The functional principle of the search engines described remains identical in most cases.

The most popular search engines, such as Google, Bing or Yahoo are called primary or general search engines because the user searches for general information, which the selected search engine often provides directly. These general search engines are most important on the Internet as a whole. The integration into partner deals has also significantly contributed to the distribution of these search engines.

For instance, the social networking platform MySpace offers the opportunity to search through the large number of user profiles, videos or photos directly on their homepage. However, this search is not carried out by MySpace, but rather by the general search provider Google. The integration of search engines in other offers expands the circle of users and increases the information quality of the search results.

Meta search engines can be viewed as a subset of original search engines. They link several general or special search engines (Gay et al. 2007). Since no search engine alone can cover the entire Internet, meta search engines forward each request to several of the most important search services. This approach offers the user greater coverage and can be particularly useful with regard to relatively rare search terms. However, the quality of the search results may be lower when using different algorithms than when using primary search engines.

Another important category of search engines is desktop search. Desktop search programs work similarly to Internet search engines. As soon as a user installs such a program on a computer, it creates a document index in order to provide suitable results for search queries. Here, the user himself can control the indexing and, for instance, exclude particularly sensitive data from the index. As soon as the program has created a first complete index, it carries out an update on a regular basis, similar to the softbots on the Internet. Meanwhile, all major search engines also offer so-called desktop products such as Google Desktop, Yahoo! Desktop or Windows Search (Bing).

Companies with an e-search business model can use both direct and indirect revenue models, all of which are located in the area of advertising. In particular, contextual advertising with keywords represents a direct revenue model because search engine providers are paid for every click of the users. At the same time, most meta search engines also take advantage of the opportunity of indirect revenue models through advertising. In this context, banners and display ads are the most frequently used forms of advertising. The annual report of Google shows how important the advertising-related revenues for search engines are. In 2016, Google's ad revenue worldwide amounted to 79.38 billion USD (Statista 2017a). Looking at Google's total revenue worldwide of 89.46 billion USD (Statista 2017b) in 2016 reveals that about 90% of the total turnover is generated through advertising, while the rest of the revenue comes from licensing agreements and other revenue sources.

E-catalogs are address directories that are mostly subject to editorial control. Editors usually evaluate the quality of a website before it is classified into a structured keyword catalog. Users can then search the directory for keywords or categories to find commercial entries (Papakiriakopoulos et al. 2001).

In the context of commercial web catalogs, the editorial control has been repeatedly subject to criticism largely due to the revenue models of the web catalogs. Some web catalogs charge a fee for an offer to be considered at all (pay for consideration) (Gay et al. 2007). This fee can amount to several hundred or thousand dollars and is thus a high market entry barrier for start-ups and small companies. Furthermore, web catalogs charge a fee for including an offer in the index (pay for inclusion). As a result, financially strong companies can influence the positioning of their own links, so that the users of the web catalog can rarely find alternative offers.

Due to the criticism of the approach of many web catalog providers and the development of the Web 2.0 or social media, more and more user-managed web catalogs or web listings have become increasingly prevalent. Here, a large number of users carry out the editorial work who do not pursue commercial interests.

An example of a cooperative and user-managed web catalog is the Open Directory Project Dmoz.org (Dmoz 2016). Derived from the open source idea, where all users can simultaneously be active actors, the Open Directory Project has become now the largest multilingual Internet directory. The use and editing of this platform is completely free of charge.

The offer of Delicious pursues a similar user-oriented strategy, according to which users can assign keywords (tags) to all kinds of content, thus creating a web catalog. This direct, social classification or indexing of content by the users generates well-structured information particularly in the special target groups, which are primarily not driven by commercial interests. In this context, the artificial word "folksonomy" has become established, which is attributed to the creation of a systematization (taxonomy) by the entire folk (folk).

The website presents their users current links of other users, which they can easily tag or add to their own bookmarks. In addition to this offer, the users can further choose between the most used links and a search function within the tags of the users. However, the storage of own files requires a free registration at Delicious.

6.3 Value Chain, Core Assets and Competencies

The different partial models of a general business model are implicitly taken into account when looking at the aggregated value chain of the context provider. Here, it is important to note that the value chain is particularly valid for the first two types of context business models and that e-bookmarking differs from this superior value chain in some aspects. Figure 6.2 illustrates the components of the context value chain.

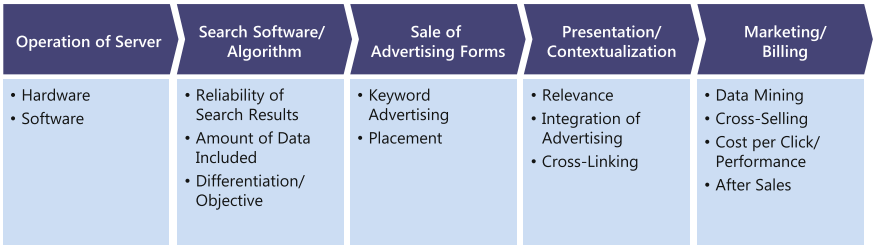

Fig. 6.2 Context value chain. *Source* Wirtz (2001a, 2018b)

The value chain of a context provider highly depends on the operated hard- and software. Here, especially the server structures are important to efficiently process the incoming search queries and to perform the other processes of the value chain. Figure 6.3 depicts the server structure of a search engine provider.

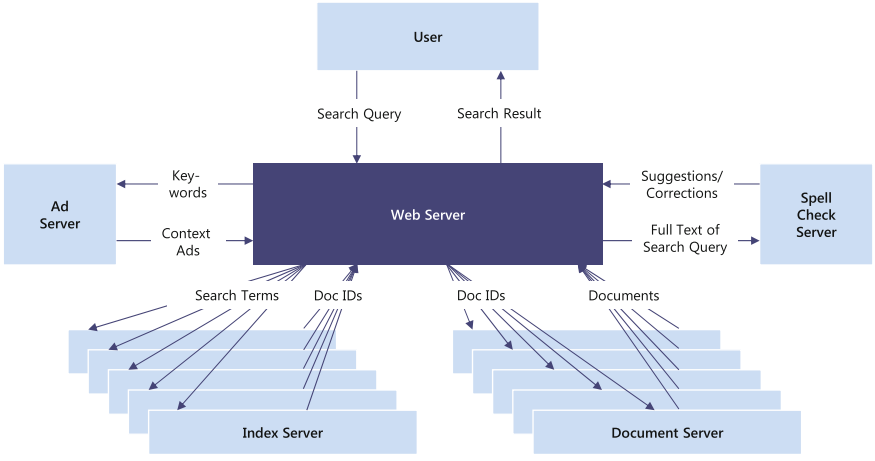

Fig. 6.3 Server structure and interaction for a search query. *Source* Wirtz (2001a, 2018b)

The user sends a search query to the web server that then communicates with the spell check server, checking whether the entered search terms are orthographically correct or whether suggestions for improvement need to be sent out. At the same time, the search term is redirected to the different index servers that assign document identification numbers (doc IDs) to the search term, which are already known from earlier sent queries.

The web server in turn sends these doc IDs to the document server that finally delivers the index-based documents corresponding to the search query to the web server and ultimately to the user. Another particularly important server for the other value chain processes is the ad server that delivers context-specific advertising for the search query (Laudon and Traver 2014).

Moreover, the applied software with regard to the servers or their update is very important for the context provider. While in the case of web catalogs and tagging people actively take part in the indexing process, the most common search engines like Google or Bing use software robots (softbots) that take care of the indexing (Turban et al. 2006; Chaffey 2009). These softbots periodically scan the documents available on the Internet and match these with the different relevant servers, checking whether substantial changes have emerged. Only this elaborate maintenance of the data structure and the index enables an efficient search query with current search results.

Closely connected to the server operation is the second value chain stage: the search software or search algorithm. In this connection, one can focus on different elements of value creation that are described in the following. One of the most important requirements of the success of a context provider is the reliability of the search software applied. Here, the systems needs to recognize every term entered by the user in the search box and back it with results as quickly as possible. In this connection, there are different functions available for the algorithm, which one can use to perform a reliable search, for instance, Boolean operators, phrase search and exact matching. The amount of data included also represents an important performance aspect of a context provider.

A search algorithm must be able to distinguish clearly the information desired by the user. For instance, if a user requests specific documents in a specific file type, the algorithm needs to be able to directly deliver these documents. As opposed to this, in the case of free text searching there is no specific limitation of the database. Here, it becomes apparent that search engines increasingly present search results from different areas to the user. This integrated search feature offers the user an additional benefit that the context provider can use to improve the index for search queries.

Figure 6.4 illustrates a free text search with the search engine Google and the integrated result from a comprehensive database. Google displays both general results and results from the image search. If necessary, the user can isolate or select specific data areas via the menu bar below the search box.

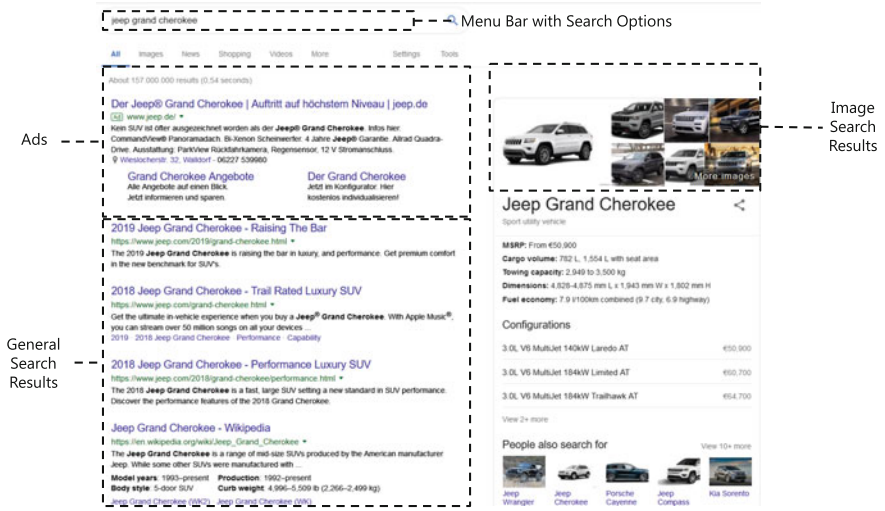

Fig. 6.4 Integrated search result of the search engine Google. *Source* Google (2018)

The narrowing down of the data areas is also important with regard to the aim or differentiation of search engines, which is why a context provider needs to consider this aspect in the creation of value. While Google provides an integrated offer of search results and represents a general interest search engine, Technorati, for instance, has established itself as a search engine specifically for weblogs. Thus, users only find publications in weblogs and primarily no commercial offers or websites.

The already mentioned ad server is a significant source of revenue within the scope of context business models. In this connection, there generally exist various forms of advertising of which keyword advertising and placement are regarded as most important (Gay et al. 2007).

Keyword advertising is a context-specific form of advertising that provides suitable advertising to a search query (Turban 2015). The ad server matches the search query to the available advertising options and provides a selection of various advertisements. This type of advertising offers the advertising company a variety of benefits. The advertisement only appears when a potential customer searches for a related search term, making it very likely that the user perceives the displayed advertisement as relevant.

Moreover, the commonly used compensation method in the context of keyword advertising is pay-per-click, which means that the advertising company only has to pay for those advertisements that the users have effectively clicked on. The costs per click depend greatly on the selected keyword because competition drives the bid price. For instance, in the case of a very frequently searched keyword, there will be higher competition among advertisers, which thus increases the price of the clicked ad. Within the scope of value creation, there arises differentiation potential for the

context provider and opportunities to achieve a price premium in the sale of keywords.

Besides keyword advertising that mainly occurs in conjunction with search engines, placement as another form of advertising has established particularly in the context of web directories. In this case, links and offers of advertising companies are integrated into the offer of the web directory. In this connection, context providers have two basic selling opportunities for the advertisement. The provider of the web directory cannot only charge a fee for considering the inclusion of a company into the index (pay for consideration), but also for the inclusion itself (pay for inclusion) (Gay et al. 2007).

Beyond the sale of advertising forms, the presentation and contextualization of search results represent stages of value creation. In this connection, the relevance of the search results play a significant role because the users link the added value of a search engine to those hits or results that are relevant to them. Here, the links on the website or of the documents to other websites or documents are highly important.

To determine the relevance of the search results, Google uses the page rank algorithm that indicates how many links exist between qualitative websites (Chaffey 2009). This assessment of relevance enables the context providers to increase their revenue through the display of keyword ads.

Within the scope of the contextualization of search queries, cross-linking is also possible to own offers of a context provider. In this way, most search engines that, for instance, also offer email services and video platforms, integrate these services into the search results and provide the user a direct opportunity to use their services.

The value chain of a context provider ends with numerous marketing tasks and billing services for delivered advertising services. There are several ways for the context provider to handle the billing. The search engine Google, for example, provides for the context-specific advertising AdWords multiple payment options depending on the region. For instance, the payment can be made subsequently, meaning that the due cost-per-click total can be debited from a credit card or bank account. Alternatively, companies can also make an advance payment to Google to have better cost control with regard to the context-specific advertising. Google only advertises as long as the respective companies have credit in their accounts.

In the context of marketing, a context provider must increasingly draw on the variety of data generated by the search queries (Chaffey 2009). Targeted data mining allows a context provider, for instance, to identify different trends and make relevant companies aware of them. This marketing directly targets the sale of advertising to these companies. Furthermore, data mining is also particularly relevant in the after-sales area. Companies that place context-specific advertising obtain very detailed statistics with regard to the respective ads and user behavior.

The core assets of context providers are manifold and include, especially in the case of search engine providers, the hardware and software (particularly the search algorithm), the data as well as the brand. The web directories expand these core assets by the relationship network.

Finally, the user base is a significant core asset particularly for e-bookmarking business models in order to be able to collaboratively create the indices. The

following describes the entirety of these core assets, before dealing with the necessary core competencies. The hardware, in other words, the servers used by the context providers, represents an important core asset. Here, the time it takes for a server to process the incoming user requests is particularly critical for success.

Google's success, for instance, originates from the use of simple and self-designed special servers, which although having an increased energy demand, can manage search queries particularly fast (Google 2010). Through this special type of server, Google has created a special core asset towards its competitors since the concrete use of technology is company-specific, although it can be bought in the market.

The situation is similar with the software or search algorithm. While the general search algorithms such as Google's page rank or trust rank algorithm are publicly known, the search engine's algorithm used in everyday business is secret. Google, for example, uses a search algorithm based on the page rank algorithm, which it has meanwhile enriched by further data volumes and thus greatly improved (Google 2010).

Another important core asset for context providers is data. The data available on the Internet is basically available for the providers in the same way. The provider that best matches the available amounts of data with its own database and is able to smoothly integrate self-generated data, develops a particularly strong core asset. An example of such a core asset is again the search engine Google. In addition to the constant alignment of the database with the data available on the Internet, Google itself generates data to provide the user with even better results.

Google collects data worldwide in the form of digital photographs of known buildings or major cities and integrates them into its own database of Google Maps. The data obtained by Google represent a particularly unique core asset in this context, which can be difficult to imitate. However, when it comes to integration and generation of data negative effects may also occur. For example, users have increasingly expressed their fear in the public debate that one provider concentrates too much data, which may potentially lead to data abuse.

The brand of a context provider can generally be considered a core asset, since it is particularly associated with the reliability and relevance of search results. However, the example of Google Street View shows that a brand may also suffer when public debates arise regarding data security or data usage and users lose confidence in the brand.

Overall, however, current surveys on search engine usage show that Google is the clear market leader in search engines and user confidence is not limited despite the public debate on data security. Although it is also important for search engines to develop and maintain cooperation partnerships, this aspect is rather a core asset for web directories.

Web directories present the various links of cooperation partners in a clear way and thus provide a guide for the user. If a web directory provider has established a network of partners that work exclusively through the web directory's offer, this relationship network may develop into a core asset. The competing web directories have difficulty to access these partners and an imitation is hardly possible.

Finally, the user or customer base is also relevant for all context providers. In e-bookmarking business models, the user base is an important core asset in order to provide the service to the user at all. Here, the users actively perform the task of indexing the relevant documents on the Internet, thus providing a list of results for specific search queries. The larger the user base of an e-bookmarking provider is, the more likely it is that the indexing provides the proper results in the context of a search query and as a result, in turn, that new users may be attracted.

Core competencies of a company are necessary to successfully use and develop core assets. In this connection, context providers particularly need to be competent with regard to the listing and structuring, service and CRM, as well as security.

The identification and presentation of relevant results for a search query is realized through the listing and structuring competence. Context providers that have strong skills in this area can provide users a special benefit and thus build long-term relationships with users. Here, the listing and structuring competence traces particularly back to the hardware and software used for the search and delivery of results. Moreover, the structuring competence is particularly important in the context of advertising. Here, the ability to optimally structure and place the context-specific forms of advertising in accordance with the desired search results is critical for success.

Another important capability of context providers is their service and CRM competence. With regard to the users, this is particularly relevant for success of the advertising company. For users, a context provider must offer a special search service that is characterized by a simple and intuitive user interface and delivers structured results. In most cases, search engine providers can only achieve reuse of their search engine among users when the latter are satisfied with the search results. Alternatively, search engine providers can integrate their search engine into different browser types by means of add-ons.

In addition to the general service and CRM competence, a context provider needs to have special skills with regard to business customers in order to be successful in the long term. The holistic service, as shown in the AdWords example, is a special benefit for companies. The context provider has to constantly monitor the companies' needs and precisely analyze or anticipate market trends. Furthermore, a pronounced CRM capability is necessary to bind business customers in the long term. For example, web directories offer business customers a detailed analysis of user behavior and thus the opportunity to better position their offers (Turban et al. 2006).

6.4 Case Study: BING

Bing is an Internet search engine by Microsoft, which replaces the company's previous search function Live Search and attacks the market leadership of the Internet search engine Google by major improvements. Microsoft understands its search engine Bing as a "decision maker", which is intended to make it easier for

the user to quickly and clearly handle the information explosion of the Internet, as well as to help the user with daily decisions, such as travel planning and shopping (Microsoft Corporation 2009).

Bing was introduced in June 2009 and is based on Microsoft's search engine Live Search that is also the successor of Microsoft's earlier Internet search service MSN. Due to the limited market reach of Microsoft's search engine Live Search that was available until mid-2009, Microsoft created the new search service Bing that can thus be seen as a response to the weak market shares of its predecessor. In May 2009, for example, Live Search achieved a market share of 8.0% in the US, while Google had a market share of 65.0% and Yahoo of 20.1% (comScore 2009).

The functions of Bing are strongly based on those of its main competitor Google. Bing also offers the possibility to categorize the search query. Here, the user can choose between the categories: web, images, videos, maps, news and explore. Other functions similar to Google include a login area, the possibility to change preferences, such as language and the access to other in-house products (MSN, Outlook.com).

One main difference between Bing and Google is that Bing generally offers the users more suggestive entry points into its search. In this connection, most search categories have a mouseover effect that displays a drop-down menu with search suggestions, such as top music videos, in-theater movies and most watched TV shows in the case of the Bing's video search category, for instance.

Moreover, Bing also has an autocomplete feature in the search box, but provides more suggestions than Google in most cases. While Google usually only presents four suggestions, Bing gives eight. This is especially helpful in order to find alternative information, for instance, with regard to travels or products.

Compared to Google, Bing also focuses more strongly on personalization and customization options for the user. In doing so, it offers the user, for instance, to save image results and add interests, like top news, stocks, weather and so on, which the user can then directly access via Bing's homepage. Bing also allows the user to customize its homepage by showing or hiding news and interests as well as the menu bar.

The most obvious difference to the market leader Google is the daily-changing background image on the Bing homepage, which addresses spectacles of nature or current events in the world, such as the Olympic winter games. In this connection, Bing also sets itself apart from Google by providing entertaining features on the homepage with regard to this background image, in order to induce the users to search and lead them into their search engine results page (SERP). In doing so, Bing has integrated two mouseover effects that display different teasers. While one teaser contains the Bing homepage quiz, the other teaser provides a link for further information on the background theme and gives the user the opportunity to share this information on social networks such as Facebook and Twitter or via its own communication tool Skype.

This connection to third-party social media platforms also distinguishes Bing from Google that exclusively links to its own services and social media platforms (e.g., Google+). Another unique feature of Bing is its rewards program Microsoft

Rewards through which users are extrinsically incentivized to use the search engine. According to this, users can earn points for searching with Bing and eventually redeem these points in exchange for electronic devices, movies, music, games etc.

In sum, Bing's strong emphasis on a visually appealing homepage with entertaining elements aims to attract users to the search engine. In addition, Bing's various suggestive entry points and rewards program are designed to induce users to search. Besides the rewards program, particularly Bing's personalization and customization features aim to bind users to the search engine in the long run.

Since Bing's core business is concerned with the classification and systematization of information available on the Internet, the business model primarily belongs to the context area. The strategic goal of Bing's business model is to organize and systematize the information available on the Internet and make it accessible to all Internet users in a user-friendly form. Particularly important is that the service is free of charge for the user and monetized almost exclusively via advertising on the site similar to Google.

By offering personalized and self-written content, such as the teasers on the homepage, Bing's business model also contains content elements. Moreover, the integration of Microsoft's chat and communication services MSN as well as the webmail provider Outlook.com partially extend the business model by connection elements.

Context business models can also be categorized according to their functions. Bing, for instance, belongs to the areas of e-search and general search. The basic function of general search services is based on the information retrieval system. Search requests go to the search provider and deliver the indexed and collected information to the user, arranged according to the usage frequency of search results.

Bing mainly obtains its input from communities, content providers and news agencies. The information transfer or interaction follows a simple structure. The pages or content are reported and upon inspection by Bing either rejected or included in the company's index. Bing generates additional input from media companies that are responsible for coordinating external communication in a kind of interaction.

The service provision of Bing is designed directly and linearly. In the area of context offers, information is first collected, systematized and classified, in order to store it and provide it to the users as a result of on-demand requests. The area of content offers is particularly characterized by the collection and systematization of third-party content that is adequately processed and made available to the user.

With a few exceptions, the service provision of context and content offers is coordinated linearly and without interdependency between the user interaction and the communication service management. Connection offers, by contrast, are characterized by a strong interdependency between the user interaction and the communication service management.

The company is particularly financed by advertisements of business customers on the Bing website. These advertisements are displayed according to the principle of a free newspaper and corresponding to the search query, but with the difference that the search engine follows a personalized approach and estimates the interests of the user based on the data input (keyword advertising). Figure 6.5 presents a simplified form of Bing's business model.

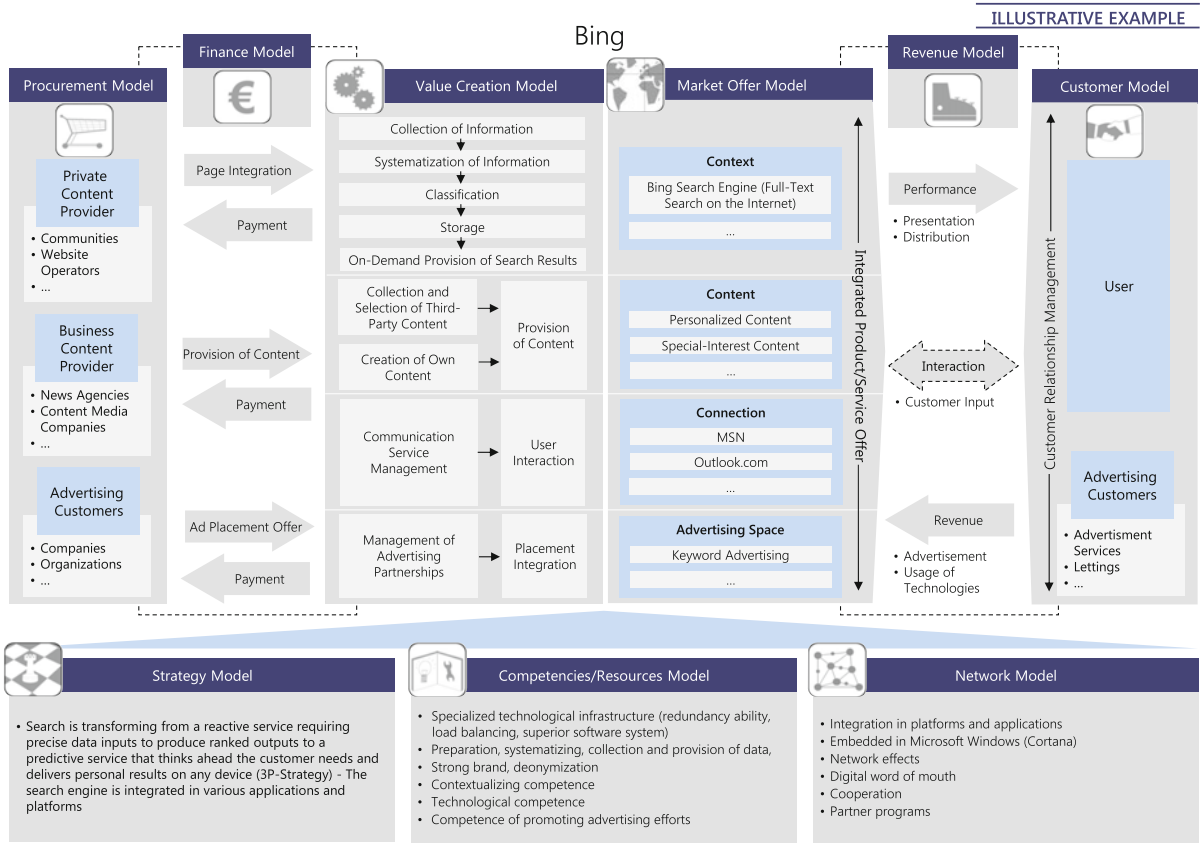

Fig. 6.5 Business model of Bing. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

Bing has extensive competencies and resources. Its core assets are diverse and are further strengthened by the strong company Microsoft behind it. In this connection, particularly the hardware and software stands out, which is supported by the extensive experience of the parent company Microsoft. Since Bing aims to develop today's Internet search even more towards maximizing efficiency for the user and relevance of the search results, various Microsoft search technology centers are constantly working on new developments. Bing particularly distinguishes itself by its specialized technological infrastructure, which is especially reflected in a superior software system as well as a high redundancy and good load balancing.

Another core asset of context providers is the brand. Bing as a brand is currently not nearly as strong and popular as Google. However, since the powerful company Microsoft is behind Bing, it is expected that over time the brand awareness of Microsoft will spill over to its search service Bing. In order to successfully use and further develop the core assets presented, Bing relies on various core competencies. In this connection, particularly the listing and structuring competence stands out, which primarily involves the identification and representation of the relevant search results for a search query.

Bing has well-developed and innovative hardware and software that is used to provide efficient search and delivery of results. A further key success factor and well-managed core asset of Bing is its structuring competence, which is particularly relevant to advertisers. Bing knows well how to create a good structuring and placement for its advertising customers.

A core competence of Bing is its service and CRM competence. The user interface of Bing is characterized by a particularly good handling and intuitive usability. Moreover, it also provides a benefit in the form of the changing background image combined with current events and the corresponding display of teasers. The resulting added benefit as well as the simple and well-structured handling of the search interface represent important service features for the user. The opportunity to integrate the search engine via add-ons into various browser types also allows to bind users more closely to the service. Figure 6.6 summarizes Bing's strategic orientation, business model, range of services and success factors.

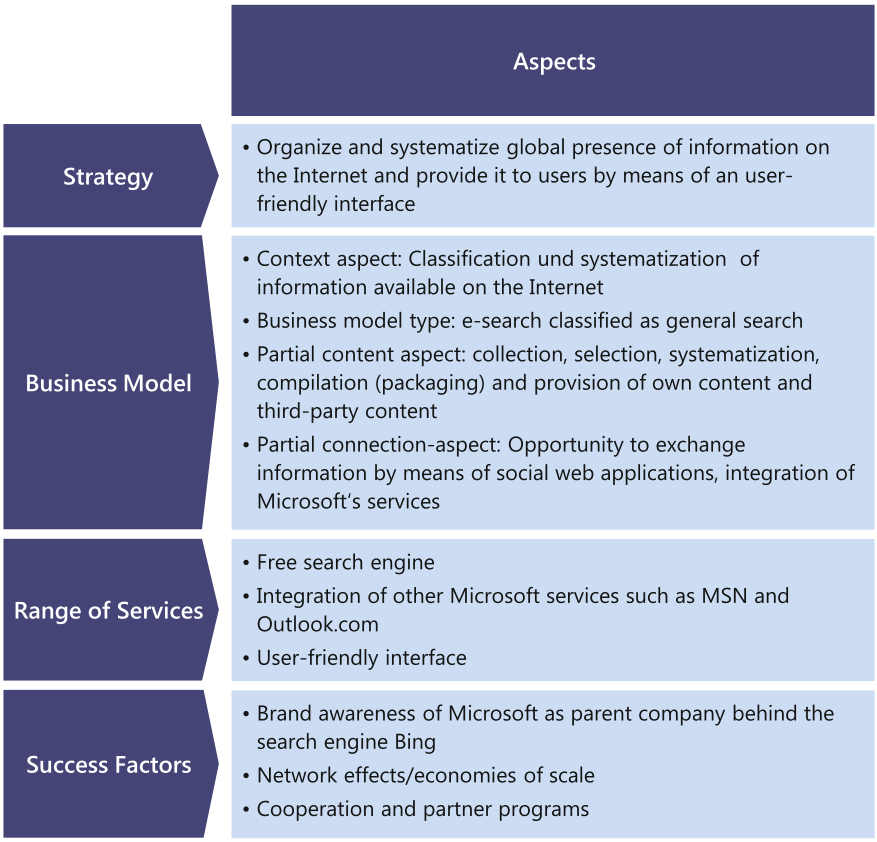

Fig. 6.6 Strategic orientation of Bing. *Source* Wirtz (2010b, 2018b)

Given that Bing with its full range of features is only available in few countries outside of the U.S., it is currently still too early to make a direct comparison with the market leader Google. However, Microsoft is constantly working to make its search engine more efficient and appealing, as well as to provide additional features to make it a serious competitor to Google.

Looking at current shares of search queries handled by leading U.S. search engine providers, shows that Bing seems to be headed in the right direction. While Bing has increased its share from about 8% in the year 2009 to nearly 22% in 2016, Google's share has stagnated around 64% in the same period.

In this context, also cooperation and partner programs play an important role. For instance, the partnership with the social network Facebook aims to increase the market share in the search engine market. In doing so, Bing processes the preferences of the users' Facebook contacts and thus offers peer group-relevant search results.

Chapter 7
B2C Digital Business Models: Connection

The connection business model addresses the access to the Internet or other networks and the provision of network platforms. While Sect. 7.1 presents general information about the connection business model, Sect. 7.2 deals with the different types of the connection business model. Following this, Sect. 7.3 describes the underlying value chain based on different core assets and competencies. Finally, Sect. 7.4 gives an example of a connection business model, presenting a case study of the professional network LinkedIn.[1]

7.1 The Connection Business Model

The connection business model addresses the access to the Internet or other networks and the provision of network platforms. Thus, the services of the connection business model often enable the interaction of actors in digital networks that would not be possible in the physical world due to the prohibitively high transaction costs or communication barriers. The connection business model consists of an intra-connection subcategory and an inter-connection (community) subcategory. Figure 7.1 provides an illustration of the connection business model.

The intra-connection (community) subcategory of the connection business model describes the offer of commercial or communication services within the Internet. This includes, for example, community providers including social networks, user messages, user exchanges, as well as customer opinion portals. All these subcategories offer a platform to the users in order to establish contact with peers or friends and to share information, knowledge, opinions or data files.

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_7

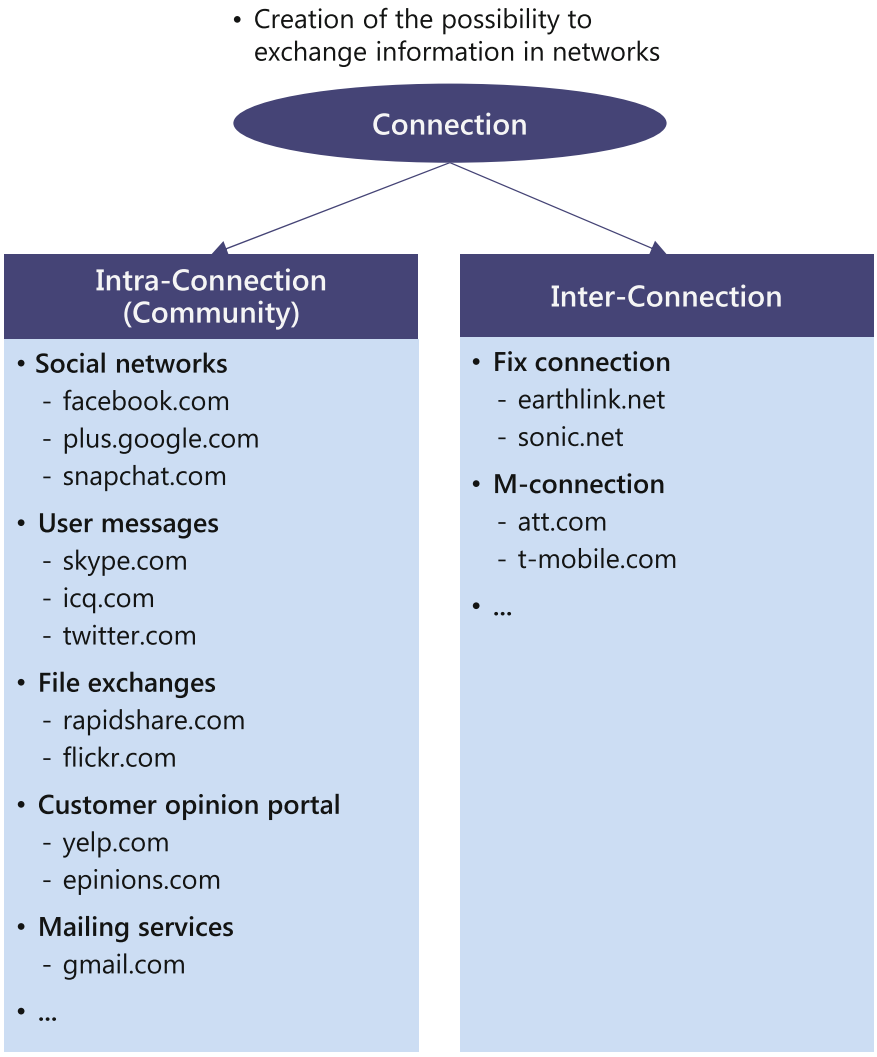

Fig. 7.1 The connection business model. *Source* Wirtz (2001a, 2018b)

Due to the hype about new Web 2.0 applications, the platforms of the social networks are currently attracting the most attention, achieving strong growth in number of users. Additionally, mailing services such as gmail.com are another subcategory of the intra-connection (community). Such providers enable to send email or greeting cards and have become part of many people's everyday life, as email has evolved as the standard form of communication in many sectors. Mailing services are mainly financed through advertisements attached to emails sent, through banner advertising or the provision of so-called premium accounts with extra features, such as increased storage space.

Providers in the inter-connection subcategory do not offer communication opportunities within the Internet, but supply access to the physical networks. This includes, for example, the Internet service provider (ISP) that enables technological access to the Internet for customers.

While a fixed connection locally bounds the user as there is only a wired dial-in option into the network at a fixed location, the M-connection user is not limited to a specific location and can access the Internet mobile via smartphone. With regard to the physical connectors, direct revenue models dominate, which usually involve transaction-independent setup and/or basic fees as well as transaction-based connections and/or usage fees. Due to the high usage intensity and the related attractiveness as advertising media and transaction agents, the companies often also pursue indirect revenue models.

7.2 Connection Business Model Types

The service offers of the intra and inter-connection business model variants as business models of the connection type are further specified in the following. Their characteristics and particularities will be discussed as a connection business model. Furthermore, current practical examples are used for illustration purposes.

- Intra-connection

The intra-connection business model types provide commercial and/or communicative services within the Internet. As already mentioned, within this business model type, a distinction can be drawn between the community area and the technical Internet services. In this context, the community can be further differentiated into the sub-business models social networks, social messages, customer exchanges and customer opinion portals.

Social networks have achieved a special prominence through the developments in the context of Web 2.0 and/or social media. The most common social networks for the predominantly private sphere are Facebook and Baidu. The LinkedIn platform is a network for more professional profiles in a more serious environment. However, the performance of the platforms is usually very much the same. The user is allowed to create his or her own profile and release various content, such as photos, music or a CV.

For some networks, such as LinkedIn or MySpace, it is possible to make the created profiles public for non-members, so that they can be found by search engines. Another important aspect of social networks is the networking idea, which means that users connect with other users and thus form an interaction and communication structure.

This interaction and communication structure is mainly due to the active participation of users in these networks. The platforms draw a large portion of their offer to the users from the contributions or the general content that the registered

users provide. In this context, trust, the sense of belonging and the urge to self-presentation are responsible for the very high activity on the platforms. All these elements are also evident in the mission of the Facebook platform: "Giving people the power to share and make the world more open and connected".

A similar service offer as the social networks are also following social messages providers. However, these do not focus on content generation or linking as in the Facebook example, but rather on communicative aspects. While in the early days of the Internet chats were particularly important with regard to interactive communication, this trend has changed significantly to private chats or messenger services.

The most widely used services in this context are Skype and Whatsapp. Both services offer the user a secure, private connection with friends and acquaintances, in order to communicate via text messages and Internet telephony, as well as to exchange data. A similar, but more public service is offered by Twitter. Twitter allows to send short messages to the platform and thus to other users of the platform to discuss current topics or to publish updates to everyday life ("microblogging").

An intra-connection service offer, which in many cases is associated with the illegal use of the Internet for sharing data of all kinds, is the customer exchange platform. One of the largest networks in this sector is the Rapidshare platform. Rapidshare offers a one-click file hosting service that promotes a particularly high data transfer speed, allowing data to be distributed quickly and securely throughout the world.

Furthermore, the company distinguishes between a free and a premium account. The free account is available to any user without registration and is limited in terms of data transmission services. The premium account, in contrast, enables a faster upload and download speed and an increased data transfer volume. The files that are uploaded and/or downloaded, are not limited by Rapidshare, which is why there are increasingly illegal down- or uploads.

Customer exchange platforms that increasingly focus on private and thus more copyrighted content, are Flickr or Picasa, for example. The providers offer the users storage space on the Internet, in particular, to exchange or link photos or videos.

The last variant of the intra-connection submodels are the customer opinion portals. The developments in the context of Web 2.0 and/or social media have also generated a special growth effect in this business model variant. Due to the increased public communication of the Web 2.0 users and the associated public opinion formation, the opinion portals are particularly important since Internet users as a whole trust the contributions of other Internet users more than the official company information. The offers of the platforms are primarily aimed at customer value.

In addition to general product descriptions, the key product reviews and evaluations are core components of the service offer. This multimedia product description, which is sometimes several pages long, allows potential buyers to get a detailed overview of the desired product and to make the purchase decision with greater certainty.

For the reviewers, the customer opinion portals provide different incentives to continue to produce product reviews. For example, the provider yelp.com, which

also offers commerce aspects such as price comparisons, gives registered reviewers the opportunity to receive scores for evaluations that reflect a status within the community.

The more product reviews the user has created and the more useful these reviews are classified by the user community, the more points the user receives. The provider also grants financial incentives, which are rather symbolic given the maximum amount of one Euro.

The business model mailing includes classic email services that have changed in the past few years, in particular, due to the increase in storage capacity. The functionality and performance of most email accounts have remained the same. Users can send messages in letter form to other email addresses for free. However, many email providers tend to integrate email services with other Web 2.0 or social media applications. Examples are Gmail and Microsoft Outlook.

While classic emails comprise only a few kilobytes, the transmission of videos and images has also become increasingly established through the dynamic development of the broadband Internet. Due to the increase in the size of the email attachments, the storage capacity of most mailboxes has also increased. For example, Microsoft Outlook now offers five and Gmail 15 GB of storage space.

- Inter-connection

The business model variant inter-connection is divided into the two types: Fixed and mobile connection. However, a clear differentiation is not always possible, especially with regard to large telecommunication providers. O^2 and Vodafone, for instance, offer fixed connection as well as m-connection services. Overall, there is a trend towards product bundling for inter-connection providers and the connection to the Internet is implemented in several ways.

These service packages, also known as triple play, combine, for example, telephone, Internet and television services. In the extended version of Quadruple Play, this bundle of services is extended by a mobile offering, which finally blurs the boundaries between fixed and m-connection. In addition to the large allround providers, there is also a large number of smaller inter-connection companies in the UK that focus on specific services such as media and mobile pre-paid services.

While traditional telecommunications companies are increasingly building on technical networks such as ISDN and DSL, smaller providers and especially Virgin Media, use the cable network to offer telephone and Internet services. When using this connection technology, the companies can then be unambiguously assigned to the fixed connection type.

Within the framework of the pure m-connection providers a considerable variety is to be found, although the actual service offer of the m-connection companies, that is the connection of the customer with the mobile Internet, is identical in total. However, it is generally possible to distinguish between a few mobile telephone providers with their own networks, such as Vodafone or O2 and the pure service providers that use these networks for their service.

At the same time, there is a large number of service providers in the m-connection segment in the UK. Figure 7.2 shows an overview of the m-connection market in the UK. There are only four mobile host networks, to which the individual service providers are assigned to.

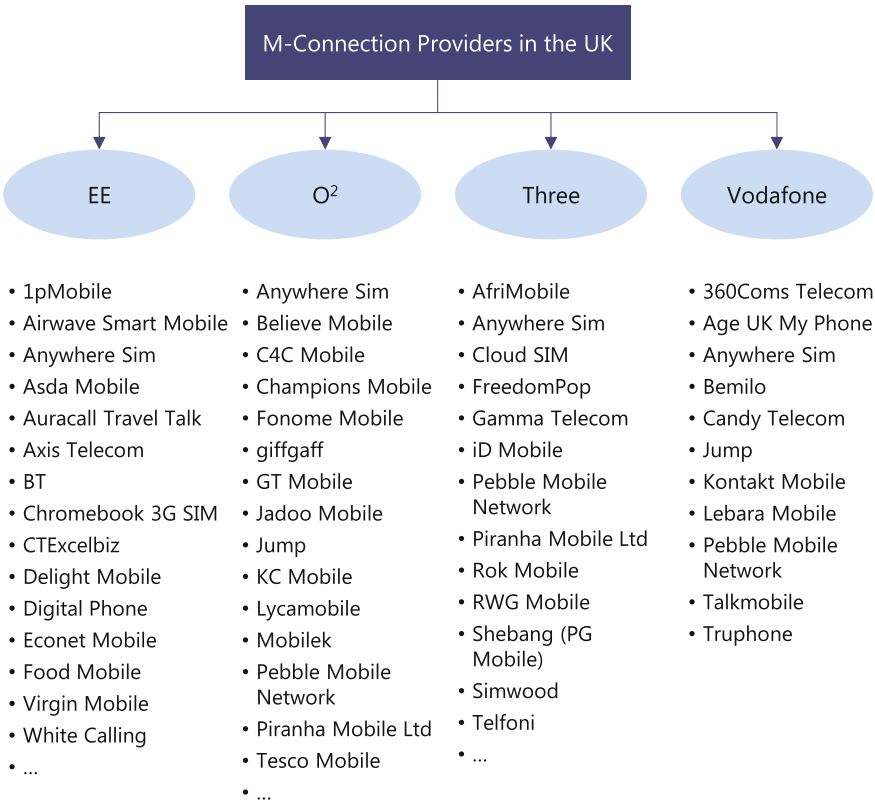

Fig. 7.2 Mobile network hosts and operators in the UK. *Source* Own research and estimations

7.3 Value Chain, Core Assets and Competencies

In addition to the relevant aspects of the value-added chain, the connection value chain is also implicitly addressed to the respective partial models of a business model in order to obtain a comprehensive understanding of the characteristic core activities. Figure 7.3 shows the value chain of a prototype connection provider.

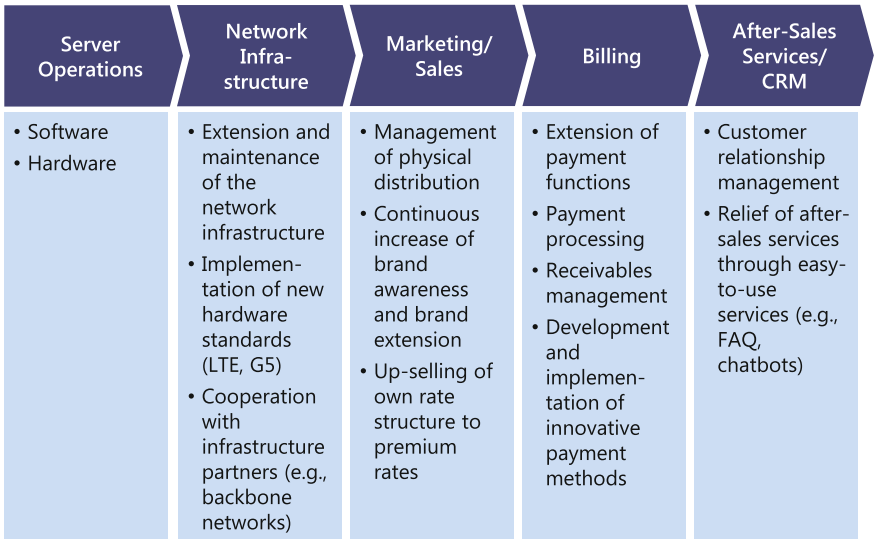

Fig. 7.3 Value chain of the connection business model. *Source* Wirtz (2010b, 2018b)

At the beginning of the value-added chain are the planning and/or structure of the server resources necessary for the operation, in order to be able to provide the customer with reliable access to the Internet or the corresponding applications and platforms. In this context, many critical decisions must be made when selecting the appropriate software and hardware components to ensure the quality and availability of the services.

In addition to the selection of the appropriate hardware and software, the network infrastructure is another essential determinant for value creation. Only a suitable network infrastructure allows to offer the user services and services in sufficient quality.

Particularly for the business model type inter-connection, the expansion and maintenance of the network infrastructure is of great importance in order not to incur strategic disadvantages by using an outdated technology in competition with other providers. In addition to the price of the products, the essential differentiation feature of the Internet providers is the actual speed of the Internet connection. If a provider cannot keep pace with competitors in the technological contest, it can give the customer only the maximum achievable (slower) bandwidth of the older technology and thus offer at a lower only benefit.

The construction and expansion or maintenance of a network infrastructure is very costly. It can therefore be useful to work together with infrastructure partners. For example, the two mobile providers O^2 and Vodafone entered into a strategic partnership in developing of the UMTS network in order to realize synergy effects and cost savings of around three billion EUR within the scope of this alliance.

However, cooperation with other companies cannot only be useful, but in the case of Internet service providers is also imperative in some areas. This is mainly due to the construction of the Internet, which is a worldwide network consisting of

many individual computer networks. The Internet Service Provider (ISP) offers the end customer an access point to this global network.

The user dials into the provider by means of a modem and thus establishes a connection. This automatically connects the user to all other users who are currently connected to this provider. In order to enable not only local, but also global access, Internet service providers have concluded a cooperation agreement. They form their own network and can thereby forward requests globally.

After ensuring the technical prerequisites, marketing and sales must ultimately ensure the implementation of the designed service and revenue models. In addition to the usual offline activities, cross-media and online marketing activities can also be carried out in order to attract potential users. If, however, users do not yet have online access or are not technologically active, the offline activities play an essential role. In this context, the traditional distribution channel should be strengthened and the classical distribution points created or expanded in the context of increasing competition.

While there are strong network effects in the intra-connection community, this is not the case for inter-connection business model types. Accordingly, the resulting lock-in effects are rather low and a customer is more willing to switch providers to pay a lower price for the product or get a higher price for the same price. In this context, a high brand identity and a high brand expansion capability are of great importance to keep customers and win new customers.

For example, Vodafone UK not only offers mere Internet access in connection with their cross-selling and up-selling activities, but also enhance the latter with complementary services such as IPTV. Besides the Vodafone brand, Vodafone markets a premium Internet TV offer under the term Now TV Entertainment, in which the customer can receive TV channel via the Internet and can continue to use special services, such as an online video library.

In this context, sales must be managed particularly in order to achieve the desired cross-selling or up-selling in higher-value rate structures with premium offers. This includes, in particular, the coordination of sales channels, pricing and pricing policies, as well as the communication policy in order to acquire users and potential customers. While the margins in the base rate of the Internet service providers are very low and owed to the intense competition, marketing and sales can contribute decisively to the profit increase by focusing on high-quality products in the sales processes.

The value-added component of the billing arises directly from sales and deals with the payment systems and receivables management associated with the acquired user contracts. Depending on the type of business model, various forms of payment may be considered. As providers of inter-connection business models typically receive regular payments, they can offer their subscribers direct debit or credit card payment or payment by invoice.

In contrast, intra-connection providers usually charge only small or very small amounts, which is why a direct debit payment or payment by invoice is usually not worthwhile because of the high transaction costs. In this case, micro-payment services such as PayPal appear to be more limited due to lower transaction fees. Furthermore, the development and implementation of innovative payment methods needs to be promoted in order to make pay-per-use offerings more convenient and thus to sustainably increase the revenues generated there from.

The last step of the value chain of the connection business model type, focuses on customer relationship management and the after-sales service. Through active customer care as well as a consistent focus on the customer and the systematic design of customer relationship processes, companies seek to satisfy customers and bind them to their brand and products/services. This can be achieved by documenting as much information as possible from the communication with the customer and clearly by assigning it to the respective customer.

In this context, the customer should be offered the best possible service at reasonable cost. The after-sales service plays an important role in this connection. In the initial phase of the customer relationship, the after-sales service has to provide advice and assistance to the customers, as problems can often occur with regard to the installation of new Internet connections or the corresponding devices. However, to ensure that the after-sales service is not contacted for trivial inquiries, the company can provide the customer with a range of "easy-to-use" services.

The after-sales service is supported and relieved, for example, by frequently asked questions (FAQs) on the website, since the customer can independently find the solution to known problems.

After having presented the value chain of a connection provider, the following describes the underlying core assets and core competencies that a connection provider requires in order to successfully and sustainably compete in the Internet market.

The most important core assets of connection providers are the network infrastructure and the underlying IT platforms. In addition, the employees responsible for this can be regarded as a core asset, since these specialists are required for the reliable operation of the servers or networks. In addition, the brand as well as the customer or user base are among the core assets of connection providers.

The network infrastructure is an important core asset, especially for the inter-connection provider, since this is the only way to establish a smooth, permanent connection to the Internet. For example, Deutsche Telekom had a long-term monopoly in the provision of Internet access. Today, Deutsche Telekom's competitors have somewhat mobilized the market and are thus eroding the core asset of Deutsche Telekom, but the downtime and network problems among the competitors are still higher than those of Deutsche Telekom. In addition, this core asset is also increasingly threatened by alternative connection standards, such as cable providers or mobile access technologies.

Similar to the network infrastructure necessary for Internet service providers, the IT platforms of the other connection business models represent a potential core asset. A community operator must ensure, for example, that the user platform always permits perfect operation. Generally, this also includes the loading times of the platform, as well as the minimization of necessary updates or restructuring measures. If a provider manages the necessary IT platforms efficiently without restricting the user, the IT platform can be understood as a core asset of the provider.

Closely linked to this core asset are the employees of the connection providers. These are key factors in the efficient operation of the platform and must ensure that,

in addition to the technical components, any emerging problems with or among users are addressed as quickly as possible. In particular, the customer service plays an important role in the context of inter-connection providers. This varies significantly between providers. However, it is also important in the context of intra-connection that unauthorized access to an email or chat profile, for instance, is recognized and remedied by the employees as quickly as possible. All these measures lead the users or customers to trust the provider, thus resulting in long-term customer loyalty.

This trust is also clearly visible the brand of the connection provider. As with other business model variants of the 4C-Net Business Model, the brand, represents a value proposition and is associated with certain product properties by the customer. While the brand names of the well-known Internet service providers are also partly associated with a poorly developed service policy, it is particularly evident in the context of the community providers that the brand plays a decisive role in determining whether the platform as a whole is trusted. For example, Facebook has been increasingly criticized because users were not satisfied with different data protection regulations. As a result, fewer users have registered on Facebook or existing users have deleted sensitive data from their profiles.

A further aspect to be associated with the brand as a core asset refers to network effects. As soon as a brand has established itself in the community area, the growing number of users also increases awareness, which, in turn increases the brand value. Thus, the customer or user base also holds a core asset function. Not only through the positive network effects, for example, in the context of further recommendations, but also through the total number of active users, a platform or a service becomes interesting to other users. For example, the actively participating users on the MySpace community platform are a core asset, since they increasingly provide self-generated content that other users receive. The passive recipients may be encouraged to become active and thus also a core asset of the provider.

Besides the important core assets, core competencies are also required to maximize the potential of the core assets for the providers. Within the scope of connection providers, the technology and integration competence as well as the customer acquisition and customer loyalty competence are essential. The technology and integration competence is of particular importance to all connection providers. In addition to ensuring the described smooth Internet access and platform access (technology competence), the use of different access technologies (integration competence) is also highly relevant in this context. For example, well-known Internet service providers have already been offering so-called bundling offers that offer customers several ways to access and become active on the Internet.

However, the integration competence is also of particular importance for intra-connection suppliers. In 2010, for example, Google announced that the new service, Google Buzz, will enable the integration of various communications services, both stationary and mobile.

In the context of customer acquisition and customer loyalty competence the focus is on the employees' abilities. In the case of inter-connection providers, customer acquisition is linked with a classic sales competence that enables to

acquire new customers or to use up-selling potentials. Within the context of customer loyalty, Internet service providers also have online and offline CRM measures at their disposal. The customer acquisition competence is different with regard to inter-connection providers. There is no direct customer acquisition in the case of community or mailing offers. Instead, here providers seek to acquire customers by means of indirect references to the service or referral marketing.

For example, Google offers an invitation service to the users of its email service, according to which users can invite friends or acquaintances to use Gmail. Figure 7.4 summarizes the core assets and core competencies of connection providers.

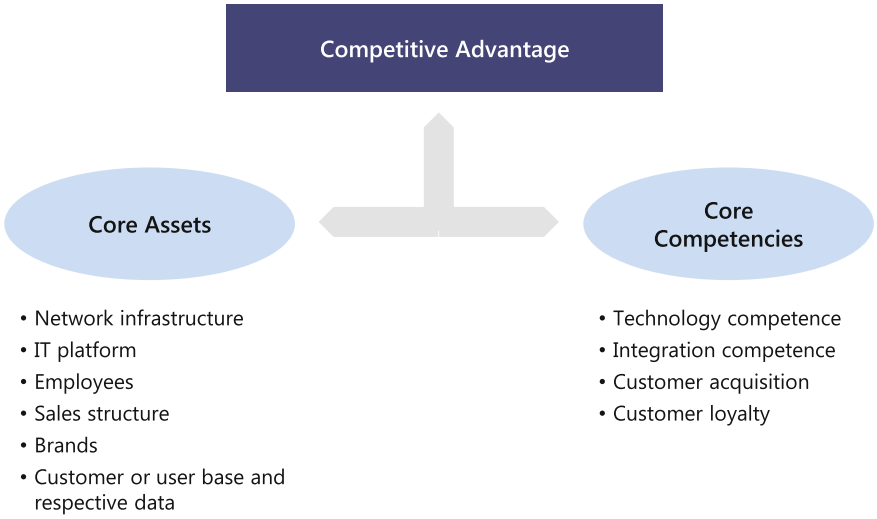

Fig. 7.4 Core assets and competencies of a connection provider. *Source* Wirtz (2010b, 2018b)

7.4 Case Study: LinkedIn

LinkedIn is one of the pioneers in the field of professional networking of specialists and executives. It was founded on December 28, 2002 by Reid Hoffman, Allen Blue, Konstantin Guericke, Eric Ly and Jean-Luc Vaillant, and went online on May 5, 2003. LinkedIn is primarily a professional networking site that presents CVs of professionals and executives, introduces employers and advertises job vacancies.

In addition, LinkedIn has also developed into a platform for the exchange of content. The LinkedIn website is the world's largest professional network platform for professionals and executives. In its mission statement, LinkedIn says, "Our mission is to make the world's professionals more productive and successful" (Weiner and LinkedIn 2016).

As a start-up, LinkedIn was financed especially by Sequoia Capital with venture capital. In January 2011, LinkedIn had its initial public offering (IPO) and by the end of 2016 Microsoft acquired LinkedIn for approximately 26 billion USD. The acquisition of LinkedIn by Microsoft shows the very successful development of LinkedIn. In the first two years, LinkedIn did not win more than 100,000 members.

Already in 2008, LinkedIn had over 15 million users and opened the first office outside of the U.S. in London. In 2011, LinkedIn reached the mark of 100 million members and had over 1000 employees in 10 locations worldwide. With its 10th anniversary in 2013, LinkedIn had over 300 million users and rose to rank 24 of the world's most popular websites. In 2016, LinkedIn had around 433 million members in more than 200 countries (LinkedIn 2017b).

Against the background of substantial membership growth, LinkedIn was also able to significantly increase its sales and profits. LinkedIn achieved profits for the first time in 2006. In 2009, LinkedIn had only sales of 120 million USD. Four years later, it achieved sales of 1.53 billion USD. In 2015, sales rose to nearly 3 billion USD, with an EBITDA of 780 million or 26% of sales, respectively (LinkedIn 2016).

LinkedIn has different revenue sources. The talent solutions division is of great importance and has already made the largest share of sales in 2015, at 1.8 billion USD. In the marketing solutions segment, LinkedIn achieved revenues of 581 million USD in 2015. The third division premium subscriptions generated similarly high revenue of 532 million USD in 2015.

The data shows that LinkedIn revenue is mainly driven by the two B2B segments: talent solutions and marketing solutions. While the solutions for the personnel search (LinkedIn talent solution) make up the largest share with 64%, the marketing solutions (LinkedIn marketing solution) account for 19.4% and the premium accounts for private users account for 16.6% (LinkedIn 2016).

In the area of marketing solutions, sponsored content is the largest sales driver. In 2015, more than half (56%) of the sales in the marketing sector accounted for the revenues that companies pay to display their content on the user profiles. Classic display banners, in contrast, contributed only 15.4 million USD to the advertising turnover, representing about 10% of advertising sales.

Talent solutions is the LinkedIn area that is dedicated to matching employees and employers. In addition to the ordinary placement of job advertisements, there are also opportunities for HR consultants to find potential specialists for their own customers in the database. The Marketing solutions division focuses on the placement of personalized advertising. The third area, Premium Solutions, offers members a paid membership model that offers an extended range of services for private customers. Premium users, for example, are entitled to send invitations and messages to unknown members.

As a market leader in professional social networking, LinkedIn is characterized by its comprehensive range of services. The homepage for non-premium users is very user-friendly and has an extensive range of functions. This is shown in Fig. 7.5.

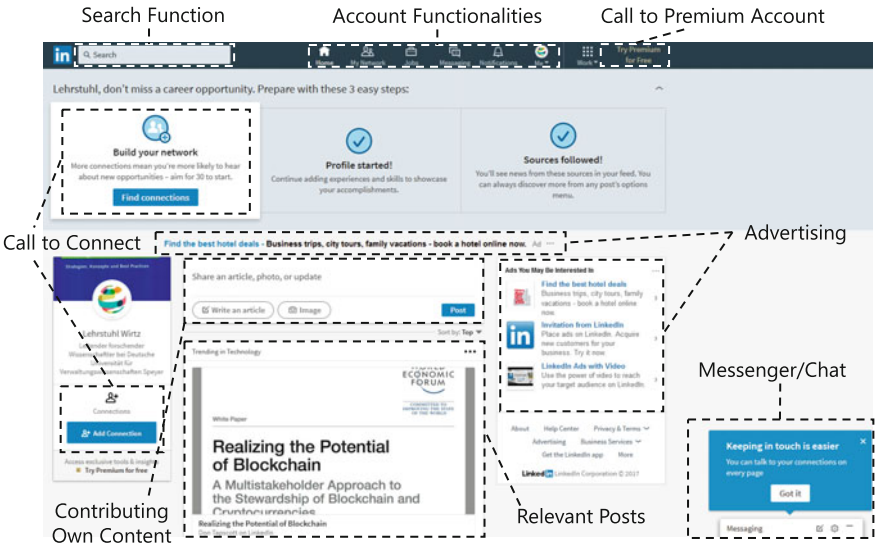

Fig. 7.5 Screenshot LinkedIn home. *Source* LinkedIn (2017a)

The homepage is build in a modular manner with many well-known functions that are also available in other social networking sites, such as search functions, account functions, a newsfeed displaying personalized content, a messenger or chat field, a contribution field to which the user can post own content, and finally fields to add new contacts.

In the stay connected and informed unit of LinkedIn, the company provides free services including: editing and presenting the profile, receiving and creating postings, messaging, network and search features, contact suggestions and address book import, access to influencer content, to groups and to the publishing platform, as well as to work in topic groups. In addition, there is also the advance my career section in the free customer account that not only allows to write job search notes or to look for company profiles and university pages, but also includes the function to post references for others and to attribute skills to other persons. Furthermore, the ubiquitous access unit provides a free LinkedIn mobile app for all popular mobile systems, as well as multiple interfaces that allow LinkedIn to share data with other software.

LinkedIn offers its business customers specific target group contacts and accurate targeting of specific target groups. For example, specific properties of the users, which allow the user-specific display of ads (micro-targeting), using that uses data from their usage behavior (for example, from the reading of specific contents) or from concrete indications in their profiles. In addition, LinkedIn provides employers the opportunity to acquire data and to do big data analysis for their purpose. LinkedIn's simplified business model is shown in Fig. 7.6.

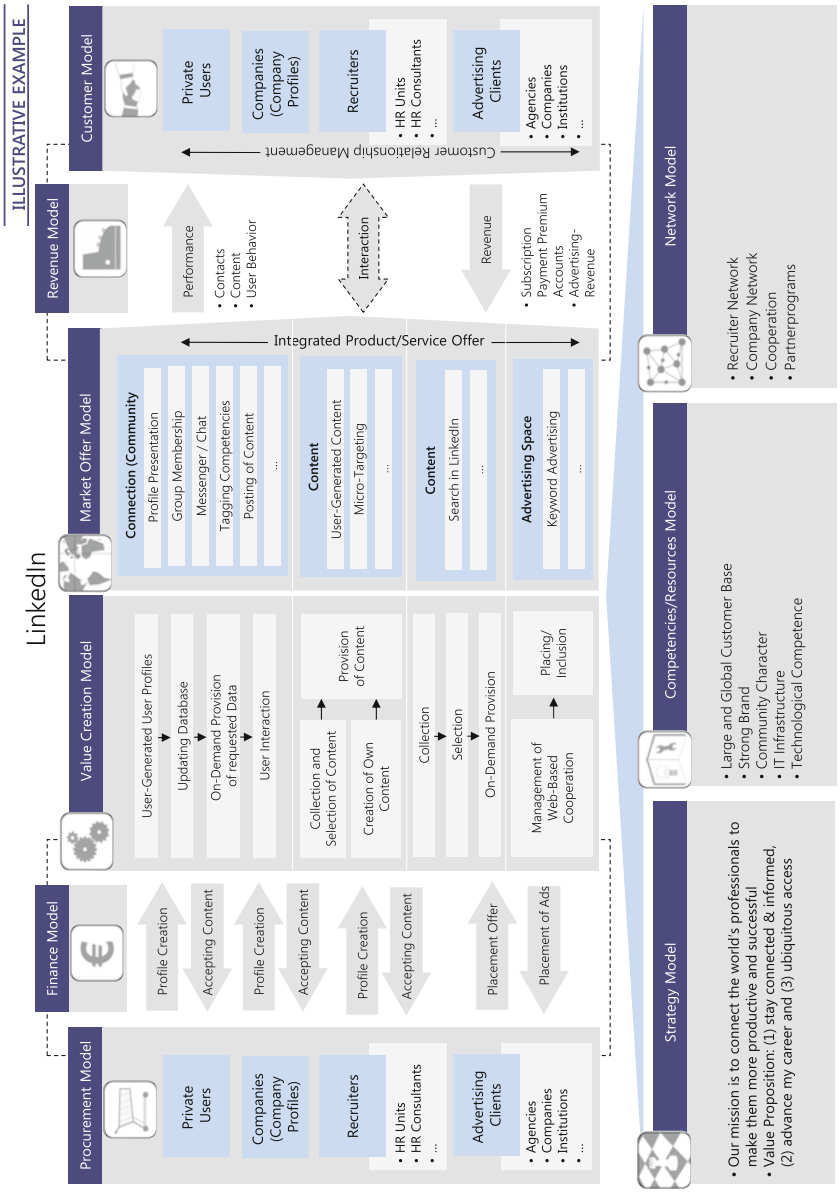

Fig. 7.6 The LinkedIn business model. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

The strategic focus and value proposition of LinkedIn consists of the following three core components: stay connected & informed, advance my career and work smarter. LinkedIn's strategic goal is to be the most comprehensive, accurate and accessible network for professionals around the world (LinkedIn 2014). The essence of the value creation is based on the provision of a platform that enables matchmaking and exchange among professionals and companies.

A core asset of LinkedIn, is the fact that its brand is established in the market and well-known market players or brands are using the platform. Generally, each LinkedIn user generates own content that can be retrieved by other users and recruiters. A distinctive technology and integration competence are also important core competencies of LinkedIn. In addition to ensuring smooth access to the platform (technology competence) and the associated access to the network infrastructure, the use of various access technologies is also particularly important in this context (integration competence).

As a social networking platform, LinkedIn generally belongs to the connection business model. As described in the previous chapter, the connection business model can be divided into the two ideal business model variants: intra- and inter-connection. LinkedIn and its offer belong to the variant of the intra-connection, which refers to the offer of communicative services within the Internet. In particular, LinkedIn belongs to the community area, and herein to the category of social networks, like Facebook or Google+.

Since the LinkedIn platform provides user-generated content as well as its own content, the business model can also be partially assigned to the content business model, as LinkedIn deals with the collection and selection of content. The search function and the complex linking of content from the LinkedIn database can be assigned to the context business model. When it comes to advertising opportunities on LinkedIn, it is also possible to identify aspects of the commerce business model, such as the provision of initiation and negotiation functions. Figure 7.7 summarizes LinkedIn's strategic focus, business model, service offer and success factors.

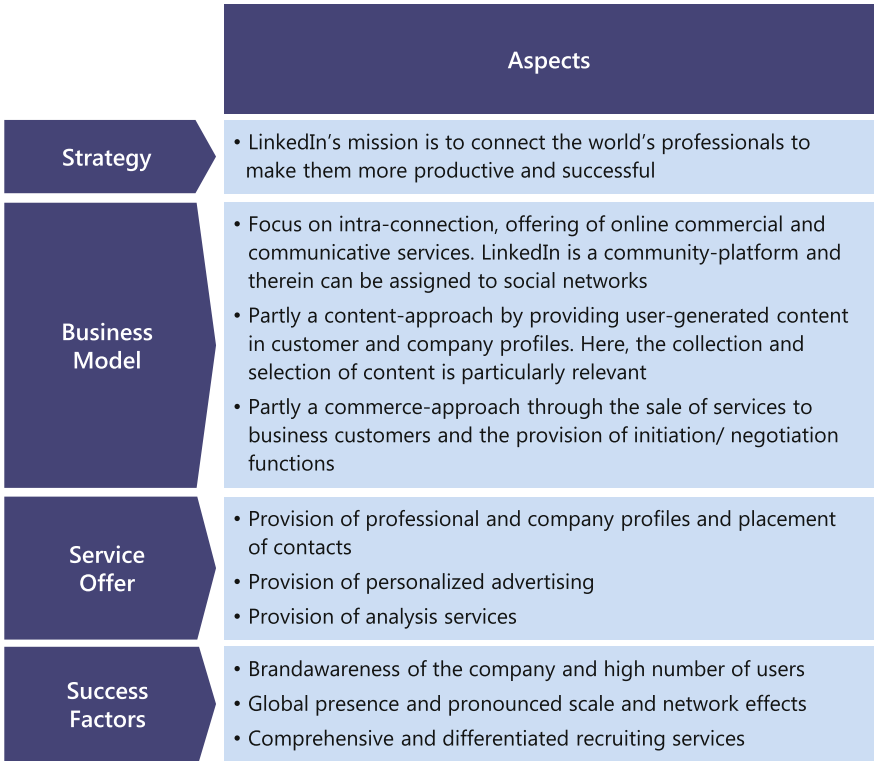

Fig. 7.7 Strategic focus of LinkedIn. *Source* Based on Wirtz (2010b, 2018b)

Chapter 8
Hybrid Digital Business Models

After having introduced, the different B2C business model approaches of the 4C-Net Business Model in Chaps. 4–7, this chapter presents the strategic approach of expanding these unifunctional business model approaches to an approach that uses aspects of these different models of. Section 8.1 deals with the development of hybrid digital business models and Sect. 8.2 describes the hybridization of the Google business model.[1]

8.1 Development of Hybrid Digital Business Models

In the initial phase of digital business development, Internet companies pursued business models in their pure form, as shown in the 4C-Net Business Model. In the further development of the Internet, however, these pure unifunctional business models have turned out to be too focused. For this reason, aspects of other business model variants have successively complemented them. Thus, the business models become increasingly hybrid and multifunctional. An Internet platform that solely offers information as part of its business model refers to a pure play business model. When deploying two business models, one can speak of a hybrid business model, or in this particular case, a dual play business model. A triple play or quadruple play business model applies three or four different business models. Figure 8.1 outlines the path of development from a pure play business model to hybrid business models.

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_8

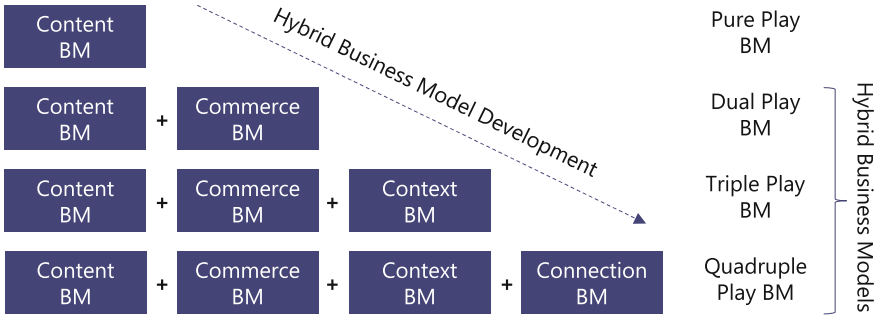

Fig. 8.1 Hybrid business model development. *Source* Wirtz and Daiser (2015), Wirtz (2018b)

From a customer perspective, having a single point of access to various information and service offerings is convenient and reduces the user's search effort. From a company perspective, a hybrid strategy also offers major benefits: The cost structure of digitalized services is characterized by high fix costs and low variable costs. This setting carries a vital advantage because the higher the proportion of the fixed costs, the higher the benefits from economies of scale.

Economies of scale denominate the cost advantages that a company obtains with increasing output. The underlying principle is that the cost per output unit decreases incrementally as the fixed costs are distributed over more output units. This means that the service unit costs decrease with increasing scale if the number of provided service units increases. As the major part of the fix costs arises from the initial installing of the basic e-business structure, each additional service implementation is generally less expensive. Thus, the larger the e-service range offered and the more service units are provided, the higher the potential cost benefit.

Multiple customer retention is a further aspect of hybrid e-business models. The concept refers to customer retention on several business model levels (Wirtz 2001b; Wirtz and Lihotzky 2003). Thus, acquiring and retaining customers takes place based on more than one business model offer, increasing the number of relations to the customers. The resulting multiple customer retention on different levels fosters customer loyalty.

Creating intertwined customer connections by conveniently providing multiple e-business model services through a one-stop interface generates lock-in effects through high system change costs. This means that the exit barriers for the customer are higher in the case of multiple customer relationships than for a singular customer relationship. Thus, multiple customer retention increases switching costs for the customer to change to an alternative system, a good example is the apple ecosystem (Wirtz 2001b). At the same time, a larger network finally leads to more information through an increased customer base and better e-business service provision through economies of scales, which demand efficient automated service provision.

Hybridization of business models also allows to set a bundle price for a bundle of services, which in turn leads to new profit opportunities. Similarly, process automation leads to a shift from offline to online costs. The cost structure of digital services is usually characterized by high fix costs and low variable costs.

The fourth reason for expanding into different or new business areas refers to diversification and exploitation of new revenue streams. Diversification reduces the overall risk of a revenue stream, given that the different revenue streams do not correlate completely. The necessity of diversification becomes particularly apparent against the backdrop of the high complexity and dynamic within the Internet economy. Figure 8.2 illustrates four drivers of the development of a hybrid business model.

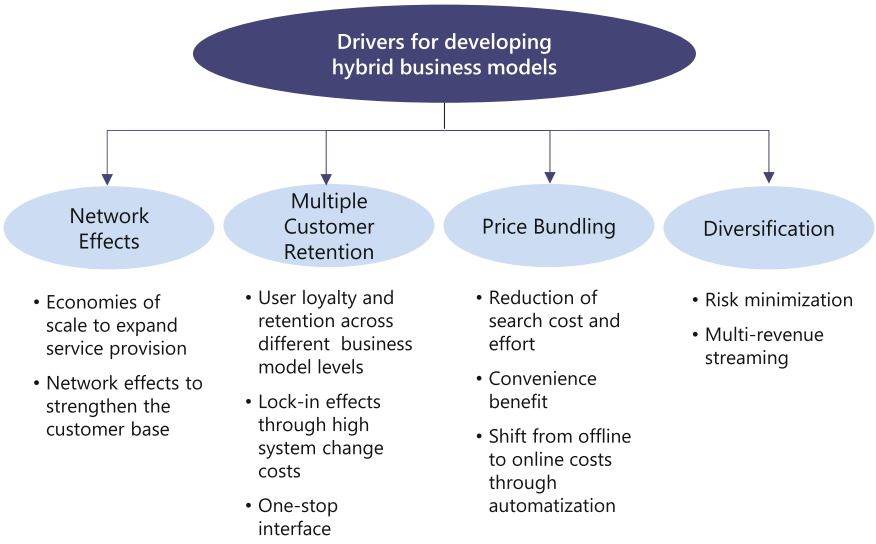

Fig. 8.2 Reasons for the development of hybrid business models. *Source* Wirtz (2001a, 2018b)

8.2 Hybridization of Business Models: Google

Google is a global Internet service provider and market leader in the areas of online search and text-based online advertising. Google, headquartered in the U.S., in Mountain View, California, became famous through its search engine. The search engine is now available in 173 languages and over 180 different domains (Wikipedia 2017b). In June 2001, three years after the foundation of the company, more than one billion pages were stored in the Google index, making the search engine the market leader (see for the following Google 2017).

Already in December 2001, Google had more than three billion document accesses. After the official completion of the Google search engine phase at the end

of 1999, the company concentrated on expanding its range of services from 2000 to 2004. In this context, the free email service Gmail, available since 2004 is particularly important.

In addition, Google expanded its service portfolio and activity spectrum through various acquisitions. In this context, the acquisitions of the blog site Blogger.com in early February 2003 and the acquisition of the world's largest Internet video site YouTube for 1.8 billion USD at the end of 2006 are worth mentioning. Google also acquired DoubleClick for 3.1 billion USD in 2007, which used graphical advertisements on websites and had very good relationships with financially strong advertisers.

With its stock market launch in August 2004, Google continued its unprecedented advancement. Within a few years, the company developed from a simple start-up to the world's largest Internet service provider. Today, Google or the newly founded holding company Alphabet employs around 70,000 people and is the clear market leader in online search and text-based advertising (Alphabet Inc. 2017a). The company is one of the world's best known brands, mainly due to its search engine Google.

In the case of Google, one can speak of a hybrid business model because it includes all four business model types through numerous services. According to their own statements, Google's overall strategic goal is to organize and systematize the world wide information on the Internet and to make it available to all Internet users (Alphabet Inc. 2017a). In this way, the company formulates a clear business mission, which is an important component of its strategy model.

In the course of time, Google has developed into an integrative Internet player and thus also one of the most important gatekeepers of information on the Internet. In this context, the term "gatekeeper" describes the possibility of a search engine provider to exercise control over the information that can be found and retrieved. Due to the vast amount of information and user behavior on the Internet, most providers of content are dependent on search engines in order to be found. Google is by far the largest search engine provider and has gained center stage in this context. Many critics and competitors perceive Google as too powerful.

Within the framework of the 4C-Net Business Model typology, the context business model with the search engine as a core service thus forms the basis of the integrated business model (Wirtz 2000b). Through the constant revisions and extensions through specialized search services for images, news and geographic information, Google today has the world's most-used search engine, which is continually being expanded by innovative services and functions. Other context services are, for instance, Google Catalogs, Google Images, Google Toolbar, Google Book Search, Google Scholar, Google Reader, Google Blog Search and most recent Google Assistant.

A further focus of Google's market offering is the content area, which is characterized by the provision, preparation or aggregation of multimedia content. This includes Google Groups, Google News, Google Maps, Google Earth, Google Sketch Up, Google Text and Tables, iGoogle, Google Merchant Center and YouTube. Many previous services have also been expanded or various services

have been consolidated to provide users with an even broader range of services. For example, the Google Local service was integrated into Google Earth and Google Maps.

Offers that are assigned to the business model type of connection are characterized by the provision of network-based information exchange. In this segment, Google offers the services of Blogger, Google Groups, Gmail, Orkut, Google Talk, Google Voice, Google Latitude, Google+, Google Drive, Google Hangouts and most recently the instant messenger Google Allo and the video chat app Google Duo. Google+, for instance, is considered to be the consistent attempt by Google to extend the business model to the connection segment.

Initiation, negotiation and settlement of business transactions are the components of the business model type commerce. The most important services in this area are the advertising offers Google AdWords and Google AdSense. In addition, Google has only a relatively small range of services in the area of commerce. In this context, the payment service Google Checkout is particularly used to pay for fee-based applications in the Android Market.

With Google Wallet, Google also has a service that allows payment by mobile phone using near field communication (NFC). In addition, Google is constantly expanding its commerce offers in the area of product search engines, product presentation and price comparisons. In this context, Google Product Search and Google Shopping are particularly important. Even though these offers originate in the context area, they increasingly focus on the initiation and negotiation of business transactions and can therefore belong to the area of commerce.

Some Google services can also be assigned to different business model types. This can be illustrated by the photo community Picasa. On the one hand, Picasa connects different users to exchange pictures and can therefore be assigned to the connection type. On the other hand, content is made available worldwide, so that Picasa can also be assigned to the content type.

Since the year 2008, Google is also active in business areas outside of the 4C-Net areas (content, commerce, context and connection). In this context, Google has developed information technologies, such as the mobile operating system Android, as well as own consumer-oriented mobile devices, like the Google Nexus series or its next generation Google Pixel.

In addition, Google has recently introduced Google Glass, a pair of augmented reality glasses, and Google Cardboard, a virtual reality device. Furthermore, Google acquired the home automation company Nest Labs, which meanwhile collaborates with Google Home. Figure 8.3 shows Google's chronological development paths to a hybrid provider.

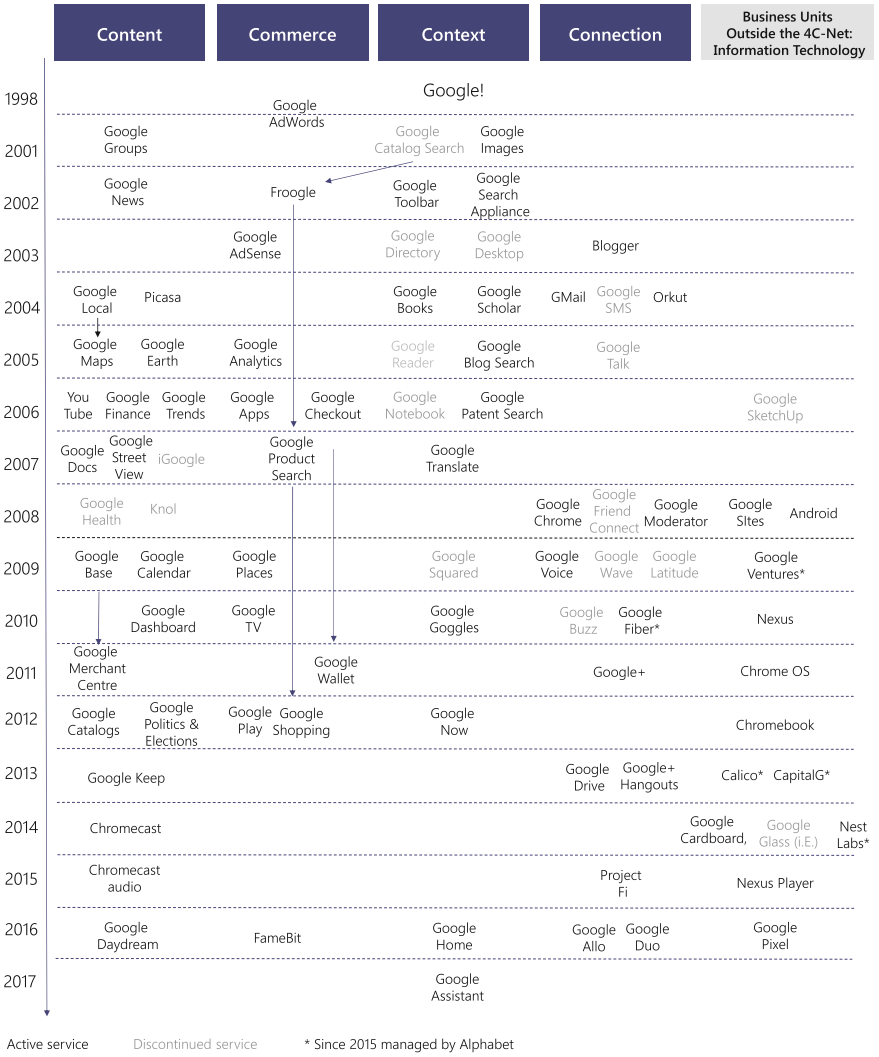

Fig. 8.3 Development of Google's hybrid business model. *Source* Based on Wirtz (2010b, 2018b), including updates

In summary, it can be stated that Google is pursuing an increasingly hybrid business model to satisfy its users, but also the providers and in this connection especially the advertising companies. In this regard, Google plays the role of a gatekeeper.

The search queries of the users and the data accumulated in the various communication and content offers are systematically processed and stored by Google. Data Mining enables Google to create specific user behavior and user search profiles. These do not necessarily have to be personal, but can be combined into general types of use.

On the one hand, these user typologies are used as the basis for the AdWords offer to help companies understand the search terms and search behavior of users with regard to specific search queries. On the other hand, the user typologies are matched with further increasingly provider-oriented data streams and condensed into a comprehensive information stock.

This high level of information enables Google to manage the customer interface particularly efficiently in both directions (users and providers) and to create a high customer loyalty. Figure 8.4 shows the described relationships, using the examples of some Google services.

In addition, the monetization of traffic data and flows is an important aspect for Google. Currently, the monetization is increasingly and very successfully driven by AdWords and thus the pay-per-click revenue model done. Currently, the company is facing the charge of favoring its own services in the display of search results and thus to disadvantage competing services. The European Commission has examined the case and Google seems to make concessions.

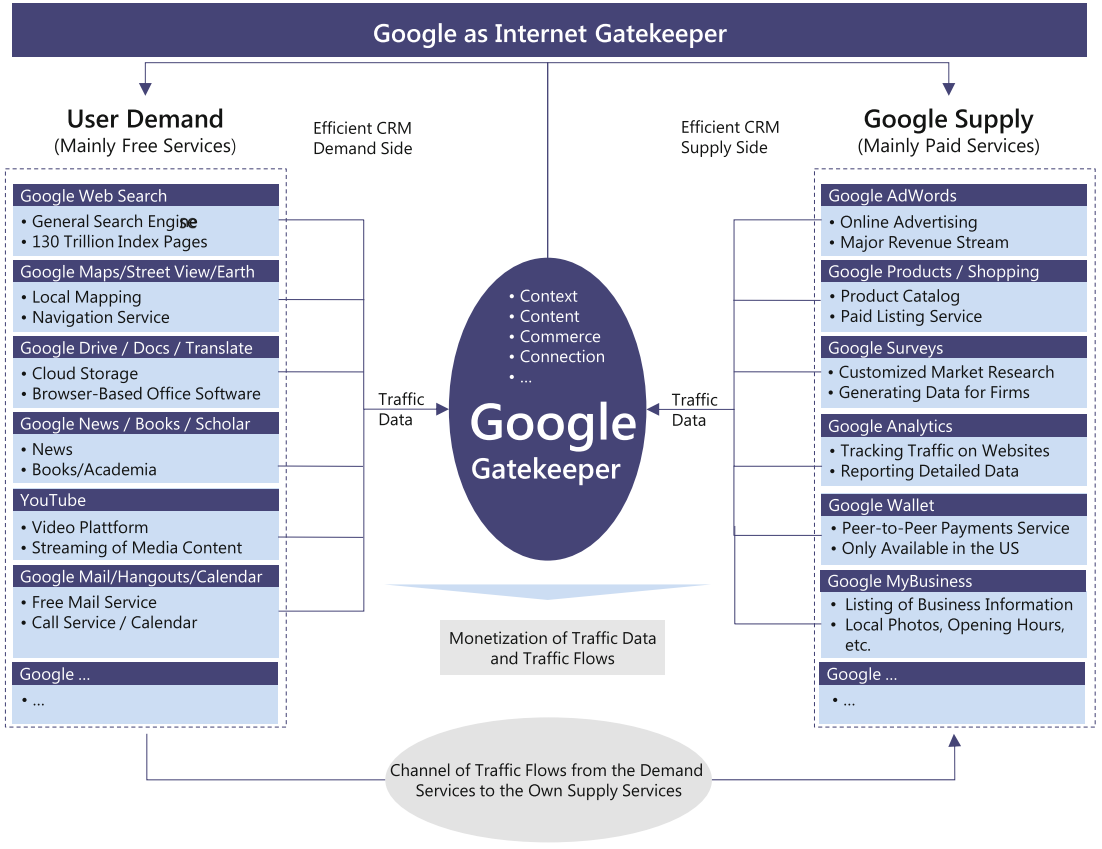

Fig. 8.4 Google as Internet gatekeeper. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

Chapter 9
B2B Digital Business Models

Business models not only are highly relevant in the B2C area, but also in the B2B sector (Timmers 1998, 1999). The main difference lies in the underlying relationship. While B2C business models are based on a range of services to private end users (private clients), B2B business models focus exclusively on transactions between companies (Kian et al. 2010). Similar to the procedure of deducting the previous 4C-Net B2C Business Model typology that distinguished between the individual value chains and business offers, this section outlines four B2B-based business models that are derived by carefully distinguishing four core business orientations: sourcing, sales, supportive collaboration and service broker.[1]

This business model typology is referred to in the following as 4S–Net Business Model and presents an overview of the most relevant B2B business models on the Internet. However, in this context it is important to consider that a rigid and clear separation is not always possible, as companies often choose strategies that follow several models at once. It may happen that a company indeed has a core business model, however, with some overlap with other B2B business model groups. Figure 9.1 outlines the 4S-Net Business Model framework. To this end, it first presents each business model type, including the most relevant subcategories of services provided.

The following sections describe the particular business model types in detail. While Sect. 9.1 deals with the sourcing business model, Sect. 9.2 describes the sales business model and Sect. 9.3 gives an overview of the supportive collaboration business model. Finally, Sect. 9.4 presents the service broker business model.

[1]See also for the following chapter Wirtz (2018b).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_9

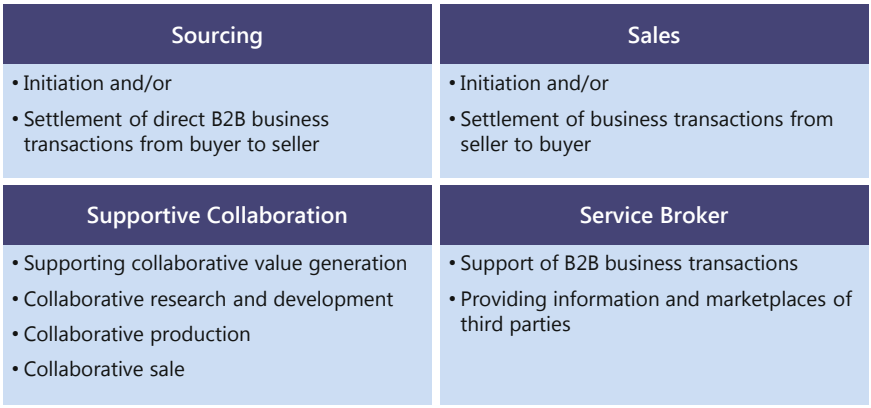

Fig. 9.1 4S-Net Business Model. *Source* Wirtz (2010b, 2018b)

9.1 The Sourcing Business Model

The B2B model sourcing consists of the initiation and/or settlement of B2B business transactions from buyer to seller. The aim of this business model is to handle business transactions of procurement management by means of the Internet (Camarinha-Matos et al. 2013). Here, a direct service relationship between buyer and seller is required. Figure 9.2 illustrates the sourcing business model with the two approaches private B2B exchange (one-to-one) and buy-side B2B exchange (one-to-many).

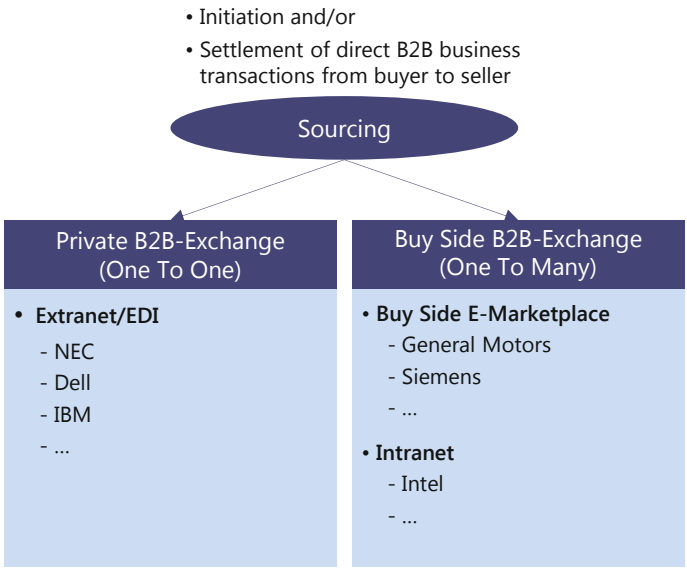

Fig. 9.2 Digital business model sourcing. *Source* Wirtz (2010b, 2018b)

For buyers it is not only crucial that traded products and services are supplied quickly, reliably and in the usual quality, but also that they are able to react flexibly to unexpected changes in demand. Moreover, B2B exchanges are mostly set up for frequent purchasing. The setup of a private B2B exchange is usually not worthwhile for individualized services with low repurchasing rates. In practice, such strategically important one-to-one relationships with vendors or suppliers are mostly established through appropriate extranets.

The company intranet is extended to include interactive procurement support components, which are only accessible to the exclusive strategic partner (one-to-one). Such private B2B exchanges are widely used in the B2B e-business context, for example, by companies such as NEC, Dell or IBM in order to support intensive supplier relationships. An established and proven alternative to the one-to-one extranet is the electronic data interchange (EDI). It allows sending a procurement order to the supplier immediately, reliably and accurately in agreement, as the order in the system is predefined by the supplier. The Internet increasingly serves as a platform for existing EDI systems. The EDI data are then transmitted by using email or FTP services (Internet EDI).

In addition to the clear cost advantages compared to traditional methods of information exchange regarding procurement (e.g., fax or voice mail) and the straightforward and unified process management, the establishment of a private B2B exchange solution generally leads to long-term relationships between customers and suppliers. However, if the respective business link collapses, the established system is usually also not used for other purposes, which is why it is associated with sunk costs for the company.

Unlike the private B2B exchange, the buy-side B2B exchange is characterized by a one-to-many relationship between the buying companies and other vendors or suppliers. Buying companies can implement such supplier relationships by establishing a buy-side e-marketplace. In this context, the purchasing company builds an e-marketplace on their own server and invites different suppliers to quote on open supply requests. This variant often follows reverse auctions that are used to choose the one supplier with the cheapest quotation (request for quotation) (Rayport and Jaworski 2001; Turban 2015; Turban et al. 2015).

Since constructing and operating an e-marketplace requires considerable resources, only major corporations such as General Motors or Siemens usually use this type of buy-side B2B exchange. An alternative version of the buy-side B2B exchange is to build a multi-supplier catalog (Camarinha-Matos et al. 2013). Individual supplier catalogs merge into one comprehensive catalog and are stored on the intranet of the company procured. The technical integration into the internal financial or ordering system and into the application system of the supplier makes it relatively easy to trigger and process orders. In practice, such multi-supplier catalogs are widely used across different industries.

The aggregated value chain of the sourcing business model consists of five main stages. In the stage of demand planning, one has to specify the items that need to be acquired for the production process and determine the quantity of the items needed. Before the actual delivery of goods and the payment processing can take place, the order needs to be officially initiated and assigned to the respective suppliers. Figure 9.3 illustrates the aggregated value chain of the sourcing business model.

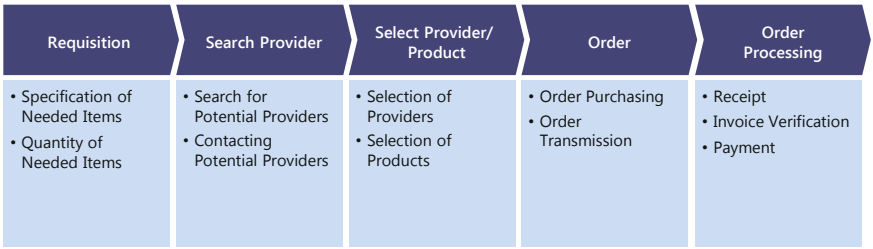

Fig. 9.3 Aggregated value chain of the sourcing business model. *Source* Wirtz (2010b, 2018b)

Core assets and core competencies are very important for the success of companies. The most important core assets of the sourcing business model are the procurement system, a large supplier network and the IT platform applied. An integrated procurement system allows companies to efficiently organize their procurement processes and optimize the procurement process by minimizing delivery times and process costs.

Moreover, it is important to have a large and well-positioned supplier network in order to be able to compare individual supplier or delivery conditions and negotiate the best possible procurement conditions. The technical realization takes place by means of an IT platform that is particularly adapted to the needs of the respective company.

The core competencies of the sourcing business model include highly developed procurement know-how and negotiation skills. In addition, highly developed data processing skills are particularly useful because the procurement systems usually have to deal with a huge amount of data. Figure 9.4 summarizes the core assets and the core competencies of the sourcing business model.

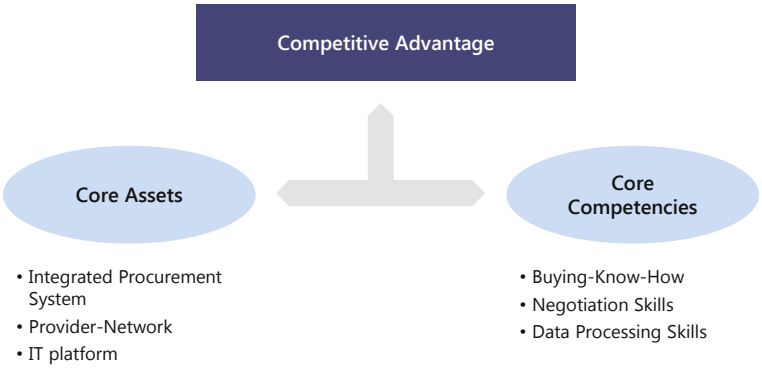

Fig. 9.4 Core assets and core competencies of the sourcing business model. *Source* Wirtz (2010b, 2018b)

9.2 The Sales Business Model

The B2B business model sales involves the initiation and the settlement of direct B2B business transactions from the seller to the buyer. The aim of this business model is to handle transactions of sales through the Internet. Unlike the source model, here the selling entity initiates the direct relationship between buyers and sellers (Rayport and Sviokla 1995). Accordingly, one can derive the following subcategories: private B2B sales and sell-side B2B exchange. Figure 9.5 illustrates the business model B2B sales.

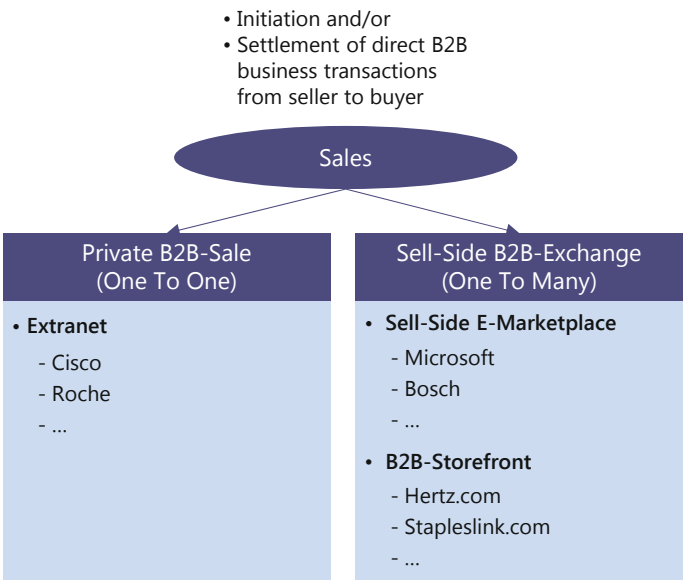

Fig. 9.5 Digital business model sales. *Source* Wirtz (2010b, 2018b)

Analogous to the private B2B exchange of the sourcing business model, the private B2B sales model describes a one-to-one relationship between the seller and buyer (Timmers 1999). However, unlike the B2B exchange the focus of attention is not the procuring company, but the supplying companies (sellers). Thus, the B2B seller seeks to establish a long-term intensive business relationship with its major customers (usually measured by turnover). For the purposes of the intended long-term customer loyalty, it is advisable to support such businesses by establishing appropriate technical extranets and to agree to individualized terms of products and respective pricing for each major corporate customer.

In practice, such private B2B sales are now widely used. Sellers, for example, are manufacturing companies that sell their products exclusively to a wholesaler or retailer. Companies that successfully apply such private B2B sales models are, for

example, Cisco or Roche. In contrast, the sell-side B2B exchange stands for a direct one-to-many relationship between the seller and buyer (direct selling). Thus, a sell-side B2B exchange always involves one B2B seller and several potential B2B buyers. An intermediate stage, for example, in the form of an intermediary is not considered at this point, but rather as part of the business model type of service broker.

Sell-side B2B exchanges consist of sell-side e-marketplaces and B2B storefronts. A sell–side e-marketplace is a web-based market platform that offers a seller's products or services to a number of potential business customers. The seller itself usually operates the marketplace platform and implements it in the form of an extranet (Camarinha-Matos et al. 2013).

One can distinguish between the basic models with regard to sell-side e-marketplaces: e-catalogs and e-auctions. Microsoft, for instance, uses the direct sale via an e-catalog based on the extranet system and successfully achieves software sales with various channel partners. Large and well-known enterprises can also establish their own e-auctioning system in order to achieve a respective number of sales without involving intermediaries. However, considering the technical infrastructure and maintenance such platforms are significant in terms of cost.

Companies that successfully operate their own e-catalogs are usually limited in implementing such e-auctioning system. A disadvantage of running own sale platforms, however, is that intermediaries often have a broader customer base and thus more potential bidders than the ones that can be addressed with the company's internal operations.

B2B storefronts represent a modification or development of the sell-side e-marketplaces. The main difference is that B2B storefronts are technically not realized by establishing an extranet, but by programming a general webpage. Companies have to register and obtain a company ID and password to ensure that only selected business users can access the online platform.

Stapleslink.com is a good example in this context. This approach has the advantage that new B2B customers can easily access the storefront. In addition, the use of individual business profiles can be explicitly adapted to the wishes and needs of each business customer and agreed product or price conditions can be aligned with the storefront (e.g., business account program by Hertz).

The aggregated value chain of the sales business model consists of five main stages. In the stage of key account management, companies first need to identify the existing and relevant customer segments in the market. Based on this, they can then select the customer segments that are supposed to be addressed and build the respective sales platform according to the pursued customer relationship strategy (private B2B–exchange or sell-side B2B-exchange).

The successful setup of the sales platform provides the basis for electronic order handling and the subsequent delivery of goods or provision of services. After the delivery of goods or service provision, the billing takes place in terms of classic invoicing or by means of electronic bank transfer or direct debit. Finally, companies can use after–sales management to increase customer loyalty. Figure 9.6 illustrates the aggregated value chain of the sales business model.

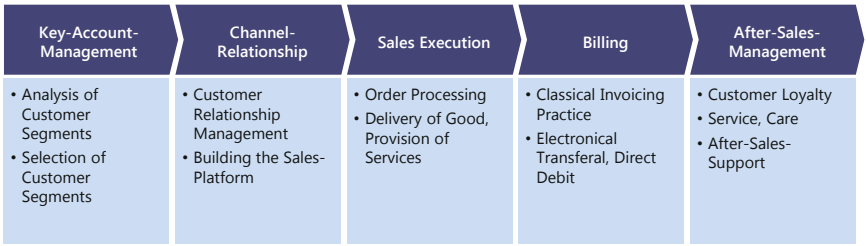

Fig. 9.6 Aggregated value chain of the sales business model. *Source* Wirtz (2010b, 2018b)

The most important core assets of the sales business model not only include a large and well-established customer base as well as the development of a broad key account network to strengthen the bargaining power and establish a popular brand, but also particularly the applied distribution structure and IT platform. Depending on the sales strategy, it is particularly important to select the most economic type of sales business model and realize it by means of an appropriate IT platform. For example, it is advisable to establish an extranet (one-to-one) to realize sales business relationships with strategically important for important key accounts. In order to provide simultaneous access to the sales platform for more than one business customer, one can establish a sell-side B2B-exchange.

The core competencies of the sales business model include good negotiation and pricing skills. Since the technical setup and operating of the above-mentioned variants of the sales business model is not carried out by third parties but on the selling company's own responsibility, this aspect can also be seen as further core competence. The implementation of an own sell-side e-marketplace requires fundamental IT knowledge within the company that can be either internally developed within the company or externally acquired from the market. Figure 9.7 summarizes the core assets and the core competencies of the sourcing business model.

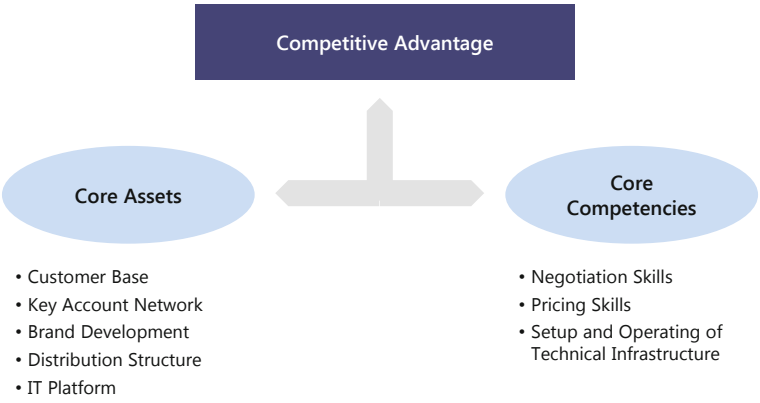

Fig. 9.7 Core assets and core competencies of the sourcing business model. *Source* Wirtz (2010b, 2018b)

9.3 The Supportive Collaboration Business Model

The B2B model supportive collaboration consists of collaborative value generation and comprises the areas of collaborative R&D, production and sale. Thus, the focus of attention is the cooperation and more precisely the joint effort of several companies in the areas of research and development, production and sale. Here, there are direct relationships among the parties involved. An intermediary is usually not involved. Before describing the various components of the business model of supportive collaboration, Fig. 9.8 shows an overview of the business model of supportive collaboration.

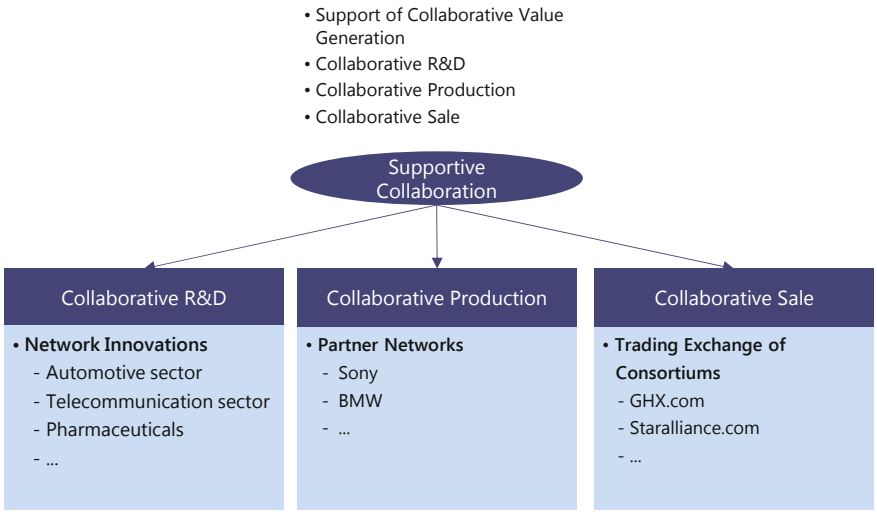

Fig. 9.8 Digital business model of supportive collaboration. *Source* Wirtz (2010b, 2018b)

The subcategory collaborative R&D refers to the joint development of new products or service offerings that are usually realized by establishing an appropriate corporate network (network innovation). Such innovative networks are not only a widespread approach to use the company's capacities in a joint effort, but also help to develop uncertain ventures, for instance, in modern e-business techniques in the automotive or pharmaceutical industry. General Motors' computer-aided design program, for instance, provides 3D design documents of prototypes online to designers (internal and external) and engineers worldwide.

The second subcategory of the business model of supportive collaboration is collaborative production. The aim of collaborative production is a joint production of goods and services, supported by the use of e-business technologies. In this context, an integrated supply chain of various partner networks is also a collaborative production approach.

The aim of such partner networks is to optimize the production processes, for example, by means of just-in-time production and by integrating suppliers in the production process. The use of material requirement planning systems, for instance, make it possible to plan the production process inclusively and to manage demand or scheduling. Such collaborative production processes are used in corporate structures, predominantly in the manufacturing sector by companies, such as Sony or BMW.

The final subcategory of the business model of supportive collaboration is collaborative sale. The business model of collaborative sale describes the practice of several industry players that establish a common sales exchange platform and operate it cooperatively. In this context, no further intermediary is involved.

In practice, collaborative sale constellations are usually established by means of a consortium that offers a trading exchange (many-to-many). The company GHX, for instance, is a pioneer in this field for the healthcare industry. The company was founded in the year 2000 by several major manufacturers of medical products and is now the world's largest trading exchange company in the healthcare sector.

The aggregated value chain of the supportive collaboration business model consists of five main stages. In the stage of collaboration planning, the value chain is examined for collaboration potential. Based on this, potential collaboration partners can be identified and general conditions can be clarified within the pre-contract negotiations (collaboration partnering).

The concrete negotiation and specification of the collaboration contract including the definition of the case assignment plan takes place in the context of collaboration scheduling. The next stage is the collaboration fulfillment in which the previously defined collaboration is realized including the setup of the IT platform. Finally, the efficiency of the collaboration is ensured by means of a respective collaboration audit including the determination of improvement measures. Figure 9.9 illustrates the aggregated value chain of the supportive collaboration business model.

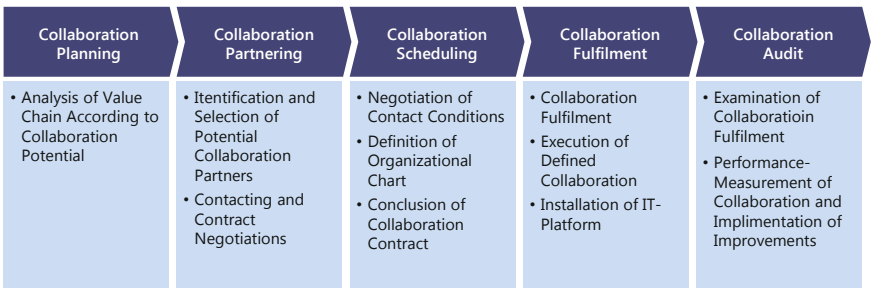

Fig. 9.9 Aggregated value chain of the supportive collaboration business model. *Source* Wirtz (2010b, 2018b)

The most important core assets of the supportive collaboration business model include an IT platform that is adapted to the individual needs of the respective actors and a collaboration network that is required to establish long-term cooperation. Moreover, an efficient and target-oriented allocation of collaboration resources is necessary to efficiently use synergetic effects. One of the most important competencies in the supportive business model is the negotiation competence in order to conduct negotiations in an efficient and effective manner. In addition, collaborative companies also need to have a cooperation competence and particularly a highly developed integration competence in order to use supportive collaborations efficiently. Figure 9.10 summarizes the core assets and core competencies of the supportive collaboration business model.

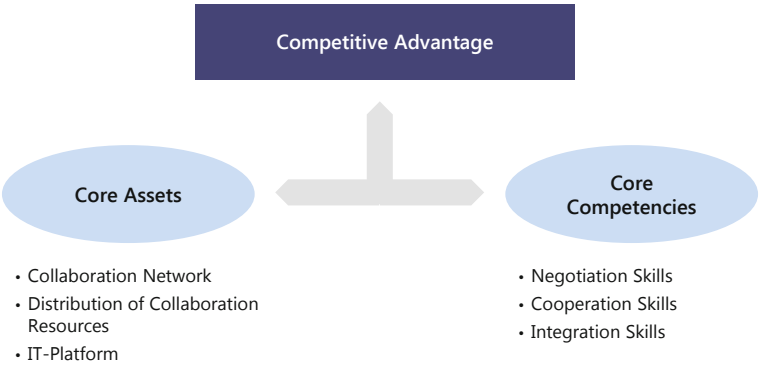

Fig. 9.10 Core assets and core competencies of the supportive collaboration business model. *Source* Wirtz (2010b, 2018b)

9.4 The Service Broker Business Model

The B2B business model of service broker supports B2B business transactions by providing information and marketplaces (Weill and Vitale 2013). Unlike the rest of the 4S-Net Business Model, this model involves third-party providers or intermediaries. Thus, there is no direct relationship between the companies that eventually make deals and conduct transactions, instead they are only connected to each other via the corresponding intermediary. The business model of B2B service broker comprises the categories of e-information and e-marketplaces. Figure 9.11 presents the business model of service broker and its related subcategories.

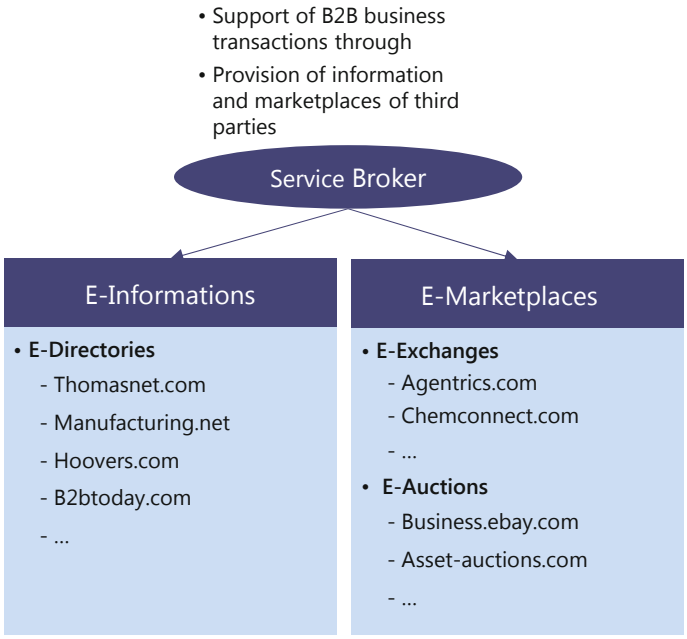

Fig. 9.11 Digital business model service broker. *Source* Wirtz (2010b, 2018b)

The subcategory e-information describes the provision of pure business information portals. Valuable business information, such as product directories, retailer overviews, as well as general or specific market information or industrial information is provided to respective business clients. A trading exchange function between buyers and sellers is not available, as the service is limited to selling information.

E-directories such as Thomasnet.com offer a large online database of companies by segment, product/service or location and thus offer easy search options for manufacturers, wholesalers or service providers. Other information portals, such as Hoovers.com, do not focus on linking buying companies and suppliers, but provide company profiles including financial data of over 85 million companies in order to assess, for example, the liquidity of a business partner (Hoovers 2016).

Unlike e-information, e-marketplaces do not only offer information but also access to products and services. An e-marketplace is an electronic trading exchange operated by intermediary companies to match potential sellers and buyers. Unlike the previously described sell-side or buy-side operated B2B exchanges, the independent e-marketplaces are usually publicly available to companies. Interested companies (buyers and sellers) meet on a common electronic platform to trade goods and services (many-to-many). The most frequently used types of e-marketplaces are e-exchanges and e-auctions that will be discussed in more detail below. An e-exchange, operated according to the service broker model, involves

offers from different product or service providers, standardized and presented on a central platform to potential buyers (Sila 2013, 2015).

Those e-exchanges do not only present the products or services, but also act as supporting intermediaries for the transaction process between buyers and sellers, for instance, by providing special trading rooms and support services in the payment processing. An e-exchange, to be successful, requires a large scope of the IT platform and appropriate advertising, especially on the supply side. For example, the company NeoGrid operates one of the world's largest e–exchange platforms in the retail industry, which is used by more than 100,000 business clients (NeoGrid 2016).

E-auctions are a special form of e-exchanges and a frequently used tool in the B2B sector. While an ordinary e-exchange lists products with fixed price tags, e-auctions apply a dynamic pricing. The bidder with the highest bid is usually successful; however, there are different forms of auctions that can be applied such as supplier-side bidding in which the seller with the lowest price gets the contract.

The aggregated value chain of the service broker business model consists of five main stages. In the stage of conception and design, the service broker determines the services that are supposed to be offered and the customers that are supposed to be addressed by these services. Based on this, the service broker can start with the setup and maintenance of the IT platform and acquire the content needed. For an e–information provider this means collecting or producing the information that is necessary for the planned conception. For an e-marketplace provider this is about acquiring product or service offers that are supposed to be distributed via its platform.

In the next stage, the service broker seeks to acquire customers by means of target group-specific marketing activities and finally provides the service to the customers. The following stage of billing contains payment handling and receivables management. The most important aspect with regard to the after-sales service refers to data mining that enables companies to analyze and, at best, anticipate customer needs. Figure 9.12 illustrates the aggregated value chain of the service broker business model.

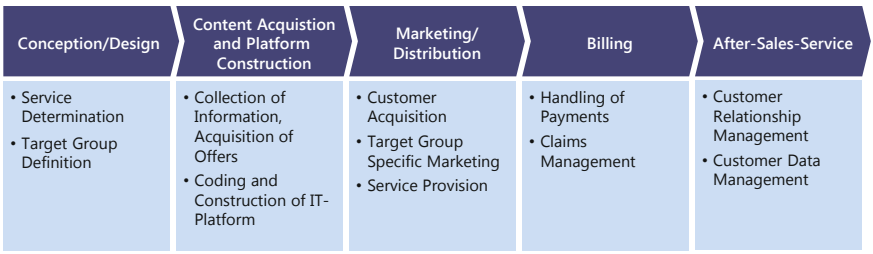

Fig. 9.12 Aggregated value chain of the service broker business model. *Source* Wirtz (2010b, 2018b)

The most important core assets of the service broker business model are not only the provided service broker content and the customized IT platform, but also particularly the customer base. The attractiveness of an e-marketplace, for instance, results from the number of visitors and thus the potential customer base of the e-marketplace. The higher the number of registered users of a marketplace platform, the higher the reach and hence the purchase probability. Establishing and cultivating a brand further supports this development. A good reputation positively influences the value of the created content, which in turn can also be seen as a core asset. Finally, it is particularly important for service brokers in the B2B area to establish and cultivate industry-specific networks in order to gain a differentiation or cost advantage over their competitors.

The most important core competencies of the service broker business model, besides the setup and operating of the technical infrastructure, are particularly the competencies with regard to the assortment design and customer acquisition or retention. This can be understood as the ability to present or categorize relevant products and services to the customer in an appealing way and to bind the customer to the company in the long term by means of CRM measures. This ability is essential for establishing and extending a critical customer base because the switching costs among providers on the Internet are particularly low. Figure 9.13 summarizes the core assets and the core competencies of the service broker business model.

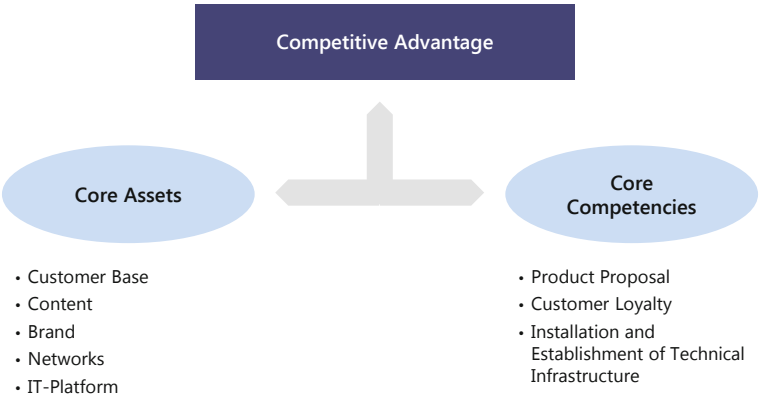

Fig. 9.13 Core assets and core competencies of the service broker business model. *Source* Wirtz (2010b, 2018b)

Chapter 10
Digital Business Model Innovation

Business model innovation has received more attention in recent years than nearly all of the other subareas of business model management. In this respect, there is a great interest in literature and practice regarding the conditions, structure and implementation of innovations on the business model level. Since business model innovation is rather abstract compared to product or process innovation, knowledge of the business model concept as well as classic innovation management is necessary in order to better understand it.[1]

The following describes the structure of business model innovation relating to traditional innovation management. For this purpose, Sect. 10.1 first outlines the development of business model innovation in the literature and highlights the topicality as well as the significance of the concept in practice. To better explain the concept of business model innovation, Sect. 10.1 presents the most important approaches and shows the relevance for the field of research.

Following this, Sect. 10.2 defines the concept of business model innovation and differentiates it from other types of innovation, highlighting its various characteristics. Section 10.3 describes the process of business model innovation, presenting general innovation processes and developing a specific business model innovation process. Finally, Sect. 10.4 outlines the most relevant aspects of business model management from respective scientific literature.

10.1 Introduction to Business Model Innovation

The concept of business model innovation is closely linked to the development of business models. With the bursting of the new economy bubble, many companies were forced to reconsider their business model and often had to make some radical changes (Wirtz 2000c). This frequently involved the company's very survival.

[1]See also for the following Wirtz (2018a).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_10

During this phase, the term business model innovation emerged as a description of radical business model change or reorientation.

Since the year 2000, the concept of business model innovation has also gained importance for traditional industries and well-established companies. In the course of globalization, the outsourcing of value-added activities and a great number of new competitors, companies have been forced to change their value-added structures, some of which have been around for decades. That is why many of the first structuring approaches of business model innovation can be found in company practice. In particular, large consulting firms have taken up the concept and published numerous studies and analyses for business model innovation and related topics. In this context, names such as McKinsey, Accenture, Deloitte, Boston Consulting Group or Mercer should be mentioned (Budde et al. 2000; Linder and Cantrell 2000; Rupf and Grief 2002).

- Development of Business Model Innovation

As the practical relevance of business model innovation has increased, the number of scientific authors dealing with the topic has multiplied since the year 2000 (Wirtz et al. 2016a). Relevant literature has brought about a heterogeneous pool of studies that can be differentiated into three research areas: corporate strategy, innovation and technology management and entrepreneurship (Schneider and Spieth 2013). Figure 10.1 illustrates the three development stages of business model innovation literature and its three research areas.

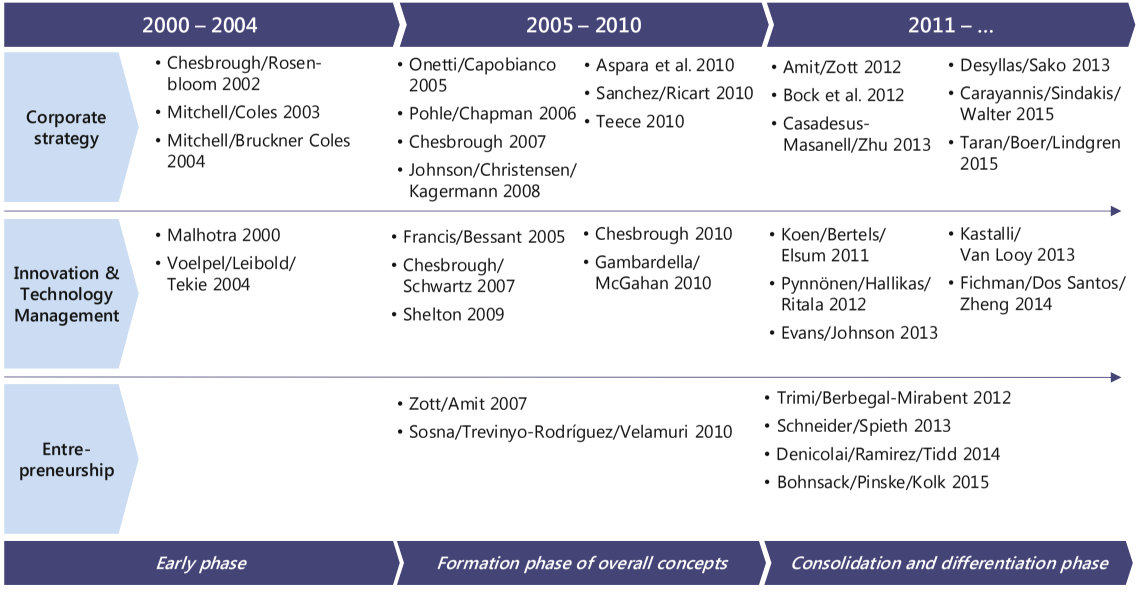

Fig. 10.1 Overview of business model innovation literature. *Source* Wirtz et al. (2016a)

From the beginning, there is a strong strategy orientation in the business model innovation literature. The general link to corporate strategy seems obvious as the business model can be seen as the core of a company's strategy (Casadesus-Masanell and Ricart 2010). The same applies to the field of innovation and technology management. This research area is primarily focusing on a structural creation of business model innovations and an effective and efficient application of information technologies. The last category entrepreneurship has just started to gain importance in the last years.

The development of the business model innovation literature can be subdivided into three phases the early phase, the formation phase of overall concepts and the consolidation and differentiation phase. The research contributions of the early phase primarily focus on the relationship between business models and innovations and derive respective conceptual development concepts (Chesbrough and Rosenbloom 2002). Despite the relatively early stage of development at that time, some scholars have already seen the potential and the importance of business model innovation (Mitchell and Coles 2003).

In the following formation phase, there was a further advancement and extension of business model innovation concepts. Moreover, a clear distinction between business model innovations and technology innovations was made (Chesbrough 2010). Apart from that, companies increasingly realized that business model innovation holds large potentials for them and also contributes to sustainable company success. Pohle and Chapman (2006) concisely summarize the above-mentioned deliberations, stating that "business model innovation matters" (Pohle and Chapman 2006). In the formation phase, also more practical aspects such as tested guidelines, courses of action and handbooks aligned with presented case studies become more and more relevant (Johnson et al. 2008).

In the still continuing consolidation and differentiation phase, there are multiple attempts to consolidate diffuse and interdisciplinary approaches of business model innovation. These attempts of consolidation lead to differentiation of concepts and thus to a strengthening of the independence of this relatively young research area. The scope of academic literature on the topic develops largely parallel to the increasing relevance of the business model innovation concept in the corporate world. Particularly since the year 2010, there has been a clear increase in publications in the respective research field. Figure 10.2 illustrates this growth development.

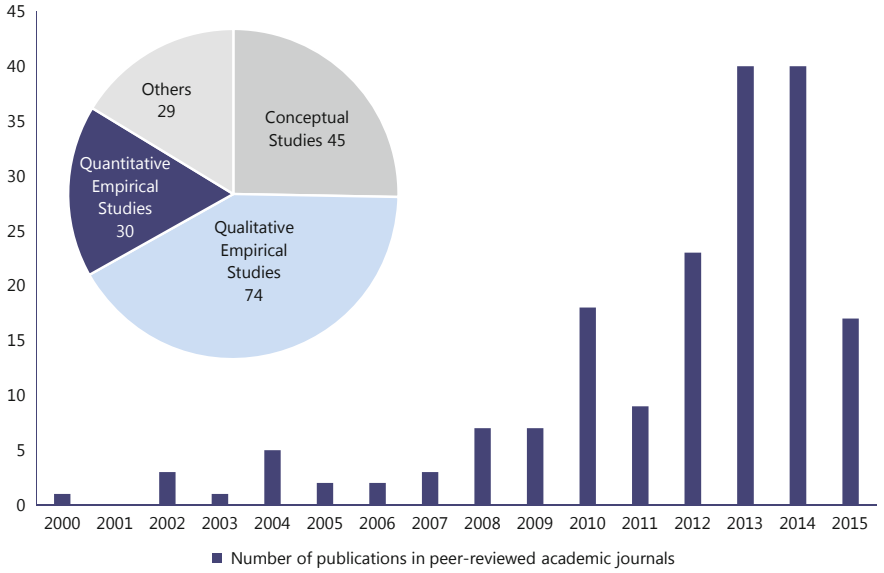

Fig. 10.2 Number of BMI publications from 2000 to 2015. *Source* Wirtz et al. (2016a)

In total, Wirtz et al. identified 178 publications in peer-reviewed academic journals on the topic of business model innovation. 149 of them are scientific papers (45 with conceptual, 74 with a qualitative empirical and 30 with a quantitative empirical research design). The remaining 29 are other publications such as editorial comments or reviews.

The majority of these publications on business model innovation are empirical studies. Most of them are based on primary data that are derived from case studies, interviews or surveys. This shows the proximity and relevance of business model innovation research to practice.

The 178 studies can be arranged in six research areas: definition and types, design and process drivers and barriers, frameworks, implementation and operation and performance and controlling. Table 10.1 illustrates the intensity of research with regard to these research areas.

Table 10.1 Classification of business model innovation publications

Topic	Main content	Conceptual studies	Qualitative empirical studies	Quantitative empirical studies	Σ
Definition and types	– BMI definition and differentiation of existing concepts – Distinction of existing concepts	10 (43.5%)	10 (43.5%)	3 (13.0%)	**23 (15.4%)**
Design and process	– Ex-ante BMI-development – BMI-steps and -phases	12 (32.4%)	19 (51.4%)	6 (16.2%)	**37 (24.8%)**
Drivers and barriers	– BMI-drivers/-enabler – BMI-barriers	7 (35.0%)	13 (65.0%)	0 (0.0%)	**20 (13.4%)**
Frameworks	– Presentations of BMI-concepts – Categorising BMI-parameters	12 (40.0%)	13 (43.3%)	5 (16.7%)	**30 (20.1%)**
Implementation and operation	– Implementation of BMI-concepts – BMI-operations	3 (12.0%)	16 (64.0%)	6 (24.0%)	**25 (16.8%)**
Performance and controlling	– Ex-post monitoring of the BMI-feasibility, profitability and sustainability	1 (7.1%)	3 (21.4%)	10 (71.4%)	**14 (9.4%)**
Σ		**45 (30.2%)**	**74 (49.7%)**	**30 (20.1%)**	**149 (100.0%)**

Source Wirtz et al. (2016a)

It becomes apparent that research pays most attention to the area design and process (24.8%), followed by the areas frameworks (20.1%), implementation and operation (16.8%), definition and types (15.4%), drivers and barriers (13.4%) and performance and controlling (9.4%). The relevance of business model innovation and the concept's independence are hardly questioned today. The importance of success of business model innovation is emphasized both in practice and literature.

In an IBM Study from 2008, 98% of more than 1000 CEOs interviewed, stated that they had innovated their business model at least moderately (IBM Global CEO Study 2008). About 70% of the CEOs interviewed are even planning to realize fundamental business model innovations. With regard to success relevance, it was determined that "most CEOs are embarking on extensive business model innovation. And outperformers are pursuing even more disruptive business model innovations than their underperforming peers" (IBM Global CEO Study 2008, p. 47). Figure 10.3 shows the key findings of the study in terms of business model innovation.

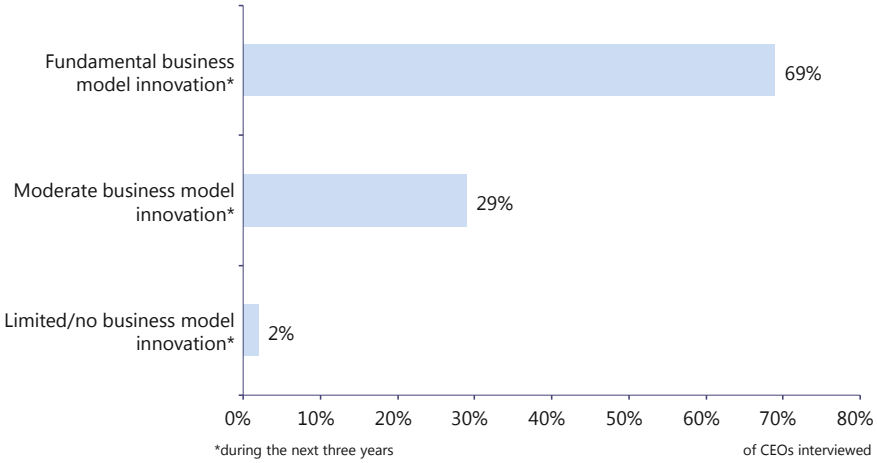

Fig. 10.3 Planned business model innovations of CEOs interviewed. *Datasource* IBM Global CEO Study (2008)

In a more recent study of IBM from the year 2015, four fifth of surveyed C-level executives stated that they frequently experiment with new or alternative business models. A large proportion of managers consider business model innovation to be more relevant to the success of a company than product innovations. In the aforementioned IBM study, the company Uber was given as an outstanding example of business model innovation. The market capitalization of Uber that was founded in the year 2009, exceeds already the sum of the market capitalization of all rental car companies together (IBM Institute for Business Value 2015). One of the surveyed CEOs considered the business model innovation in this context as a "Uber Syndrome" referring to a situation "where a competitor with a completely different business model enters your industry and flattens you" (IBM Institute for Business Value 2015).

While the study of 2008 presented mostly the perception that business model innovation was a promising opportunity for differentiation to compete with other companies in the market, the view has changed in the meantime (IBM Institute for Business Value 2008, 2015). Today, business model innovation is perceived as a real threat to established business models. In times of changing competitive environments many industries today can be challenged by new business models. Against this background, business models play a crucial role for a sustainable business success.

Moreover, the new environment makes it difficult to monitor potential threats to the own business model, as potential actors are often not established competitors but new entrants to the markets, such as digital start-ups. Many surveyed CEOs also declare that this rather new phenomenon is happening more frequently in their own sector. New technologies combined with new business models are today part of the daily business of established companies.

The academic literature also confirms this phenomenon. Some of the earlier articles, such as by Chesbrough and Rosenbloom (2002), are often still associated with innovation literature or view the concept only in its early stages. With the exception of Hamel (2000), approaches addressing the innovation of the business model itself as a key role were developed at a later stage.

Among others, important articles to be mentioned are Keen and Qureshi (2006), Chesbrough (2006, 2010), Zott and Amit (2007), Amit and Zott (2010), Johnson et al. (2008) and Gambardella and McGahan (2010). Research in the context of business model innovation was not only limited to successful companies from the e-business sector such as Amazon, Google or Facebook, but also dealt with the success (such as Dell, Southwest Airlines) or lost opportunities (e.g., Xerox) of long-established companies with regard to business model innovation (Magretta 2002; Chesbrough and Rosenbloom 2002). The relationship to existing concepts, such as product and service innovation or strategic reorientation, was also evaluated, thus further specifying business model innovation.

A vast number of studies can also be found in literature that confirm the relevance of business model innovation to the success of companies (Hamel 2000). The view has been established in the past few years that this relevance to success can be applied to all kinds of companies and to a wide range of industries (Budde et al. 2000). In particular, the ability of a business model innovator to have a lasting influence on an entire industry and to create a completely new market plays a dominant role in many articles. For example, Gambardella and McGahan (2010) found: "All firms have business models, but legendary firms that shape their industry structures—those such as Google and Apple Computer—are business-model innovators that organize themselves and their interactions with customers and suppliers in unprecedented ways" (Gambardella and McGahan 2010, p. 262).

Although there is a broad consensus on the relevance to success and importance of the concept, various research streams regarding business model innovation can be identified in literature. The approaches are based on the assumption that business model innovation has a transformative character and hence is the counterpart to the static approaches previously considered (Demil and Lecocq 2010).

The approaches shown in the literature can be differentiated on the basis of two dimensions. The first dimension refers to the definition of a structural frame of components for business model innovation (Demil and Lecocq 2010). One question is whether a structural frame of components (ex ante) exists before business model innovation or whether it is formed after innovation by means of the new model or the definition of a structural frame is entirely waived. A statement about innovation efforts can only be made before business model innovation if there is knowledge of an existing structural frame.

The second dimension, which is more important to the classifying of approaches existent in the literature, refers to the degree of structuring of business model innovation. Here, it is differentiated whether business model innovation is done

according to a structured plan that is carried out by the management of a company or whether business model innovation is realized more experimentally. Figure 10.4 classifies the approaches in the literature based on the dimensions introduced. The following shows the individual quadrants and their most important representatives.

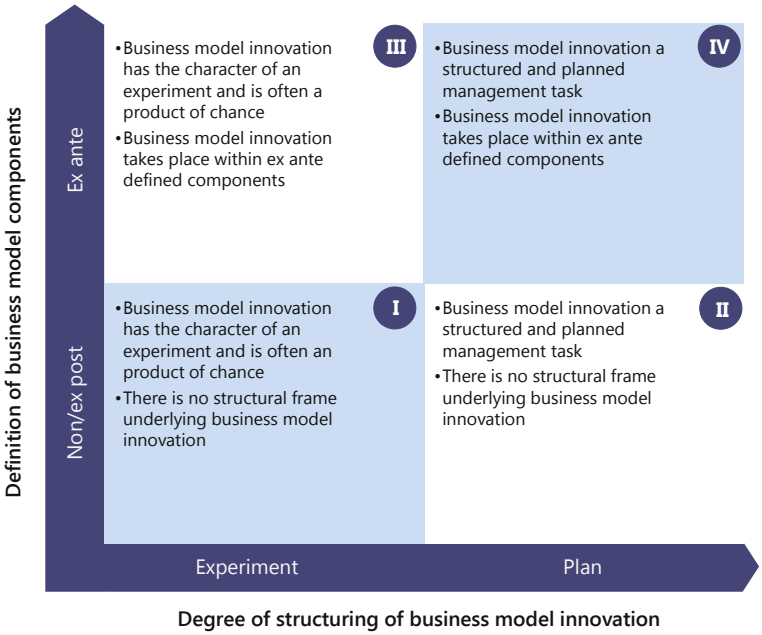

Fig. 10.4 Business model innovation approaches in the literature. *Source* Based on Demil and Lecocq (2010)

The first quadrant represents approaches that postulate an experimental procedure for business model innovation, without defining a concrete scope of action ex ante. These approaches are characterized by maximum degrees of freedom for business model innovation, while, however, offering the least structuring aid for business model management. Representatives of this viewpoint are, for example, Sosna et al. (2010) who propose a trial-and-error method for business model innovation.

The inductive approach by Casadesus-Masanell and Ricart (2010) can also be assigned to this category. Demil and Lecocq (2010) state that the ex ante definition of components limits business model innovation too much with regard to the new model. The authors choose a middle course between I and III and define only a few core components.

The second quadrant plays only a minor role for the classification of business model literature. Structured and methodical business model innovation is hard to imagine without the definition of (core) components. The quadrants III and IV are more important, postulating an ex ante definition of the structural frame of business models. These also correspond with the component-related view of the business

model presented here, which has prevailed in the literature in recent years. In this context, it needs to be further differentiated in what way business model innovation is the result of an experiment or a management plan. These two approaches are identified in the literature today as dominant for business model innovation.

An important representative of the third quadrant is Chesbrough, who has shaped one of the two leading forms of business model innovation (Chesbrough 2006). Chesbrough's work for business model innovation can be traced back to the year 2002. Just as other authors in the context of business model management, Chesbrough also mainly focused on innovation management in his early work. He examined what it was that kept companies from utilizing new findings from the business environment in spite of substantial R&D investments and state-of-the-art research facilities. Chesbrough developed the approach that the opening of the innovation process for those companies is elementary and success will only come after the new understanding of innovation is embedded in a suitable, open business model (Chesbrough 2006). His view of the concept business model innovation also becomes evident here.

Potential innovations that require business model innovation, such as the foundation of a spin-off, can appear anywhere in the company or the business environment and are thus difficult to plan. According to the author, business model innovation can only succeed if the management goes along with such experiments. Chesbrough formulated important components of the business model as early as 2003 and also holds a component-oriented view of business model innovation. Overall, an understanding is shown that is characterized by classic innovation, in which the business model primarily supports the utilization of mostly technical innovation.

A second important form of business model innovation involves an active management by means of suitable structural components. In contrast to Chesbrough's approach, it is postulated that business model innovation is a procedure that is elaborated and accompanied in a structured management process. In particular, Zott and Amit as well as Johnson et al. can be identified as leading representatives of this school (Johnson et al. 2008; Zott and Amit 2010).

Johnson et al. (2008) postulate three steps for this process: First, the management has the task of developing a strong customer value proposition. In a second step, the management has to formulate the profit formula that is how revenues for the company can be generated from the value proposition. Only then the innovated business model can be compared with the existing one and it can be decided whether it can be implemented within the existing organization or, for example, a new business unit must be created (Johnson et al. 2008).

Another important approach in the framework of structured, management-oriented business model innovation is proposed by Zott and Amit (2007, 2010). The authors present a framework within a system of activities for business model development, which is supposed to contain crucial design parameters in the management's point of view. Zott and Amit name the four central topics of novelty, lock-in, complementarities and efficiency. The topic of novelty can be understood in this connection as business model innovation. By looking at innovation as a parameter with the elements content, structure and governance, the authors postulate a analytical view of business model innovation. Figure 10.5 illustrates this approach.

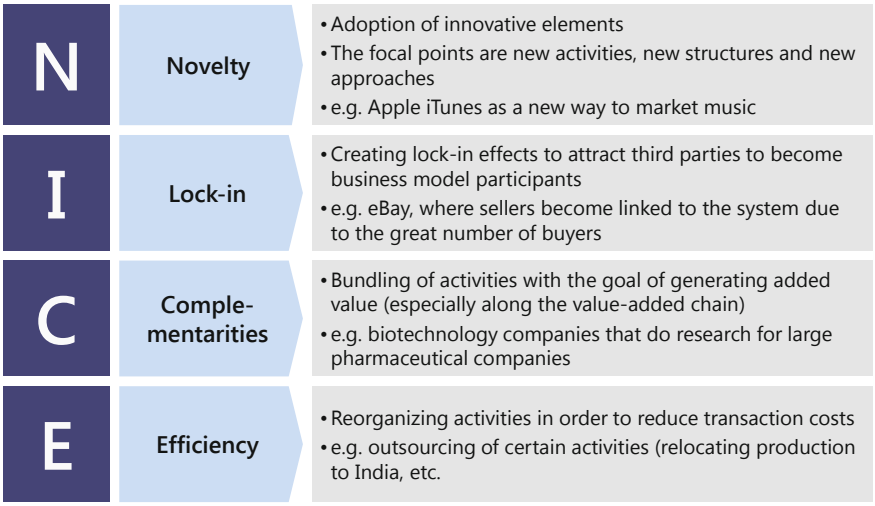

Fig. 10.5 NICE-framework. *Source* Based on Zott and Amit (2007, 2010)

10.2 Demarcation of Business Model Innovation

Innovation is one of the best-known and most discussed phenomena in various research disciplines. Innovation research can be found in natural, social and political sciences as well as in economics and business management. Consequently, there are many views existing today and there is no common understanding of what innovation comprises and which targets it pursues. In addition, there has been an inflationary use of the term innovation in practice and in the media in recent times, which has contributed little to a general understanding of the phenomenon.

The concept of innovation can be traced back to Schumpeter and his theory of creative destruction, and has proven to be highly relevant to success. This success orientation forms the core of the viewpoint on innovation for business analysis (Hauschildt and Salomo 2016). This success orientation can also be applied to the concept of business model management and business model innovation.

Since business model innovation is a special case of innovation, a closer look needs to be taken at classic innovation with regard to its importance for business model innovation, in order to better define the concept. In particular, four fundamental insights can be deduced in the context of business model innovation (Hauschildt and Salomo 2016):

- Innovations must differ significantly from their original condition.
- Innovation requires the exploitation of an idea on the market: innovation = invention + exploitation (Roberts 1987).
- Innovation can be initiated from the market by demand (demand pull) or by new supply (technology push).
- Innovation has a procedural structure.

These fundamental elements of innovation can also be applied to business model innovation, which has hardly ever happened in the literature before. Many authors dealing with the concept do not provide a clear definition, which signifies a considerable lack of conceptual clarity for business model innovation.

Business model innovation is often seen as a change of business models on a component level (Demil and Lecocq 2010). In recent years, however, the trend has been towards a definitional approach to the concept. Table 10.2 provides an overview of the relevant definitions of business model innovation.

Table 10.2 Definition of business model innovation

Author	Definition
Mitchell and Bruckner Coles (2004, p. 17)	"By business model innovation, we mean business model replacements that provide product or service offerings to customers and end users that were not previously available. We also refer to the process of developing these novel replacements as business model innovation"
Gambardella and McGahan (2010, p. 263)	"In this conceptualization, business-model innovation occurs when a firm adopts a novel approach to commercializing its underlying assets. One arena in which many firms with important knowledge assets are currently innovating is in the rising "markets for technology", where firms sell rights to their intellectual property rather than themselves directly commercializing products and services based on their knowledge capital"
Osterwalder and Pigneur (2010, p. 136)	"Business model innovation is not about looking back, because the past indicates little about what is possible in terms of future business models. Business model innovation is not about looking to competitors, since business model innovation is not about copying or benchmarking, but about creating new mechanisms to create value and derive revenues. Rather, business model innovation is about challenging orthodoxies to design original models that meet unsatisfied, new, or hidden customer needs"
Wirtz (2011a, p. 206)	"Business model innovation describes the design process for giving birth to a fairly new business model on the market, which is accompanied by an adjustment of the value proposition and/or the value constellation and aims at generating or securing a sustainable competitive advantage"

The heterogeneity regarding the understanding of the term is clearly shown by these definitions. For example, Mitchell and Bruckner Coles (2004) define business model innovation as an activity that changes or replaces products and service offerings in order to reach new customer groups. Gambardella and McGahan (2010) take a business model innovation view that is strongly connected to the commercialization of existing assets. Osterwalder and Pigneur (2010) enlarge this perspective with the advancement of business models in order to specify them according to customer needs. In contrast, Wirtz (2011a) emphasizes the meaning of the new value proposition for business model innovation.

In spite of this heterogeneity, there are some commonalities that can be extracted to form an overall definition. The above-mentioned definitions should be analyzed according to subject-related, functional and teleological aspects. With regard to the subject matter of business model innovation, the definitions show a similar understanding. The subject matter of business model innovation is always the (current) business model and thus its underlying structure.

Since a component-oriented view has prevailed in literature, business model innovation represents innovation of this ex ante defined structural frame. In contrast, there is disagreement about the extent of structural change. While some authors consider innovation with fewer structural components to be business model innovation, others require more substantial changes (Teece 2010). However, many approaches agree that a change of the value proposition is essential for innovation.

Although the definitions only partially identify functional aspects, similar approaches are also shown here. Accordingly, business model innovation serves the function of creating a new business model. There is disagreement, however, about the question of what degree of novelty this innovation must have. While some authors already speak of business model innovation when the innovated model is new to a company, other authors demand the novelty for the entire industry or even the creation of a new industry. Johnson et al. (2008) emphasize this aspect: "Pursuing a new business model that's not new or game-changing to your industry or market is a waste of time and money" (Johnson et al. 2008).

In terms of its teleological aspects, i.e. the targeting and functionality of business model innovation, the definitions, in turn, show similarities. The objective of business model innovation is always to secure or create sustainable competitive advantage. This primary objective is often expressed through other objectives, such as increased customer benefits or the utilization of technological innovations Chesbrough (2010). Senger and Suter (2007) find: "Business models are temporary competitive advantages. A systematic approach ensures that a business innovation does not happen by chance and possible deflagrate but takes place quickly, targeted and sustainably."

In summary, it can be stated that the core elements of the business model are the subject of innovation for an integrated definition of business model innovation. Various viewpoints can be found in the literature regarding the question of which elements of the business model represent core elements in this context. The value proposition is such an aspect that can be deduced from this integrated definition. Along with value proposition, numerous indications are found in the literature that business model innovation can be accompanied by a change of the added-value structure [see in the following Magretta (2002), Schweizer (2005), Lindgardt et al. (2009), Teece (2010)]. Many authors refer in this connection to the change of the value chain (for example, omitting value creation steps) or of the integration of new value-adding partners (for example, customer integration). The second core aspect of business model innovation then is value constellation.

Furthermore, the view is taken that business model innovation will take on the function of a renewal or re-creation of the business model, following the innovation literature that calls for this novelty. The teleological aspect follows the view postulated in the literature according to which the goal of business model innovation is always sustainable competitive advantage.

Although valuable knowledge could be deduced for business model innovation, up to now definitions of business model innovation have rarely integrated aspects from classic literature. In addition to the aforementioned novelty, particularly the procedural structure of innovation should be emphasized here.

Moreover, the aspect of implementing the innovation in the market also plays an important role for business model innovation. These aspects also need to be reflected in an integrated definition of business model innovation. The following definition should therefore be a synthesis of the definitions in the business model context and, at the same time, integrate the demonstrated core elements of classic innovation.

Definition of Business Model Innovation by Wirtz (2011a)
Business model innovation describes the design process for creating a widely new business model on the market, which is accompanied by an adjustment of the value proposition and/or the value constellation and seeks to generate or secure a sustainable competitive advantage.

The relation of the definition to the existing innovation understanding illustrates the content-related proximity of business model innovation to the two classic types of innovation, i.e. product and process innovation. However, business model innovation constitutes an independent concept.

Today, many authors see it as a third type of innovation and on the same level with established concepts (Chesbrough 2007). Chesbrough says the following: "Today, innovation must include business models, rather than just technology and R&D" (Chesbrough 2007, p. 12).

Business model innovation differs from product and especially from process innovation by its higher degree of abstraction. While process innovation describes the new design or redesign of value creation processes, business model innovation includes the new design or redesign of the superordinate added-value network (value constellation) or of the value promised to the customer (value proposition). Furthermore, business model innovation can be differentiated from product and process innovation by means of its degree of novelty.

In business practice, more frequently incremental rather than radical innovation can be observed in the classic types of innovation, whereby great importance is attached to incremental innovation (Totterdell et al. 2002). In the business model innovation literature, however, the view has prevailed that business model innovation always has a radical character—this pertains at least to the innovating company, but mostly to entire industries (Johnson et al. 2008). Demil and Lecocq (2010) find: "In particular, new BMs have been acknowledged as radical innovations with the potential to shake whole industries" (Demil and Lecocq 2010). However, these three types of innovation may also be mutually dependent and overlap each other.

Interdependence can already be observed between product and process innovation, although it is not always easy to differentiate. For example, a product innovation is often accompanied by changes in the production process. Separating

product and process innovation is often more difficult in the service sector. There are also overlaps in business model innovation. Usually, business model innovation includes a new design or redesign of processes.

Process innovation is, however, downstream from business model innovation and takes place at the operational level. Moreover, business model innovation can also follow product or even process innovation. Some authors argue that an innovation of the business model always needs to take place for the marketing of new technology (Chesbrough 2010). Hence, the traditional types of innovation become the driver of business model innovation.

10.3 Types and Processes of Business Model Innovation

The central part of business model innovation is the concrete design in the framework of business model management. Such design requires fundamental knowledge of different types and processes of business model innovation. Those two aspects will be outlined in the following two sections. In the first section, business model innovation types, effects and drivers are described. Against this background, the section also derives a structural framework of business model innovation. The subsequent section presents different business model innovation processes, which is then basis of an integrated business model innovation process.

- Types of Business Model Innovation

Within the framework of business model management, business model innovation can be demonstrated by means of various aspects. First, a distinction can be made with regard to the innovation object. Here, it is necessary to check whether the business model innovation is an innovation of value constellation, value proposition or a combination of the two. As a last distinguishing feature of business model innovation, the drivers and/or the triggers of the business model innovation process can be taken into account. Three central drivers of business model innovation can be deduced from innovation literature and existing business model innovation literature (Goffin and Mitchell 2010): Technological progress, a dynamic market environment and tougher competition, as well as changed customer needs.

Some authors consider technological progress to be the central driver of business model innovation (Chesbrough 2010). Teece (2010) ascertains: “Every new product development effort should be coupled with the development of a business model which defines its ‘go to market’ and ‘capturing value’ strategies” (Teece 2010). Accordingly, business model innovation plays a particularly important role during phases of technological breakthroughs, such as the development of the Internet and the growing significance of e-business. Here, business model innovation often serves as a tool to market new technology.

Changing market conditions that are primarily expressed by tougher competition is another driver of business model innovation. Long-established companies have found themselves confronted with many new competitors through globalization and modern information and communication technologies. Thus, the pressure on these companies to innovate their business model has increased. But also today, new

market players are forced to design an innovative business model in order to generate sustainable competitive advantage. It should be noted, however, that business model innovation not only takes place in economically difficult times but also during periods of economic upturn (Deloitte 2002).

Changing customer needs constitute the last driver of business model innovation. In this context, especially the greater influence of customers on companies plays an important role. Many companies have taken advantage of the customers' desire for participation and have included them in their value-added activities through value constellation innovations. Moreover, customer expectations with regard to product quality and level of service have changed. In this way, new business models have frequently emerged in connection with new services, especially on the Internet. Figure 10.6 shows the drivers of business model innovation in their structural context.

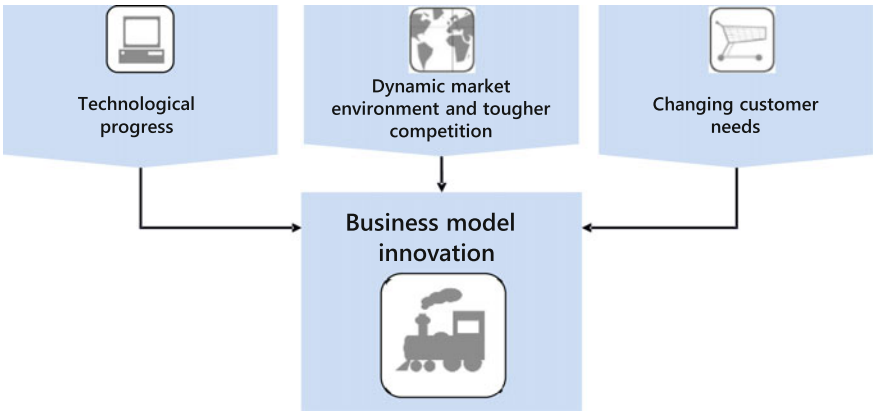

Fig. 10.6 Drivers of business model innovation. *Source* Wirtz (2011a, 2018a)

Analogous to the definition derived, the change of the value proposition or the value constellation of the business model constitutes the core of business model innovation. Value proposition in this context has to do with the promise of benefit and how this benefit is provided to the customer. Value constellation, in contrast, describes the structure of added value. It answers the question of who in what manner was involved in the creation of value.

In order to speak of business model innovation, at least one of these elements must undergo a change that is discernible in the market. It should be noted that the types of business model innovation describe the focus of the innovation. Value constellation innovation is often accompanied by a minor value proposition innovation and vice versa. We cannot talk of joint business model innovation in this context until both value proposition and value constellation are core elements of the innovation (Fig. 10.7).

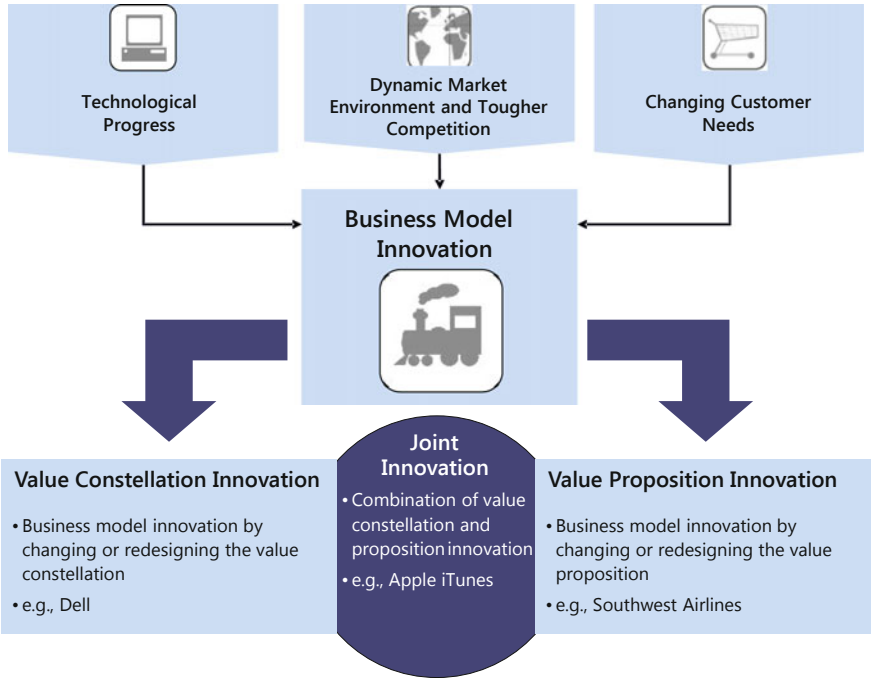

Fig. 10.7 Types of business model innovation. *Source* Wirtz (2011a, 2018a)

An example of a business model innovation by changing the value proposition is Southwest Airlines. The airline innovated the market for passenger flights in the 1970s by being the first company in this sector to establish a low-price concept. As a so-called "low-cost carrier" (or also "no-frills", "discount" or "budget carrier"), Southwest gave up most of the additional services related to transport in favor of lower ticket prices. Later on, the concept was adopted by airlines such as Ryanair or EasyJet. Although the rendering of the core service remained unchanged in principle, Southwest innovated the value proposition of the business model and became one of the most successful airlines.

The successful computer manufacturer Dell is an example of business model innovation through innovation of value constellation. The success of the company can definitively be traced back to the radical change of the value-added structure of the PC market. Dell was the first company to establish the direct marketing of PCs and thus to generate considerable cost advantages. In doing so, Dell neither offered any new hardware nor any fundamentally altered value proposition. Dell realized a sustainable competitive advantage through the innovation of value constellation.

Pure business model innovations by redesigning the value constellation can be found relatively seldom in practice, since a change in added value is usually

accompanied by a change in customer benefit. In the case of Dell, these are cost advantages that the company passes on in part to the customers. However, the focus of business model innovation is value constellation. There are also companies though, whose sustainable competitive advantage can be traced back to an innovation of the value constellation and the value proposition.

The company Apple, for example, succeeded in integrating value proposition innovation and value constellation innovation with its music platform iTunes. Apple formed a new value proposition with iTunes, allowing users to legally download a large selection of music. Especially when combined with hardware also offered by Apple (iPod, iPhone, iPad), the result is a unique value proposition. Moreover, Apple sustainably changed the value chain of the music market by establishing the Internet as a direct sales channel for digital music. Today, Apple iTunes is worldwide the largest music platform with the highest turnover.

Besides distinguishing according to the type of innovation object, business model innovation can also be distinguished by means of its impact on the market (or industry). There are two different scenarios: On the one hand, the new business model can have sustainable influence on the existing market and, on the other hand, it is possible that a new market will be created by a business model innovation. Zott and Amit (2007) state that: "[…] business model either creates a new market (like eBay) or innovates transactions in existing markets (like Priceline.com)".

If business model innovation takes place in an existing market, it can have a significant or even a disruptive impact on previous business models. The innovated business model is distinguished by a superior value constellation that is usually reflected in the form of cost advantages, or by a superior value proposition that better satisfies the needs of the customers. Both forms create sustainable competitive advantage to the disadvantage of the existing business models. A good example here is once again the computer manufacturer Dell, which sustainably changed the computer market through business model innovation, forcing established providers such as IBM to innovate their business model.

Besides changing an existing market, business model innovation can also create a whole new market (Chesbrough 2006; Johnson et al. 2008). The starting point of business model innovation can either be an existing business model or a new foundation, such as a start-up or spin-off. In both cases, components of the innovated business model satisfy existing and previously unsatisfied customer needs or create new needs.

It becomes evident that creating a new market is only possible through value proposition innovation or a joint business model innovation. Besides the auction platform eBay, Google can also be mentioned here, as it created a whole new advertising market with search engine marketing and context-sensitive advertising. Figure 10.8 illustrates the effects of business model innovation in its structural context.

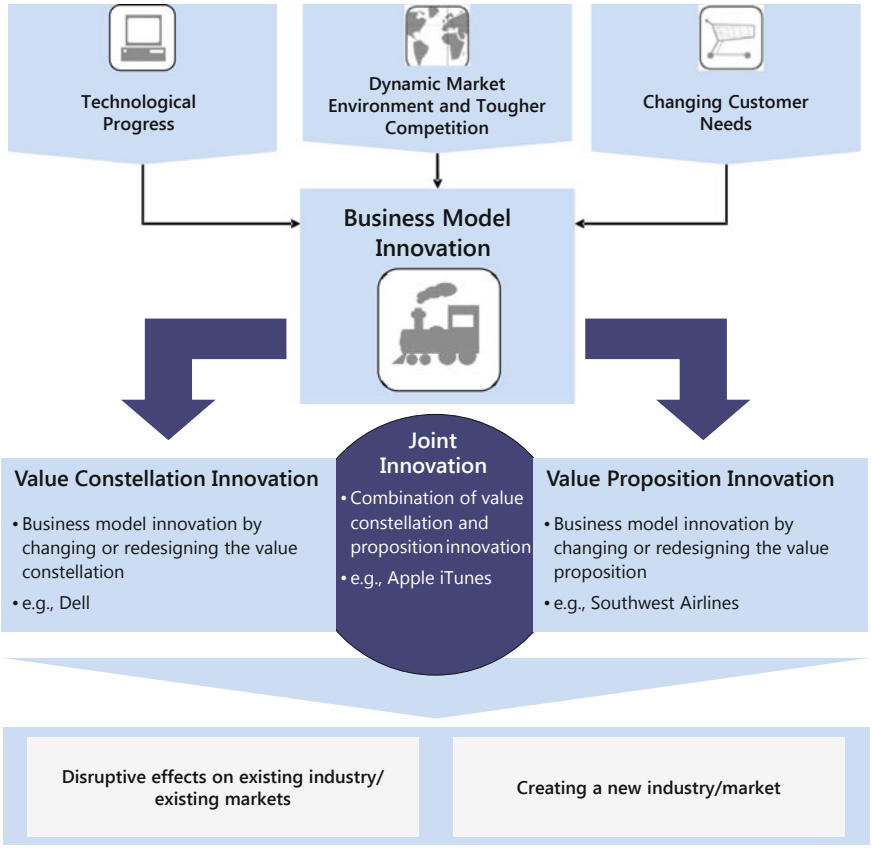

Fig. 10.8 Effects of business model innovation. *Source* Wirtz (2011a, 2018a)

- Process of Business Model Innovation

Just like other innovations, business model innovation is characterized by a procedural structure. This structure has similar phases in classic innovation management. Therefore, we first introduce classic innovation processes and then present the most important approaches from business model innovation literature. Finally, the various processes are summarized in an integrated business model innovation process. In the end, we explain, this process and its various processing stages in more detail and conclude by linking the structure and process of business model innovation to one unified concept.

- Process Derivation

Process models play a central role in innovation research. Especially in the context of innovation management, processes serve to illustrate relevant innovation activities and thus fulfill the role of a management tool (Hughes and Chafin 1996).

Numerous innovation processes are to be found in the literature, which differ in terms of their number of stages or phases as well as their content orientation. Innovation processes show which activities in which order must be carried out to ensure innovation success.

For this purpose, process models in innovation research are composed of various stages or phases, which, in part, are followed by a review step. The task of these reviews is to control the degree of goal attainment in the respective stage. Process stages often do not have to be sequential but, can also overlap or run parallel, to some extent (Cooper 1994). Depending on the degree of abstraction of the process, innovation processes may consist of many different stages. Processes that show innovation in a very abstract form sometimes consist, of only three phases. Figure 10.9 shows the selection of various innovation processes.

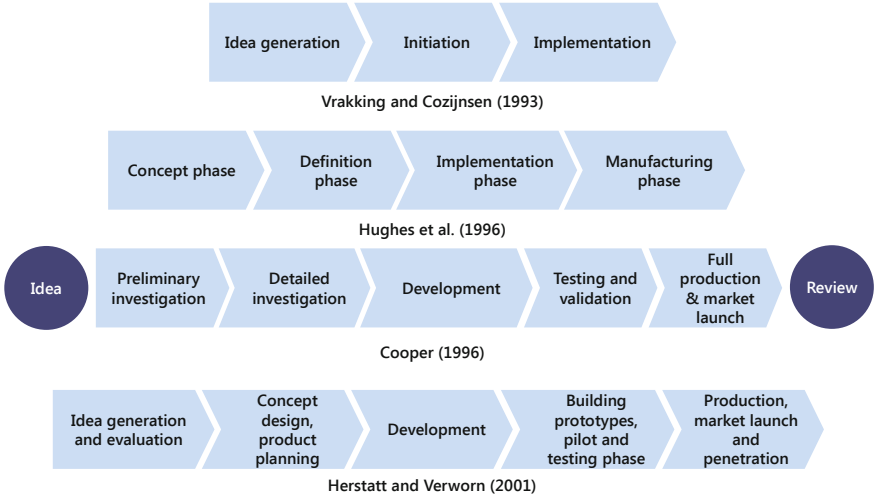

Fig. 10.9 Classic innovation processes. *Source* Wirtz (2011a, 2018a)

The visualization approaches of business model innovation in the respective literature are often characterized by a linear process-oriented structure that can be subdivided into individual process steps or stages of business model innovation. The approaches sometimes vary substantially with regard to these individual process steps. Against this background, the following presents a selection of important business model approaches based on the integrated business model innovation process by Wirtz (2011a). Figure 10.10 shows a selection of innovation processes from business model innovation literature.

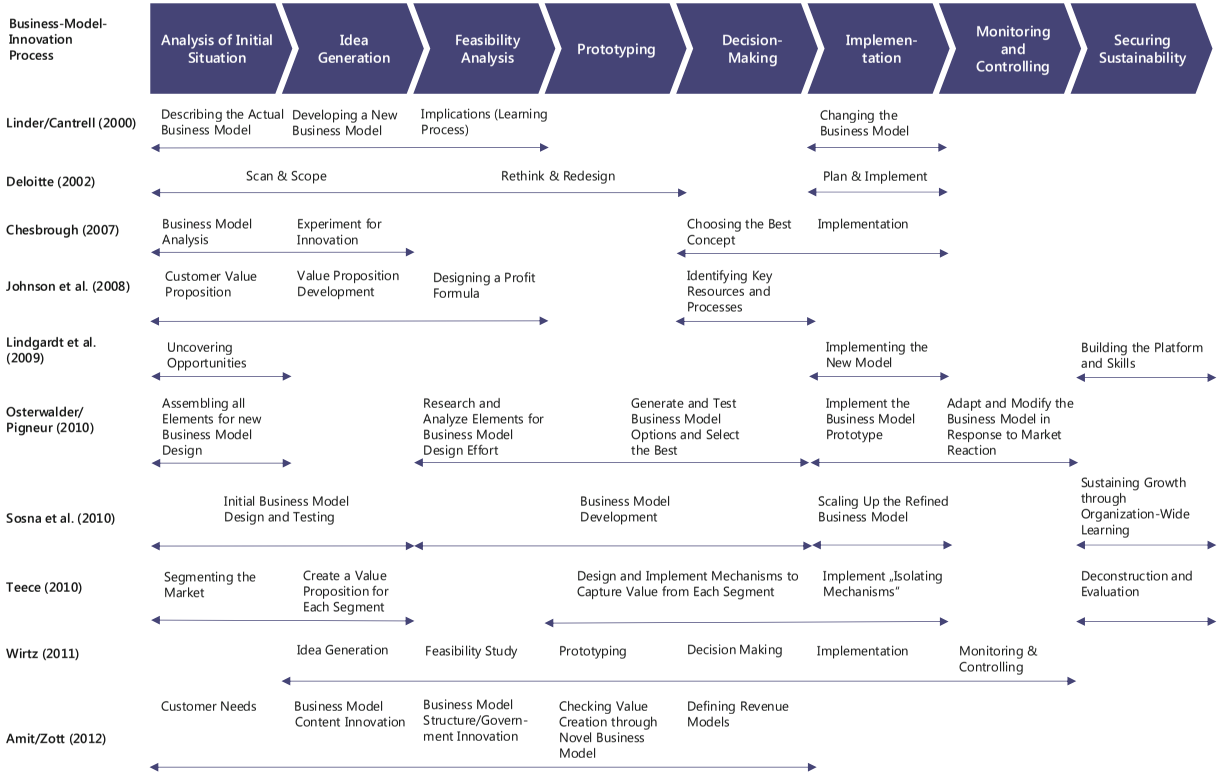

Fig. 10.10 Business model innovation processes. *Source* Wirtz (2011a, 2018a), Wirtz and Thomas (2014)

These processes are often very general and usually comprise four to five stages. The approaches by Deloitte (2002), Chesbrough (2007), Lindgardt et al. (2009) and Osterwalder and Pigneur (2010) specifically address the examination of the existing business model in the first stage of the process. The other approaches propose an investigation of the market or an analysis of customer needs or wishes in order to derive business model innovation activities.

The deliberations with regard to the process stages "feasibility analysis", "prototyping" and "decision-making" are more heterogeneous than in the first process stages "analysis of initial situation" and "idea generation". Wirtz (2011a) provides an explicit feasibility analysis in his approach. Osterwalder and Pigneur (2010) as well as Amit and Zott (2012) tend in a similar direction by considering the planned solutions or innovations in more detail. In contrast, Johnson et al. (2008) focus on the creation of the profitability formula in this process stage. Sosna et al. (2010) generally speak of business model development. While Chesbrough (2007), Osterwalder and Pigneur (2010) as well as Wirtz (2011a) focus on the decision-making with regard to selecting the most suitable business model, Johnson et al. (2008) as well as Amit and Zott (2012) place special emphasis on the specific business model modifications and their integration into an overall model (e.g., core processes and resources).

The process stage "implementation" shows similarities in most of the process models presented. Six of the ten process models of business model innovation explicitly mention the implementation. Linder and Cantrell (2000) refer to this as "changing the business model", but also specifically relate to the implementation of the business model innovation.

The process stages of "monitoring and controlling" and "securing sustainability" have so far received least attention among researchers. Only Osterwalder and Pigneur (2010) as well as Wirtz (2011a) include a distinct process stage for the monitoring and control of new business models with regard to factors, like goal attainment or market feedback. In addition, Lindgardt et al. (2009), Sosna et al. (2010) and Teece (2010) incorporate a process stage for securing the sustainability of the business model innovation.

In principle, there are two requirements for an integrated business model innovation process. The process should depict all relevant activities of business model innovation. Moreover, the process should give concrete recommendations for action to be able to serve as a management tool in the sense of business model management. If the various innovation processes from classic innovation management and business model innovation are integrated under those conditions, an eight-stage innovation process can be inferred (Wirtz and Thomas 2014; Wirtz et al. 2016a). This process is illustrated in Fig. 10.11.

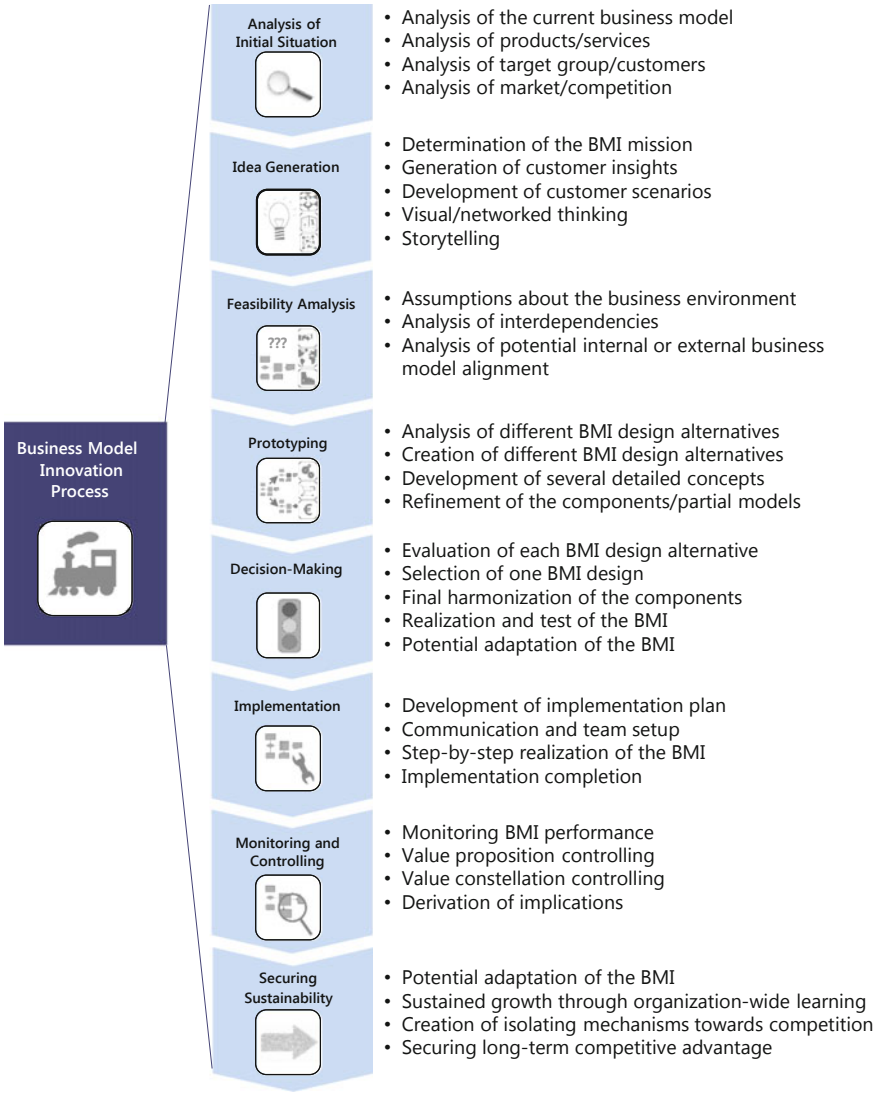

Fig. 10.11 Business model innovation process. *Source* Wirtz (2011a, 2018a), Wirtz and Thomas (2014)

- The Stages of the Innovation Process

The eight stages of the process of business model innovation are "analysis of initial situation", "idea generation", "feasibility analysis", "prototyping", "decision-making", "implementation", "monitoring and controlling" and "securing sustainability" (Wirtz 2011a; Wirtz and Thomas 2014; Wirtz 2018a).

The process of business model innovation begins with the analysis of the initial situation. This stage particularly contains the analysis of already existing business models. Of particular importance is the identification of strengths, weaknesses, opportunities and risks of the current business models, as well as the potential and weaknesses of the product and service portfolio. In addition, the identification of customer needs and knowledge of important market and competition-related information is essential in order to analyze the degree to which customer needs are fulfilled.

The second stage of the process of business model innovation serves the generation of ideas. In this stage, companies elicit potential approaches to business model innovations and generate ideas. Starting points for innovations may be found within the company or its environment. Monitoring the market is therefore particularly important in this stage. Especially the top management is responsible for recognizing innovative potential and aligning it with the focus of the business model. Moreover, the company needs to determine basic design characteristics of the business model orientation. In this connection, the design of the value proposition and the value constellation plays a special role.

In the third stage, the feasibility analysis, a company comprehensively analyzes the market and environment, as well as compares the already existing business models in the industry (Afuah 2004). In doing so, the company also seeks to develop the future positioning of the new business model. This stage requires a detailed market analysis and a qualified assessment of the potential of the business model innovation. The basic character of the business model innovation is crucial for its assessment.

Here, there are three constellations possible: (1) new conception of the business model in an existing industry/sector, (2) new conception of the business model in a new industry/sector, (3) creation of a new market or branch of industry through the business model innovation. The innovation streams identified have to be analyzed in more detail in this stage, before the next stage of the process of business model innovation can take place.

In the stage of prototyping, a company develops specific value creation components and builds a prototype of the future business model. In this stage of development, the management can choose between several different development paths, which need to be evaluated in order to ultimately identify a dominant alternative (Osterwalder and Pigneur 2010). In this way, a company can develop different detailed concepts within the frame of prototyping that represent the relevant set of viable alternatives.

The development and elaboration of the business model components is also an important aspect in this context. After extensively testing the prototypes, the

assessment and selection of the respective alternatives takes place within the subsequent stage. In, the decision-making stage, the company selects and completes the model design. In addition, it makes a business plan for every previously conceptualized prototype, which is used for a detailed performance audit. Not until this stage, the company can detect weaknesses in detail and reject alternatives. During this stage, the company ultimately harmonizes the structure of the business model and finalizes the design of the business model.

In the implementation stage of the process of business model innovation, the company realizes the model. However, the implementation does not represent a linear process, but rather requires an iterative procedure in terms of ongoing examination of the model and the relevant environmental conditions in order to make adjustments, if necessary. The requirements concerning the management greatly depend on the extent of the model change. For instance, if only small parts of the value creation change, only these respective components need to be adjusted.

In contrast, a completely new value proposition can have far-reaching consequences for the overall model. Since implementing a business model is characterized by a project-based procedure, a project-based organization appears to be appropriate. In this connection, the company not only needs to make an implementation plan and assemble a qualified and competent team that executes this plan, it also has to provide an appropriate communication structure. The implementation stage ends once the model is completely realized.

In the stage of monitoring and controlling, the company observes the completion and goal attainment of the business model innovation. Analogous to the classic innovation, a business model innovation can only be considered as completed when new model has been established on the market. The controlling team therefore has to supervise the stage from the model launch to market success. In doing so, it particularly needs to monitor the realization and achievement of the goals with regard to the value proposition and value constellation. In this connection, the controlling team has to constantly monitor the key performance indicators defined. The relevant key performance indicators and applied methods of control arise from the type of business model innovation. In the case of a value proposition innovation, for instance, key performance indicators with regard to the fulfillment of customer are central (Wirtz 2013a).

The last stage of the process of business model innovation refers to the securing of sustainability and growth of the new business model. Due to changes in the market or the company environment, the company usually has to make minor adjustments to the new business model. In addition, the company not only has to protect the own business models against imitations and competitors by means of isolation mechanisms, but also has to secure long-term or sustainable competitive advantages as far as possible. In combination, the drivers, types and corresponding process of business model innovation provide consistent and systematic guidance. Figure 10.12 summarizes all of these aspects of business model innovation.

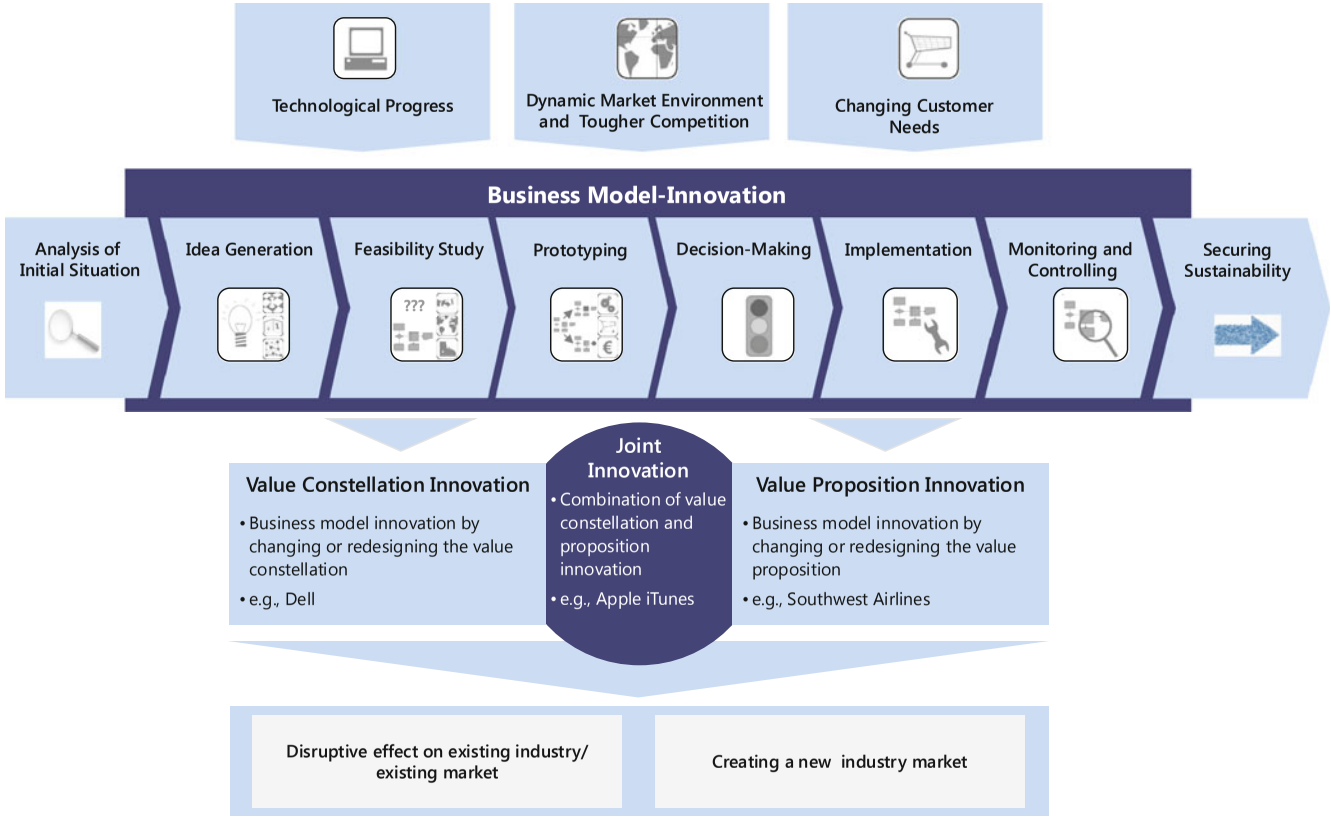

Fig. 10.12 Summary of the chapter business model innovation. *Source* Wirtz (2011a, 2018a)

10.4 Integrated Approach to Business Model Management

The success of business model innovations is largely linked to a structured and target-oriented management of the innovation environment. Therefore, it is necessary to follow an integrated business model innovation approach. This is why the following section will outline the most relevant aspects of business model management from respective scientific literature. Subsequently, an integrated business model innovation concept can be derived and described.

- Aspects of an Integrated Approach

The business model innovation literature contains a few approaches that incorporate the different aspects of business model innovation as well as its interaction in a model (see for the following Wirtz and Daiser 2017a, as well as other frameworks such as Malhotra 2000b; Deloitte 2002; Mahadevan 2004; Voelpel et al. 2004; IBM Institute for Business Value 2008; Yang et al. 2014). However, those approaches present a heterogeneous picture. In particular, the applicability as well as the level of abstraction are quite different. Figure 10.13 presents the different approaches.

The assessment concerning the applicability and the spectrum of business model innovation aspects has been made in a qualitative manner and is based on existing models. The low applicability of the BMI tool and technical aspects as well as the BMI knowledge management aspects indicates that they are less important than other aspects.

Moreover, the abstraction level of the models differ substantially. While some authors are rather detailed in their description, others are rather abstract. The model of the IBM Institute for Business Value (2008), for instance, simply presents three core aspects: industry model innovation, revenue model innovation and enterprise model innovation.

Often discussed aspects refer to the BMI environment and are described as micro and macro environment aspects. These external factors, such as technological changes, deregulation and changing customer needs, largely contribute to the increasing dynamization of the business world (Porter 2004; Teece 2010).

Authors	BMI Macro Environment Aspects	BMI Micro Environment Aspects	BMI Core Aspects	BMI Tools and Technical Aspects	BMI Knowledge Management Aspects	BMI Results/Impact-Aspects	Spectrum of BMI Aspects
Malhotra (2000)	Radical discontinuous change	Organizational need for new knowledge and knowledge renewal			• Information-processing model • Sense-making model	• Knowledge creation • Knowledge renewal	◔
Deloitte (2002)	External factors	Internal capabilities	• Who • What • How			• Superior shareholder value • Innovator advantages • Incumbent disadvantages	◑
Mahadevan (2004)	• Technology • Regulatory and economy	• Changing customer needs • Competition • Firm-level issues	• Target customers (who) • Value propositions (what) • Value delivery system (how)			Sustainability	◕
Voelpel et al. (2004)	Sensing strength, direction, and impact of technology	• Change in customer needs/behavior • New customer value proposition • Sensing potential for value system reconfiguration • Sensing feasibility and profitability	• Customers • Technology • Business system infrastructure • Economics/ profitability			Competitive advantage	◑
IBM (2009)			• Industry model innovation • Revenue model innovation • Enterprise model innovation			Successful financial results	◔
Yang et al. (2014)		• Company (competency) • Customer (market) • Value (product) • Profit (cost)	• Who • What • How	• Procedure • Combination • Internal evaluation		• Sustainability • Competitive advantage	◑
Applicability of Aspects	◕	◕	◕	◔	◔	●	

◔ low ◑ moderate ◕ high ● very high

Fig. 10.13 Overview of the different business model innovation aspects. *Source* Wirtz and Daiser (2017a), Wirtz (2018a)

Against this background, the business model innovation literature strongly focuses on the interaction between companies and their environment. In this context, Mahadevan 2004 developed a conceptual model that classifies business model innovation according to the respective context (which specifies the central circumstances) and presents important aspects and drivers of business model innovation.

Looking at the different approaches, clear similarities become apparent. The three models explicitly address the aspects of "who" (target customer), "what" (value proposition) and "how" (value delivery system) (cf. Mahadevan 2004; Yang et al. 2014; Deloitte 2002). Even though Voelpel et al. (2004) do not follow this nomenclature, they also rest their study on these general aspects.

All aspects with regard to the result or impact of the business model innovation suggest a positive contribution to the company performance. These contributions can be knowledge-related, financially or linked to a general competitive advantage. The following section presents an integrated model based on the previously described approaches.

- Integrated Business Model Innovation Concept

The success of business model innovations depends on various factors. The most important aspects of the previously mentioned approaches to business model innovation are consolidated into an integrated model in the following section. Figure 10.14 illustrates this integrated concept of business model innovation.

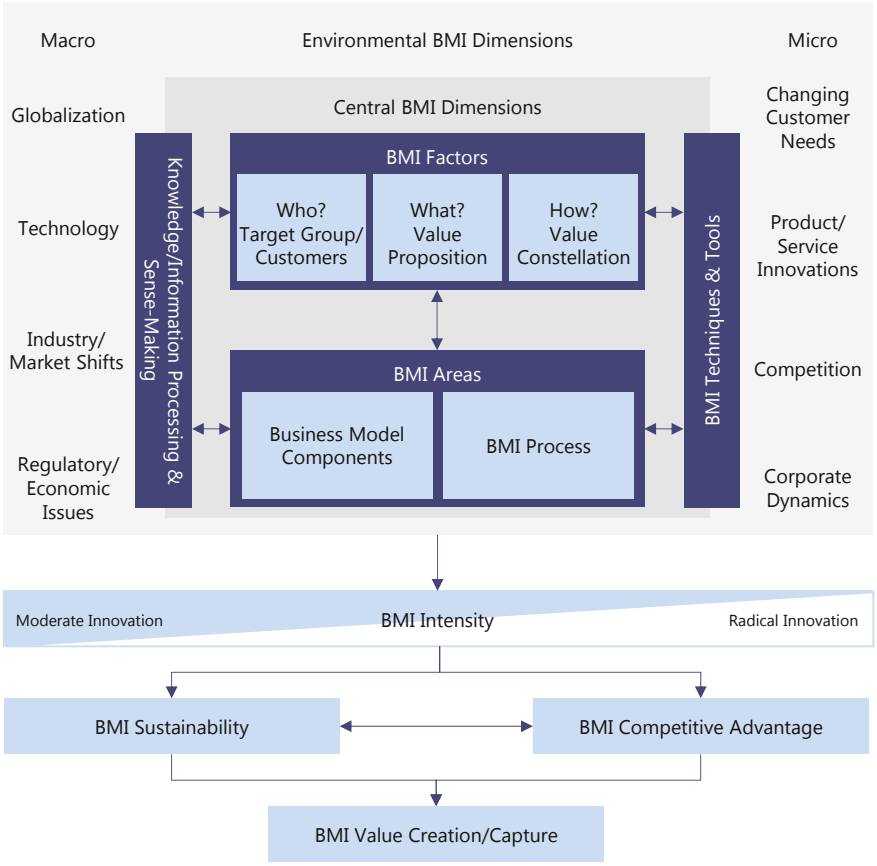

Fig. 10.14 Integrated concept of business model innovation. *Source* Wirtz and Daiser (2017a), Wirtz (2018a)

The integrated concept of business model innovation comprises environmental dimensions (environmental BMI dimension) and central dimension (central BMI dimension). The environmental dimensions include aspects on the macro- and micro-level. The macro-level contains factors, such as globalization, technology, industry and market changes as well as regulatory and economic issues. The micro-level comprises changing customer needs, products and service innovations, competitors and corporate dynamics that have a clear impact on company's business model innovations and thus significantly influence the central dimensions of business model innovation.

The central dimensions consist of the business model innovation factors (BMI Factors) and the business model innovation areas (BMI areas). The BMI factors are the "who" (target customer), "what" (value proposition) and "how" (value constellation) (cf. Mahadevan 2004; Yang et al. 2014; Deloitte 2002). These factors

determine the character of the business model innovation (e.g., business model innovation through changing customer needs, value proposition and/or the value constellation that transforms the value chain and thus represents an important element of the central dimensions of the concept of business model innovation.

The changes resulting from business model innovation lead to new or existing activities that are carried out in a new and different manner. Thus, a business model innovation has an impact on the individual components of the business model innovation and thus can also change business model components and/or the business model innovation process.

The changes of the business model components and the business model innovation process are thus two important options for innovating existing business models, because both, collectively or individually, can have a significant impact on the efficiency and effectiveness of the business model innovation. This is why, both options need to be carefully examined and assessed in the framework of business model innovation.

The aspects of the environmental and central dimensions are closely connected to one another and create an interactive dynamic, because innovation-related changes lead to mutual adjustments (Mahadevan 2004). A company that revolutionizes an existing industry or technology, for instance, significantly influences the linked environment aspects, which in turn also influence the central dimensions of business model innovation.

This relationship indicates the great importance of a fundamental understanding of the internal and external aspects and factors that influence business model innovations. Against this background, the creation of knowledge and information (knowledge/information processing and sense-making) as well as the business model innovation tools and technics play an outstanding role (Eppler and Hoffmann 2012; Denicolai et al. 2014; Yang et al. 2014).

The objective of generating knowledge and information is mostly to identify relevant information within the environmental dimensions and to evaluate them with regard to the existing business model and business model innovation. In other words, a systematic knowledge generation takes place to make external information internally available and usable.

This process should be carried out by means of structured tools and technics to make the process understandable and repeatable (Eppler and Hoffmann 2012). This enables a systematic knowledge generation at the interface between the environmental dimension and central dimension. The basis of this method is, first, to generate knowledge/information and, second, to analyze and use this knowledge/information base in the own context for a business model innovation (Malhotra 2000a; Denicolai et al. 2014).

In connection with the goals and the information from the central business model innovation dimensions, it is possible to derive certain business model adjustments. These can differ in their intensity of change (Markides 2006; Bucherer et al. 2012; Hargadon 2015). The change intensity is an important aspect of the concept of business model innovation, since a high change intensity is also associated with a high risk and substantial effort with regard to the implementation of the business model innovation.

Most business model innovations are rather simple and only require moderate adjustments of the existing business model (Hargadon 2015). Major adjustments of existing business models result from radical business model innovations that substantially change existing business models (Demil and Lecocq 2010).

Moreover, there are various constellations of business model innovation that lie in between moderate and radical business model innovations and that also differ with regard to their intensity of business model innovation. Generally, it can be concluded that a higher level of business model innovation leads to a higher level of change intensity.

A successful business model innovation leads to a sustainable business model innovation and also to competitive advantages (Teece 2010; Günzel and Holm 2013). Both aspects are closely linked to the general business success or the success of the business model innovation. Against this background, it is important to protect the business model innovation against imitation and competitors and to secure its sustainability. An example in this connection is Apple. Even though there were many providers of MP3 players in the market, Apple accomplished to establish a business model consisting of software (iTunes app and store) and hardware (iPod) that was difficult to imitate. In doing so, Apple succeeded in gaining competitive advantage and a sustainable position in the market for online music and MP3 players (Amit and Zott 2001).

A successful business model innovation allows companies to create great value. In particular, the aspects of sustainability and competitive advantage that result from a business model innovation contribute to creating great value. The BMI literature considers value creation as the main objective of business model innovation. Therefore, value creation is the last aspect of the concept of business model innovation (Chesbrough 2010; Amit and Zott 2001). The above-mentioned deliberations demonstrate the complex relationships of business model innovation.

Chapter 11
Google/Alphabet Case Study

After having established a fundamental understanding of e-business, this chapter deals with applying e-business management within e-business markets, discussing the case of Google as an outstanding e-business company.[1]

Google is a worldwide Internet software corporation and market leader in the area of online search and text-based online advertising. Headquartered in Mountain View, California, Google became well known through its self-named search engine Google. Nowadays, the search engine is available in 173 languages and has more than 180 domains. According to Google, their search engine covers three times the amount of information provided by other search engines.

The following Sect. 11.1 highlights Google's organizational history and development. Section 11.2 provides insights into Google's integrated business model. The subsequent Sect. 11.3 presents Google's market environment and its most important competitors. Finally, concluding questions offer a deeper examination of the case study at hand and respective hints for solutions provide suitable guidance.

11.1 Google's Organizational History and Development

In 1998, Lawrence Eduard Page and Sergej Michailowisch Brin founded the corporation Google while attending Stanford University. Initially, they participated in a research project about data mining and developed a search engine called BackRub, the precursor of the search engine Google. At this time, BackRub was the only search engine that was capable of analyzing cross references of a website.

[1]See also for the following chapter Wirtz (2017).

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3_11

Despite receiving recognition from academic society, Page and Brin were not able to find an Internet portal that was willing to use the search engine. Therefore, Page and Brin founded Google Inc. on September 7, 1998. As seed capital, they resorted to 1.1 million USD collected from family and friends. In addition, they received venture capital funding from Andreas von Bechtolsheim, the co-founder of Sun Microsystems.

On Google's day of foundation, the corporation also launched the trial version called Google Beta. A few months later, the soon to be prospering organization moved its five employees into their first office in Palo Alto, Silicon Valley, close to Stanford University and their present headquarter. Already in February 1999, Google had eight employees and 500,000 search requests per day. In September 1999, Google established a partnership with AOL and Netscape. As the number of search requests per day increased to 3 million, they finalized the testing phase.

After officially finishing the test phase, Google concentrated on broadening its range of services. In June 2001, the Google search engine gained market leadership with one billion pages stored by the Google Index. Already by the end of the year 2001, Google recorded more than 3 billion page views. In the course of expanding their service chain, Google took over Blogger.com in February 2003. Moreover, in the year 2004, Google offered a free email service called Gmail.

As part of its expansion strategy, Google acquired the world's leading online video portal YouTube for 1.8 billion USD at the end of 2006. One year later, Google bought the company Double Click for 3.1 billion USD. With this acquisition, Google gained access to Double Click's competency in graphic design of advertisement on websites and to its well-established and well-financed customer base.

Ever since its foundation, Google has been expanding its operations and service spectrum continuously. The 4C-Net Business Model typology provides an analytical framework to classify Google's services. This typology is used for classifying business models on the Internet, comprising the dimensions content (compilation, display and provision of content on own platforms), commerce (initiation, negotiation and/or settlement of business transactions), context (classification and systematization of the information that is available on the Internet) and connection (creation of information exchange in networks).

Within the area of context, services such as Google Catalogs, Google Image Search, Google Toolbar, Google Book Search and Google Scholar exist. Likewise, the services Google Mail, Google Talk and Google Voice are part of the connection segment. Regarding the commerce segment, Google AdWords, Google Checkout and Google Product Search constitute an important supplement to Google's services. Lastly, Google Groups, Google News, Google Maps and Google Earth represent services in the content area. Overarching this typology, there are services that correspond to more than one section like Picasa, YouTube or Google Plus.

At the end of 2007, the Open Handset Alliance (OHA) was founded, aiming to develop open standards for mobile devices, especially Android, an open source mobile phone platform. This alliance includes members from various network providers (T-Mobile, Telefonica), software companies (eBay), manufacturers (Samsung, LG), marketing service providers and companies from the semiconductor industry (Texas Instruments, Broadcom, Nvidia). At the same time, Google expanded its operations in the mobile phone industry and was able to align already existing services with the upcoming mobile segment. Consequently, the Android market offers manifold mobile applications like those from Google but also from many other providers and software developers.

The mobile market became increasingly more important for Google's strategic positioning. Google's acquisition of Motorola's segment called Motorola Mobility for 12.5 billion USD in 2011 highlighted the importance of gaining access to the mobile market. This acquisition granted Google access to one of the largest portfolios of patents within the mobile sector, especially to capacities to produce smartphones based on Google's operating system Android. In the third quarter of 2011, Android dominated the market with a market share of 52.3% and with approximately 180 million devices sold. At this point in time, Google had a broad range of services at its disposal. Nevertheless, changes took place in Google's top management.

In April 2011, Larry Page replaced Eric Schmidt and took over as Google's CEO, while Eric Schmidt became executive Chairman of the board of directors. Because of a simultaneous strategic modification, Google started to reduce its spectrum of services in order to focus on those segments most efficient in terms of costs and benefits. Hence, Google removed 20 services from their offers including, among others, Google Notebooks and Google Desktop. In this respect, Larry Page stated: "We have to make tough decisions about what to focus on."

Since Google's initial public offering in 2004, it has tremendously grown and developed. Within a few years, Google evolved from a startup company to the largest Internet service provider worldwide. Nowadays, Google employs around 70,000 employees and is market leader in the areas of online search and text-based advertisement. Due to the high name recognition of its identically named search engine, Google has become an established worldwide brand. This development is reflected in Google's increasing revenue and profit.

The increasing diversification of its portfolio eventually led Google to found an umbrella company called Alphabet on October 2, 2015. Now, Alphabet serves as a multisector holding that allows its subsidiaries to act more freely than within one company, which was necessary for Google to stay fast and innovative. In 2016, Google generated a revenue of 90.27 billion USD and achieved a year-on-year increase in revenue of 20.3%. Figure 11.1 represents the development of Google's revenue and net profit since the year 2004.

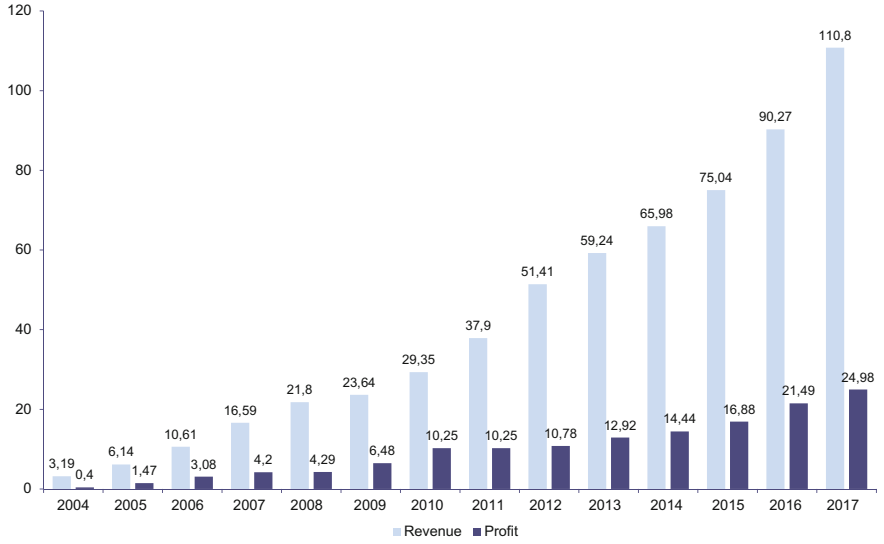

Fig. 11.1 Development of Google/Alphabet's revenue from 2004 to 2017. *Datasource* Google Watch Blog (2018)

11.2 Google's Integrated Business Model

Even though the holding cooperation is called Alphabet, its core brand and most of its Internet-related ventures are keeping the name Google, which is why this case study also uses this name, as it focuses on those areas of activity. In the context of e-business models, the classification of Google's services with the help of the 4C-Net Business Model typology offers insight into the formal structure of the corporation. Although the search engine was previously associated with the context model, its broad service spectrum suggests a highly diversified business structure.

Therefore, one may categorize Google's business model as a hybrid business model, as its service range embraces all four dimension of the 4C-Net Business Model. In order to depict Google's hybrid business model, a detailed overview of various business model components will be presented. Especially the market-supply (competitors, market structure and value offering/product and services) and the revenue models (revenue streams and differentiation) serve as the foundation for analyzing the business model at hand.

In general, Google strategically aims to provide, organize and systematize existing information worldwide by means of the Internet. With this, Google formulates a clear mission that is an integral part of its corporate strategy and thus also of the respective strategy model (business model mission, strategic position and development paths, as well as business model value proposition). This way, Google grew to become an integrative Internet player and one of the most important gatekeepers of access to information throughout the Internet in recent years. In this context, the term "gatekeeper" describes the opportunity for the operator of a search engine to influence what information users find and can actually access (see Fig. 11.2).

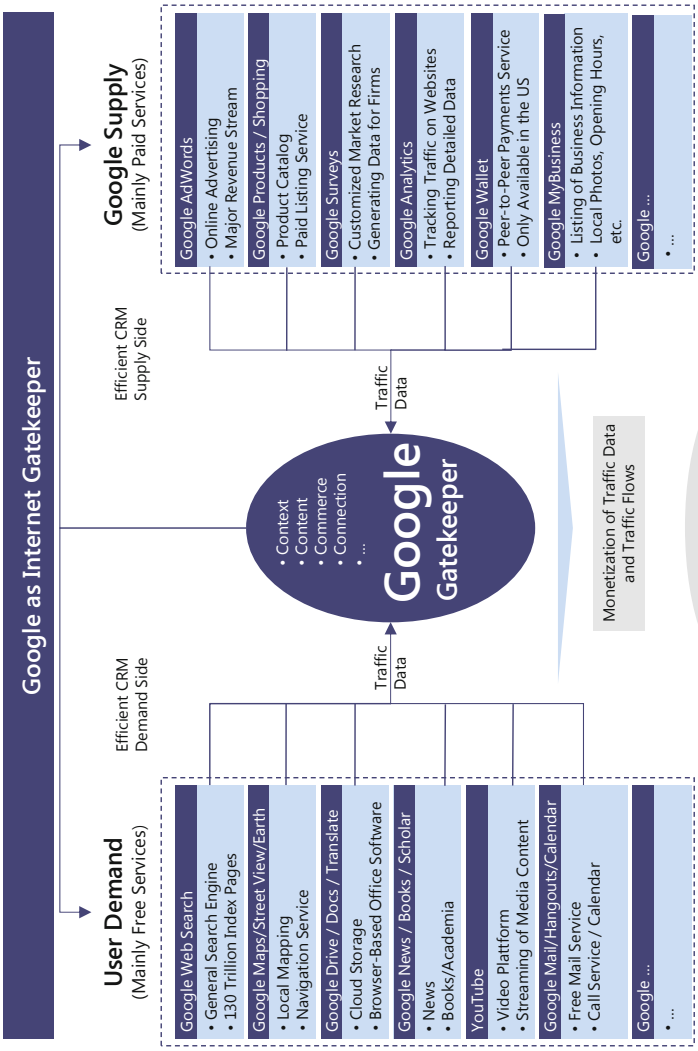

Fig. 11.2 Google as Internet gatekeeper of information. *Source* Based on Wirtz (2010b, 2018b) and own analyses and estimations

Due to the vast amount of existing information and the recent developments in user behavior, providers increasingly rely on the transparency of the Internet in order to be easily found by all users. Consequently, as one of the largest providers of a search engine, Google drew attention to its growing market power.

Google's value proposition mainly rests upon its gratuitous compilation, organization and representation of the immense variety of information on the Internet. Importantly, the value proposition remained the same throughout Google's organizational development and is characterized by a high recognition value and user friendliness. Google achieves a higher customer retention through their complementary service offerings. Private users can make free use of email, digital photo or image management and text processing programs, and they will probably do so repeatedly. Moreover, the high coverage Google promises with regard to advertising purposes attracts business users.

From a resource-based view, Google's manifold competencies and resources are extensive. One major core asset emerges from Google's highly specialized technological infrastructure that is characterized by its high amount of redundancy, efficient load balancing and a predominantly software-based system. Another core asset is Google's corporate brand and simultaneous product brand, which have been manifested through the process of creating a generic trademark. This means it became common to use the term "Google" to search the Internet.

One essential competence of the company is its comprehensive contextualizing competence. Notable in this respect is the criteria-specific localization, classification and systematization of the search engine as well as Google's extension of its services when it comes to illustrating context. Particularly after the year 2004, the company expanded its competencies in content and connection-related areas. This was mainly possible by intensifying business relations and through acquisition activities. Further core competencies of the enterprise are its technological competence, competence at content creation and search, as well as a fully developed competence at promoting advertising efforts.

The network model of Google is characterized by a far-reaching cooperation network, as well as an extensive business-to-business and business-to-customer network. The free supply of the Google search engine is particularly important. Google AdSense enables both companies and individuals to add a search box to their own website, giving them a share in profits when other Internet users click on one of the advertisements that appear on the search engine results page.

Without an innovative network of business partners and profitable business-to-business cooperation, Google would not be as successful and powerful as it is today. Nevertheless, the company has established an extensive network and tremendous user base in the customer area, which especially profited from a digital word-of-mouth effect after the foundation of the company. Users that were happy with the search algorithms personally recommended them to family, friends and acquaintances.

Google's creation of goods and services follows a clear and linear structure. The first step of creating content is to gather, systematize and classify information in order to save it as results for on-demand inquiries and make them available through the search engine. This content-creation process is particularly based on the supply of

information from third parties or oneself. In comparison, the connection supply is characterized by a strong interdependency between user interaction and communication management.

The company receives most of its input from communities, content suppliers and news agencies. Therefore, the transmission of information and interaction follows a simple process, i.e. Google checks websites and registered content and either adds them to the index and utilizes them or classifies them as irrelevant and therefore rejects them.

Another partial model of Google's business model is the revenue model. The AdSense partner program generates one of the most important revenue flows, which unlike the AdWords program places context-dependent advertising on an external website. Within this system, the owner of the website receives a certain amount of remuneration when a user clicks on the advertisement. Simultaneously, Google attains more traffic from partner websites. The fees or portion of ad revenues Google pays to such advertising partners that run Google ads or services on their websites are called traffic acquisition costs (TAC).

Another fundamental subcomponent of Google's business model is the market offer model that consists of context, content and connection offers. The aspects of the company that matter most to industrial customers are the wide-ranging offers of well-developed technical functions and the high number of users. The latter is associated with the great recognition value and the high usage of the search engine. The free usage of various online services offered by Google is highly appealing to private customers. However, the foundation of Google's business model is still its search engine that offers information via the Internet by means of an intuitive search tool. At this point, Page's and Brin's PageRank algorithm evaluates the relevance of the website according to the links it incorporates.

The introduction of PageRank revolutionized those search engines that evaluated websites according to their search terms in texts and meta tags. Today, Google includes over 200 different evaluation criteria for the ranking of websites. With the recent update of the search algorithm called "mobile-friendly 2", Google rolled out another ranking signal boost to benefit mobile-friendly sites on mobile search.

In terms of the 4C-Net Business Model typology, the context model with the search engine as its core service builds the foundation of Google's integrated business model. Due to a continuous and innovative revision and extension with specialized search services for images, news and geographic information, Google is the most frequently used search engine worldwide. Further services within the context segment are, for example, Google Catalogs, Google Images, Google Toolbar, Google Book Search, Google Scholar, Google Reader, Google Blog Search, Google Now and most recently Google Home.

One of the first services besides the search engine was Google Catalogs that offers users the opportunity to look at different print catalogs online. However, Google turned down this service in August 2015. Google Images allows to search for distinct pictures online by means of special search criteria like color, format or the right of use. Google Toolbar is a toolbar for the web browser that allows the user to quickly access the Google search engine and other Google services without changing to the main page. The following Fig. 11.3 presents Google's business model.

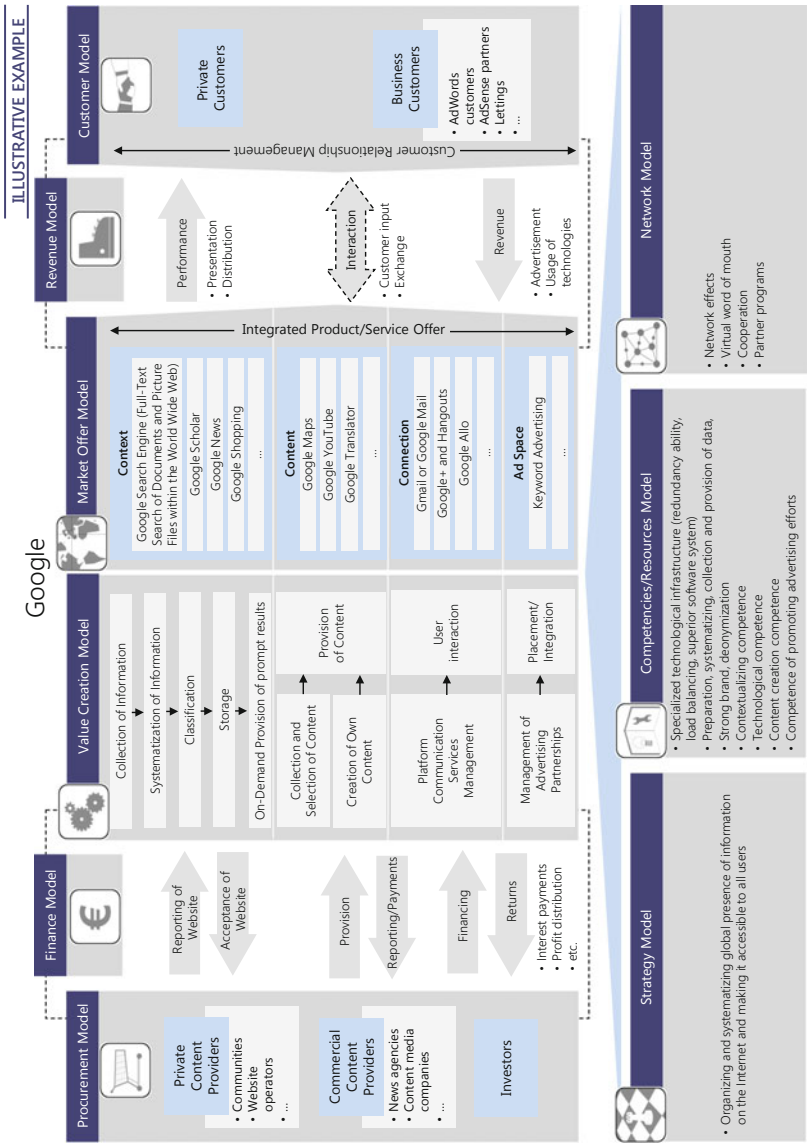

Fig. 11.3 Google's business model. *Source* Based on Wirtz (2010a, 2011a, 2017) and own analyses and estimations

The applications Google Book Search, Google Scholar and Google Blog Search enable to search the Internet for books, academic publications or blogs. Google Reader, a web-based feed reader, informs users automatically about new contributions to their favorite homepages. However, Google turned down this service in July 2013. With the takeover of the software producer ITA in 2007, Google expanded its context segment with the analysis of flight information. This feature presents airfares in a comparable way. The user benefits from these various context services in terms of time saving and information procurement.

In 2012, Google introduced the service Google Now as an extension of the Google Search App. Google Now is an intelligent personal assistant with voice search and a command feature. In 2016, Google launched its smart speaker Google Home that is able to receive acoustic commands via an integrated microphone and serves the user as personal digital assistant at home. Basically, it transfers the functionalities of the personal assistant Google Now to the home environment and enables the user access to Google services such as Google Play Music, YouTube or Chromecast via voice commands.

Another major sector of the market supply is the content segment that is characterized by the provision, preparation and aggregation of multimedia content. This sector contains services like Google Groups, Google News, Google Maps, Google Earth, Google Sketch Up, Google Text and Tables, iGoogle, Google Merchant Center and YouTube. Google extended or merged many of the older services in order to offer the user a broader range of services. For example, Google Local was integrated into Google Earth and Google Maps.

The first content service was Google Groups. This online service allows users to establish or to search for different groups of interest and to publish own content. Here, the connection aspect is also highly important because the service rests upon the Usenet and therefore offers a foundation for interactive communication.

After introducing Google Groups, Google launched a news service called Google News, a platform that automatically creates content in over 35 languages. Google Earth presents a digital globe that uses satellite aerial views and geographical data to create a digital model of the earth. In doings so, it allows users to search for addresses or places and to calculate distances and routes.

Moreover, Google Sketch Up is software to construct a three-dimensional model that allows to create pictures and animations. Google Text and Tables is another online service that offers online access to a word processing and table program. The successor to Google Base, Google Merchant Center, allows retailers to deliver product information to Google in order to integrate it into the Google Product Search.

The most important content service today is the online video channel YouTube. YouTube enables users to watch, upload and publish videos. To do so, they can make use of different channels or individual YouTube websites, through which they can use or offer other information besides those videos. The number of companies using this channel for marketing purposes is rapidly increasing. YouTube is the most popular platform for this kind of video material.

In 2016, YouTube had over 1.3 billion users worldwide, who altogether uploaded more than 300 h of video to YouTube every minute (Statistic Brain 2016b). Recent content offers of Google include Chromecast, a line of digital media players, as well as the virtual reality platform Google Daydream.

The services belonging to the connection business model distinguish themselves by allowing to exchange network-based information. In this segment, Google presents itself with services like Blogger, Google Groups, Google Mail, Google Talk, Google Voice, Google Latitude, Google Plus (Google+), Google Drive, Google Hangouts and most recently with the instant messaging app Google Allo and video chat app Google Duo.

The social network Google+, for instance, is the consequent attempt to extend Google's business model in the connection segment. Launched in September 2011, it counted more than 375 million active members in 2016 (Statistic Brain 2016a). Google+ incorporates various old and new connection services but still struggles to compete with the largest social network Facebook.

With regard to the initiation, negotiation and settlement of business transactions of the commerce business model, the most important services Google offers are AdWords and AdSense. These two services will be presented later on in the context of Google's revenue model. In the commerce segment, Google has rather few services to offer. Google's payment service Google Checkout is primarily used for payment handling in the Android market, whereas its payment service Google Wallet allows users to pay via mobile phone with NFC (Near Field Communication).

Google has been extending this segment by product search engines, product presentation and price comparisons primarily for its services Google Product Search and Google Shopping. Moreover, Google is starting to compete with other classic online retailers, particularly through its service Google Merchant Center. Recently, Google has also acquired Famebit a leading marketing platform that connects brands to creators for branded content creation.

Other services are part of more than one segment at once. For example, the photo community Picasa allows different users to share their photos worldwide and to interact with one another. According to this, Google combines both the content and connection segments in one service.

Since 2008, Google has been following business units outside of the 4C-Net (content, commerce, context and connection). For this purpose, it has developed information technologies like the mobile operating system Android, as well as own mobile consumer electronic devices, like the Google Nexus series and its next generation Google Pixel. Recently, Google has also introduced its augmented reality glasses Google Glass and its virtual reality glasses Google Cardboard. Moreover, it has acquired Nest Labs, a producer of smart appliances for home automation, which now works with the Google Home. Figure 11.4 highlights the development of Google's business model and service offers.

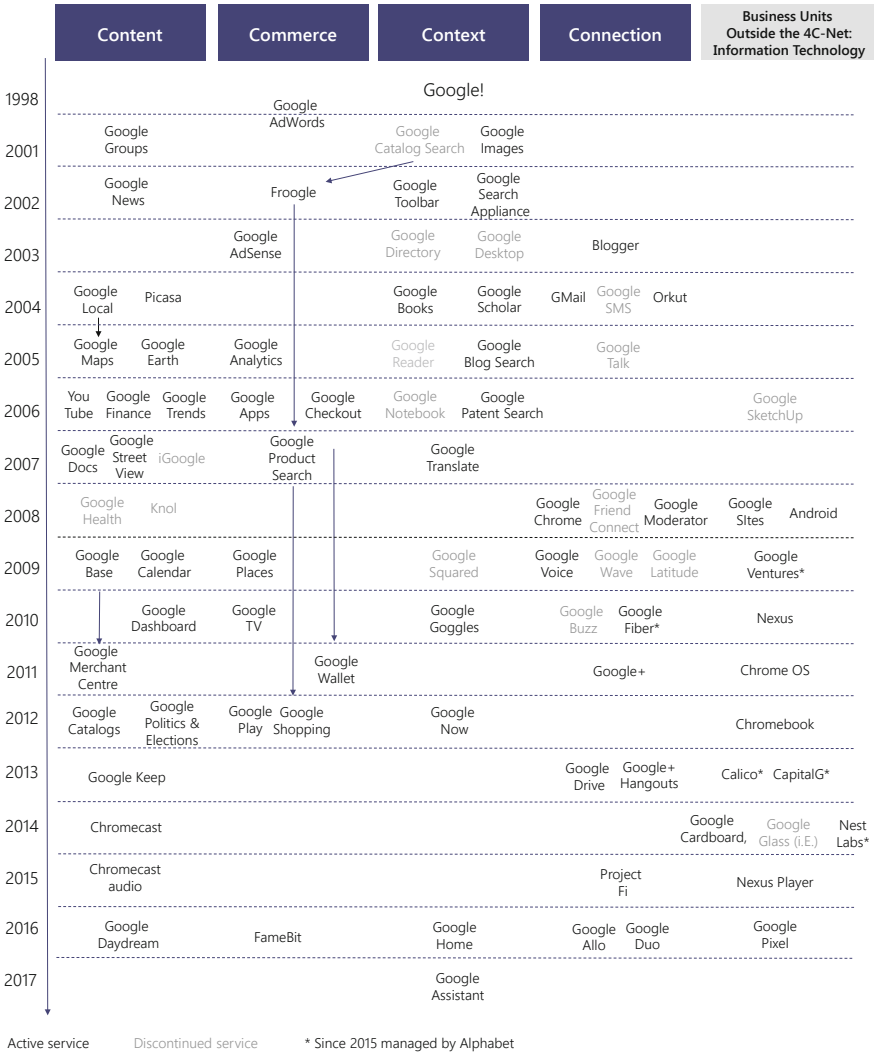

Fig. 11.4 Development of Google's hybrid business model. *Source* Based on Wirtz (2010b, 2018b), including updates

Another central component of Google's business model is the revenue model through which multiple income streams are introduced and analyzed. The most important revenue streams are advertising revenues generated through integrated advertising solutions and keyword advertising by AdWords. The customer chooses various keywords that describe the product or service advertised, so that these products or services appear in the search results. Furthermore, the client determines the maximum price that one has to pay for every click on the advertisement.

Combining the cost per click (CPC) with the quality of the keyword or product provides a basis to assess the advertising and thus the priority with which Google advertises it. Moreover, the customer defines a monthly budget and is able to change some settings regarding the networks or languages.

Besides the basic search page (google.com), possible advertising networks are Google Search Network and Google Display Network. The Google Search Network contains websites that have licensed Google's search function as an independent toolbar. The Google Display Network comprises a large number of different websites that disseminate the display advertising. Nevertheless, considerably high costs in the form of traffic acquisition costs (TAC) emerge.

Furthermore, Google has expanded keyword advertising also to other services such as Google Product Search and Google Mail. Besides the classic text display, other forms of multimedia like videos or images are also possible. In addition, location data can be integrated to combine the advertising with services like Google Earth or Google Maps.

Since the year 2007, Google has also generated considerable revenue from other income streams than advertising, which we will discuss later on. However, Google's total revenue is mainly composed of advertising revenues that accounted for 90% of Google's total revenue in 2017. Figure 11.5 shows the development of Google's revenue.

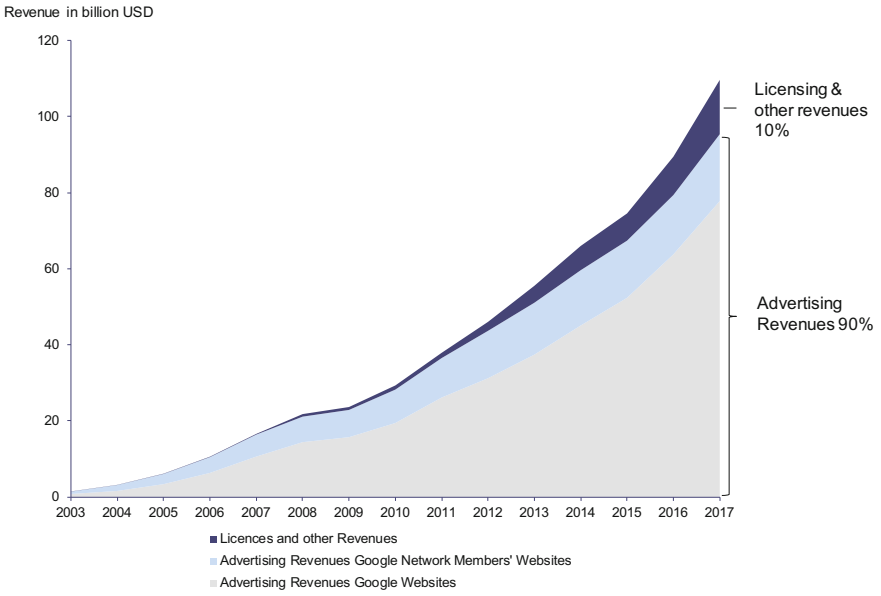

Fig. 11.5 Development of Google Alphabet's revenue. *Datasource* Alphabet Inc. (2017b)

Besides the huge amount of advertising revenues, the second revenue stream originates from royalties for the usage of software, as Google offers various software solutions in the form of fee-based versions with extended usability for professionals. Such programs are, for example, SketchUp Pro, Google Earth Plus and Google Earth Pro. In this extended version, Google Earth Plus offers the integration of GPS and a program to virtually construct buildings.

Moreover, Google sells the server hardware Search Appliance that companies can utilize for their document management and indexation. Google is also active in the mobile market with its smartphones (e.g., Nexus 5X and Nexus 6P) produced by LG and Huawei, but only generates comparably low sales revenue in this market. However, according to Google, nexus devices are not primarily intended to drive revenue but are rather an experimental bearer for Google's innovation for Android (Fortune 2015). Google also receives revenue over the Android market, where developers of fee-based applications earn a transaction fee of 30% on the sales price.

According to the highly diversified service spectrum, Google's revenue streams comprise transaction-dependent and transaction-independent revenues. Figure 11.6 presents these different forms of revenue, showing that Google has various revenue streams that are differently structured. Nevertheless, one always needs to acknowledge the importance of keyword advertising in this context.

	Direct revenue generation	Indirect revenue generation
Transaction-based	• Sale of Hardware • Transaction Charges on the Android Apps' Market: PlayStore	• Cost Per Click – Keyword Advertising • Cost Per View – YouTube Video Ads
Transaction-independent	• Royalties, for example, fees for using extended program packages • AdWords activation fee	• YouTube Custom Brand Channel

Fig. 11.6 Google's revenue structure. *Source* Based on Wirtz (2000c, 2016a)

11.3 Google's Market Environment

As one of the world's leading Internet organizations with a broad service range, Google competes with numerous players in different markets. The following section identifies and presents various markets according to their strategic importance for Google. The most essential market for the company is the search engine market. This is not only the company's origin and core business, but also accounts for about

70% (more than 90% including the network) of the revenue streams. A market share of 63.0% makes Google the most frequented search engine in the U.S. Figure 11.7 depicts the four largest providers of search engines worldwide.

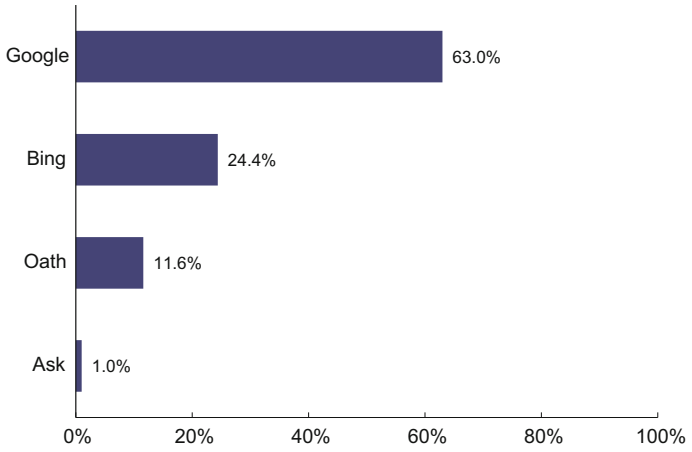

Fig. 11.7 Market share of search engines in the United States in September 2018. *Datasource* comScore (2018)

One should also pay attention to the fact that the search engine market is part of the superordinate advertising market. Due to the effective search engine marketing, not only the communication quality is important but also the coverage respectively the number of site views. In this respect, Facebook emerged as one of the most important competitors, gaining more stake particularly in the areas of social advertising and display advertising.

Another crucial market is the mobile Internet market in which Google operates as a provider of advertising services and a content provider. Just like in the classic markets, Google positioned itself with the search engine in the mobile segment so that location-dependent search and marketing, as well as services like Google Maps and Google Latitude gained in importance. The market share of Google's mobile search engine is even higher than that of the classic search engine, accounting for almost 93% of the mobile search market in the U.S. in October 2016 (Statista 2016). Consequently, Google occupies a strong position in the mobile market as well.

However, due to different proprietary systems, the mobile market is highly competitive in terms of classic online advertising. Apple's marketing platform iAd serves as an example. iAd is able to integrate advertising messages seamlessly into applications and thus operates in the same way as Google's system AdMob. Moreover, other social networks like Foursquare and Facebook play an important role in the mobile segment and strongly focus on local social advertising offers.

With regard to content provision, Apple launched its platform iTunes in 2003, which has quickly become the market leader in this segment and one of Google's strongest competitors. Thus, iTunes serves as a model company for Google's Android marketplace that distributes content for the operating system Android. Google further expanded its mobile offers with Google Music, a competitive platform to iTunes, using One Pass as a suitable operating system.

Because of its high growth rate and market leadership Android finds itself with 70.85% market share in mobile devices (mobile phones, smartphones, tablets) clearly ahead of Apple's iOS with around 23.1% market share. Another competitor in the mobile segment is Microsoft that also owns a proprietary platform with a market share of 2.57%, i.e. the Windows Phone and Windows 10 that runs on different devices such as desktop computers, tablets and mobile phones (Netmarketshare 2016).

Besides these core markets, Google constantly aims to enter other markets and enhance its position in the Internet market. Google's advancements in e-commerce are especially significant. By aggregating product information, Google is increasingly gaining importance as an intermediary in online retailing. Thus, competition among actors like Amazon, Google and so on is rising. With regard to Google's presence via YouTube in the classic and mobile Internet, Google competes, for example, with the content aggregator Hulu.

11.4 Case Analyses and Structure of Solutions

Case studies have their origin in the so-called 'Harvard Case Studies' and are nowadays a commonly applied and widely accepted scientific method within in the field of business administration and respective teaching. One particular characteristic of the case study analysis is that there is often no unique solution. Instead, one considers a specific problem and searches for an approximately optimal solution.

This characteristic is at the same time the criterion to differentiate the case study analysis from normal exercises that are characterized by right and wrong solutions (e.g., in the field of law). This section defines the meaning of a case study and presents a methodological approach for handling and solving case studies.

The case study analysis is a heuristic method and thus a method of self-regulated learning for the respective person that deals with the case study and works out conclusions by means of analyses. Within the scope of this strategy of investigation, one examines a certain phenomenon in the respective and real existing context by using one or multiple objects of study, like individuals, groups and organizations.

The persons dealing with the case study should not be bound by particular methods or limited to a single solution method. Looking at a case study from multiple perspectives generates different approaches to solving a problem, but at the same time requires a broad spectrum of different approaches and solution methods. The case study analysis enables to achieve a variety of different goals of learning and teaching.

However, the primary focus of interest refers to the connection of theory and practice. Here, one can distinguish, on the one hand, between approaches that apply theories to practice and, on the other hand, approaches that move from practical thinking and procedures to theories.

Given the comprehensive approach to the research context and the inductive procedure of case study research, this approach generally refers to qualitative research. The following three characteristics of a case study clarify this closeness to qualitative research (Merriam 1998):

- Context-related: The case study focuses on a group or an individual, a program, a phenomenon or an event.
- Descriptive: The final product or result of the case study contains a detailed and multilayered consideration of the object investigated.
- Heuristic: The case study does not test already existing hypotheses, but rather generates new insights into the object of study, for instance, conditions, consequences and causal relationships.

Since one should consider every case study individually, specific cases cannot be generalized. However, if underlying conditions or characteristics of the objects of study are similar, one can at least partially transfer them. Consequently, the case study approach is particularly suitable when the objective is to look at complex underexplored phenomena in a broad manner and against the background of their dependence on context. The following illustrates a methodological approach for handling and solving case studies.

The procedure for approaching case studies usually comprises six steps that build on each other: (1) analysis of actual situation and SWOT analysis, (2) specification of problem, (3) deduction of strategic courses of action, (4) determination of crucial success factors, (5) decision on strategic alternatives and (6) deduction of recommendations. The first step should aim to analyze the actual situation. A SWOT analysis considers internal characteristics (e.g., strategy, structure and resources) of the business but also the external general conditions (e.g., market structure, customer and supplier potential).

The second step of the solution method of case studies involves specifying the respective problem. Potential issues, for instance, can trace back to the procurement, production or the corporate strategy. Based on this elaboration of the problem, one can derive strategic courses of action in a third step, for instance, strategies of diversification, cooperation and market entry. The fourth step of the solution method of case studies includes determining or defining crucial success factors, before subsequently deciding on the strategic alternatives in the fifth step. In this connection, one examines the courses of action identified, for instance, for specific advantages and disadvantages or their feasibility. The sixth and final step of this approach involves deducing or giving strategic and/or operational recommendations. Figure 11.8 presents an overview of the solution method of case studies.

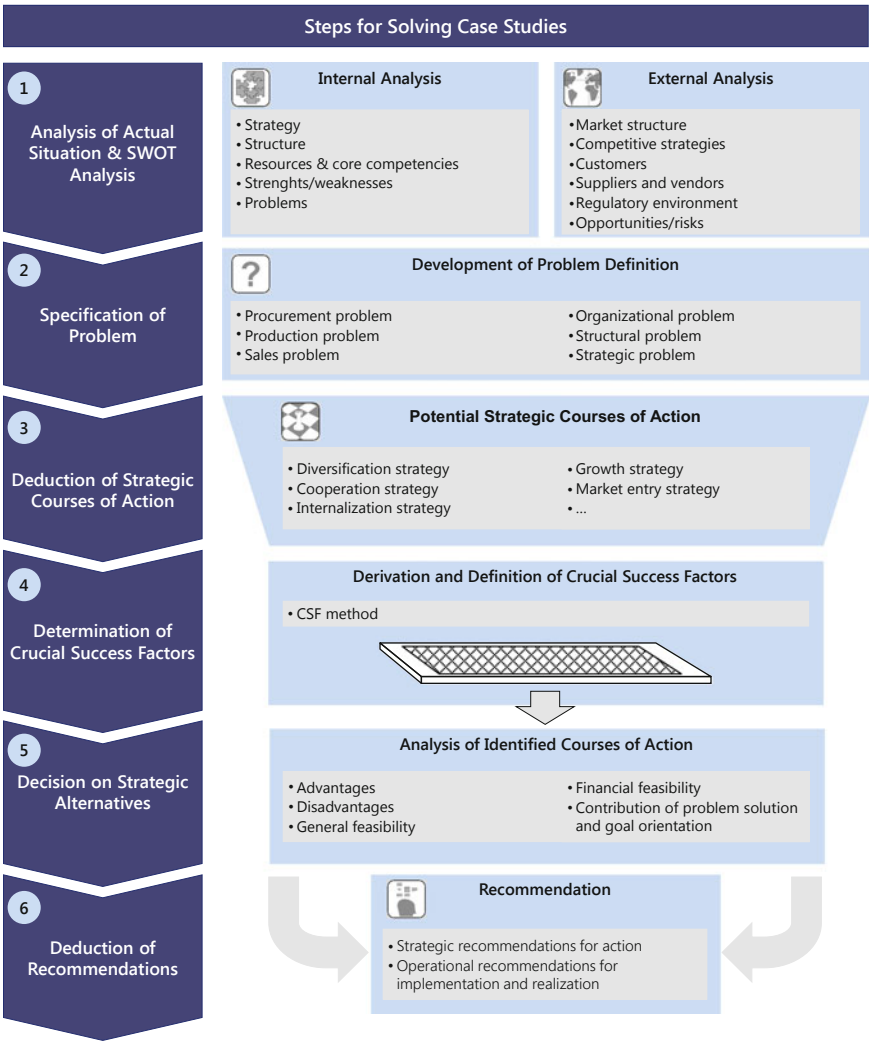

Fig. 11.8 Solution method of case studies. *Source* Wirtz (2013c, 2017)

- Analysis of Actual Situation and SWOT Analysis

Within the scope of a case study analysis, one can apply the systematics of strategy development to examine the actual situation of a company. An important part of strategy development is analyzing the situation by means of situation analysis (Wirtz 2013d), which comprises analyses of environment, market, competitors, as well as competencies and resources. The competitive analysis and competence-resources analysis merge into an analysis of strengths-weaknesses. This in turn combines with an environment analysis and market analysis to form

an analysis of opportunities and risks. The following section explains this procedure.

Within a situation analysis, one first examines the environment to describe the general conditions under which the respective company acts. In this connection, the sociopolitical, technical, regulatory and economic environment plays an important role. After the environment analysis, it is necessary to analyze the industry and market in which the respective company operates particularly the market structure and behavior of the demanding actors.

In the next step, one should perform a competitive analysis that aims to identify relevant actual and potential competitors and to examine their behavior on the market. Subsequently, one needs to consider the resources of the competitors. Along with this competitive analysis, one should also investigate the company's own competencies and resources. This competence-resources analysis needs to take place in much more detail than the competitive analysis and distinguishes between core competencies, complementary competencies and peripheral competencies (Wirtz 2000f).

Core competencies are mandatory resources that the company requires in internalized form to provide products and services. Complementary competencies, by contrast, are necessary resources that can also be provided by cooperation partners. Peripheral competencies refer to resources that are not essential and thus may be acquired from the market.

Based on the competitive analysis and the competence-resources analysis, one can analyze strength and weaknesses. Here, the aim is to identify advantages and disadvantages over the most important competitors and hence to derive the respective scope of action. The results of this strengths-weaknesses analysis together with those of the environment and market analysis jointly form an opportunities-risks analysis. In this connection, one compares the external situation with the internal situation of the respective company in order to identify development trends of the environment and the markets at an early stage and subsequently, to determine whether these future developments pertain to a strength or weakness of the business. On this basis, one can deduce indications of a potential strategic demand for action and use the results to develop the corporate strategy.

- Specification of Problem

After analyzing the actual situation, one has to specify the respective problem of the case study. This step focuses on identifying all problematic issues of the case study. If, for instance, several problems occur, it is recommended to prioritize them or to form a processing sequence and describe their relationships among each other. When working out the basic problems, one may not make the mistake of identifying symptoms as indicators or consequences of an underlying problem as the actual problem, because otherwise it is not possible to achieve adequate proposals for solution. One needs to summarize the symptoms and investigate the reasons behind in order to reveal the causal main problem. In case there are several central issues,

one should consolidate them and bring them in order according to their meaning and importance.

- Deduction of Strategic Courses of Action

After analyzing the actual situation and specifying the problem, one needs to derive strategic courses of action. Based on the case study-specific problem, one first develops different alternative solution approaches, the so-called strategic courses of action. The following evaluation of these options takes place under uncertainty since case studies often do not provide complete information and thus require to make assumptions. Examples of strategic courses of action are strategies of market entry, diversification, growth, cooperation and internalization. After deriving strategic courses of action, one can determine the key success factors of the business. The following section therefore discusses the procedure of identifying crucial success factors.

- Determination of Crucial Success Factors

Crucial success factors (CSF) are a small number of characteristics that significantly influence the success of companies. They differ from business unit to business unit because they are affected by both internal and external conditions. CSF need to have a certain minimum characteristic in order to enable the desired degree of goal attainment. The procedure of determining CSF and their application not only includes identifying the CSF, but also measuring the degree of goal attainment, as well as making an ongoing target-performance comparison.

Besides creating a strategic frame of reference, the CSF method also involves analyzing own objectives in order to identify the CSF afterwards. In the following, one needs to develop measuring criteria and determine so-called critical thresholds as standards. Subsequently, one can identify the control quantities and capture occurring changes. Having determined the CSF, one needs to decide on the different strategic alternatives, which is described in more detail in the following section.

- Decision on Strategic Alternatives

Within the scope of deciding on the strategic alternatives identified, one should first analyze and assess the degree of fulfillment of the CSF for every strategic course of action. Then, one should examine the congruency between business potentials and market-specific requirements by means of strategic fit analysis (e.g., SWOT analysis). Finally, the criteria of feasibility indicate whether the respective company possess the resources and skills necessary to realize the respective strategic option. The analysis of the individual aspects leads to a so-called strategic evaluation matrix that allows to select the best strategic alternative. Based on this evaluation and selection, one can deduce recommendations for action, which is explained in the following section.

- Deduction of Recommendations

Deriving recommendations involves explicitly verbalizing and presenting the optimal strategic course of action selected with regard to the problem identified earlier. It is then necessary to operationalize the strategic decision and transfer it into specific recommendations for action in order to implement the decision. In this connection, one first needs to demonstrate the concrete measures and necessary consequences of the alternative selected, before adjusting operational action by means of operational measures (who, where, what, when).

The last step involves planning the financial realization of the strategic option selected. For this purpose, one needs to plan a detailed budget not only to ensure the actual financing after having analyzed the general feasibility, but also to show that the costs are justifiable with regard to the expected benefit.

11.5 Google Case: Questions and Solutions

Question 1
Discuss Google's initial situation by means of the SWOT analysis with regard to Google's current financial circumstances. What kind of problem statement can be deduced?

Question 2
Based on this analysis, derive strategic opportunities of action and critical success factors for the management of Google. Name present success factors of Google.

Question 3
Reflect upon these potential strategic alternatives and choose the dominant one.

Question 4
Discuss various opportunities for Google to differentiate itself in the context of revenue optimization. Which recommendation for action would you give Google?

This section hints at solutions to the summarizing questions about the Google case study, following a step-by-step procedure. Against the background of Google's present revenue situation, the SWOT analysis focuses on and presents Google's current situation. Based on this analysis, a problem statement can be derived. Then, strategic alternatives and essential success factors are established and critically assessed. Subsequently, several opportunities for revenue differentiation and extension of the service range are discussed and evaluated, finally leading to recommendations for actions for Google. Figure 11.9 offers a schematic overview and describes core aspects, tasks and hints for solutions with regard to the Google case study.

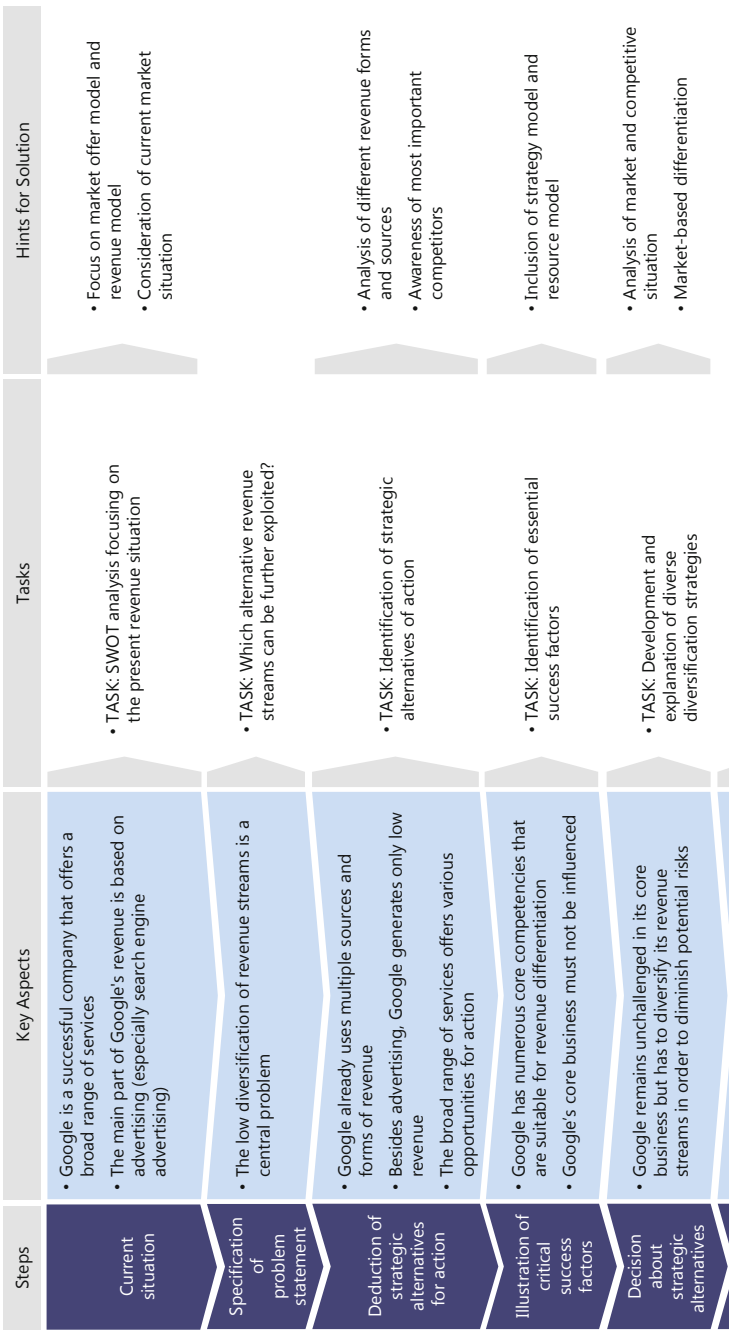

Fig. 11.9 Key aspects, tasks and hints for solution in the Google case study

Solution to Question 1

Discuss Google's initial situation by means of the SWOT analysis with regard to Google's current financial circumstances. What kind of problem statement can be deduced?

The SWOT analysis framework contains an internal and external dimension. While the internal dimension comprises the strengths and weakness of a business, the external dimension involves its opportunities and threats. Google's strengths are particularly its dominant position in the online and mobile advertising market including a broad advertising network, as well as its strong position as online and mobile content provider. Further strengths are its very broad range of online services and technological leadership.

Among Google's weaknesses are its missing revenue differentiation and unclear range of services. Moreover, many services have no clear revenue purpose or unexploited revenue potential. Further weaknesses are Google's varyingly strong positions in different geographic markets and its generally weak position in the social media market

Opportunities for Google lie in the introduction of new or the expansion of existing revenue streams for the current service range or in growing markets. In this connection, promising growing markets are particularly mobile business (e.g., Google Nexus, Google Pixel, Google Allo Google Duo), social media (e.g., Google+), Internet of things and automation (e.g., Google Home, acquisition of Nest Labs), augmented and virtual reality (e.g., Google Glass, Google Cardboard), artificial intelligence, machine learning and big data. A further opportunity for Google is the expansion of their market leadership in online marketing.

Threats to Google may be its vulnerable revenue monoculture that may pose a high risk through a decrease in advertising revenue (e.g., customer turnover to Facebook), a recession-driven decline or replacement through other search engine providers (e.g., Bing's increase in market share). Moreover, Google could experience brand dilution through too many unsuccessful services.

The combined consideration of the individual aspects of the internal and external dimensions results in four different basic strategies: SO strategies (strengths-opportunities combination), ST strategies (strengths-threats combination), WO strategies (weaknesses-opportunities combination) and WT strategies (weaknesses-threats combination). Figure 11.10 describes the specific elements of the SWOT analysis adapted to the Google case study.

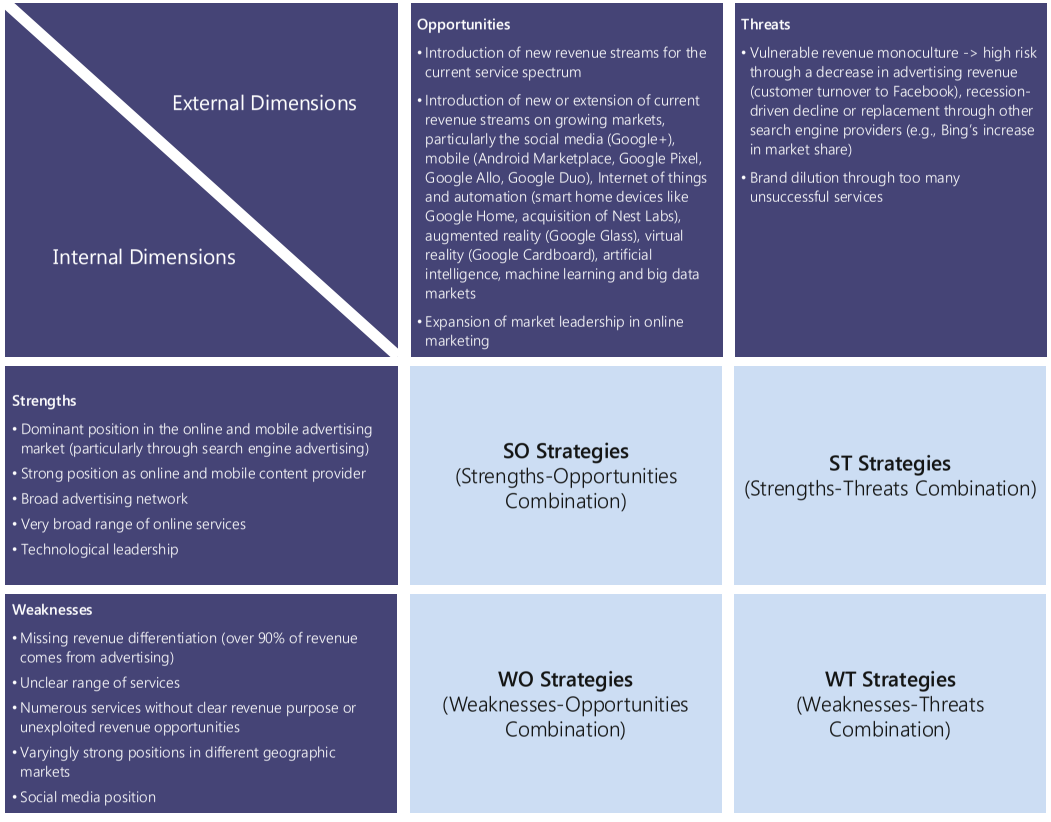

Fig. 11.10 Analysis of Google's strengths, weaknesses, opportunities and risks

Based on the results of the SWOT analysis, the following problem statement can be derived: despite Google's market leadership in online business, the company has not yet managed to extend its revenue basis through multiple income streams. The unsystematic and unclear extension of Google's range of services offered through trial and error has not yielded sustainable revenue options.

Solution to Question 2

Based on this analysis, derive strategic opportunities of action and critical success factors for the management of Google. Name present success factors of Google.

As mentioned earlier, there are four basic strategic opportunities of action according to the SWOT analysis. To begin with, Google can follow SO (strengths-opportunities) strategies, taking advantage of existing opportunities through own strengths. More specifically, it may use the existing service range for revenue differentiation or extend activities in growing markets in order to establish new forms of revenue and extend existing ones. These particularly include mobile business (e.g., Google Nexus, Google Pixel, Google Allo Google Duo), social media (e.g., Google+), Internet of things and automation (e.g., Google Home, acquisition of Nest Labs), augmented and virtual reality (e.g., Google Glass, Google Cardboard), artificial intelligence, machine learning and big data. In addition, Google has also further opportunities through monetizing its broad range of services (especially its content offers).

Google can also pursue ST (strengths-threats) strategies, using its own strengths to avert existing threats. In this connection, it can encounter risks by enhancing and extending the current service spectrum. Moreover, Google can utilize its dominant position in the search engine market and its technological leadership to outperform competitors. It may also focus on core markets to safeguard sustainable market positions.

Furthermore, Google can follow WO (weaknesses-opportunities) strategies, eliminating own weaknesses to take advantage of opportunities. In this context, Google can encounter its weaknesses by exploiting existing revenue potential by streamlining its range of services and monetizing services with no or low revenue. In addition, Google can extend its market leadership in online marketing through market expansion.

Finally, Google can engage in WT (weaknesses-threats) strategies, eliminating own weaknesses to be able to face threats. For the purposes of eliminating own weaknesses, Google can abandon those services that generate no or low revenue and refocus its market offer model. In addition, Google should not only define the revenue purpose of all services to extend its revenue basis, but also expand its online marketing activities even in weak markets in order to prevent being driven completely out of the market by competitors. Figure 11.11 summarizes the strategic options for Google based on a SWOT analysis.

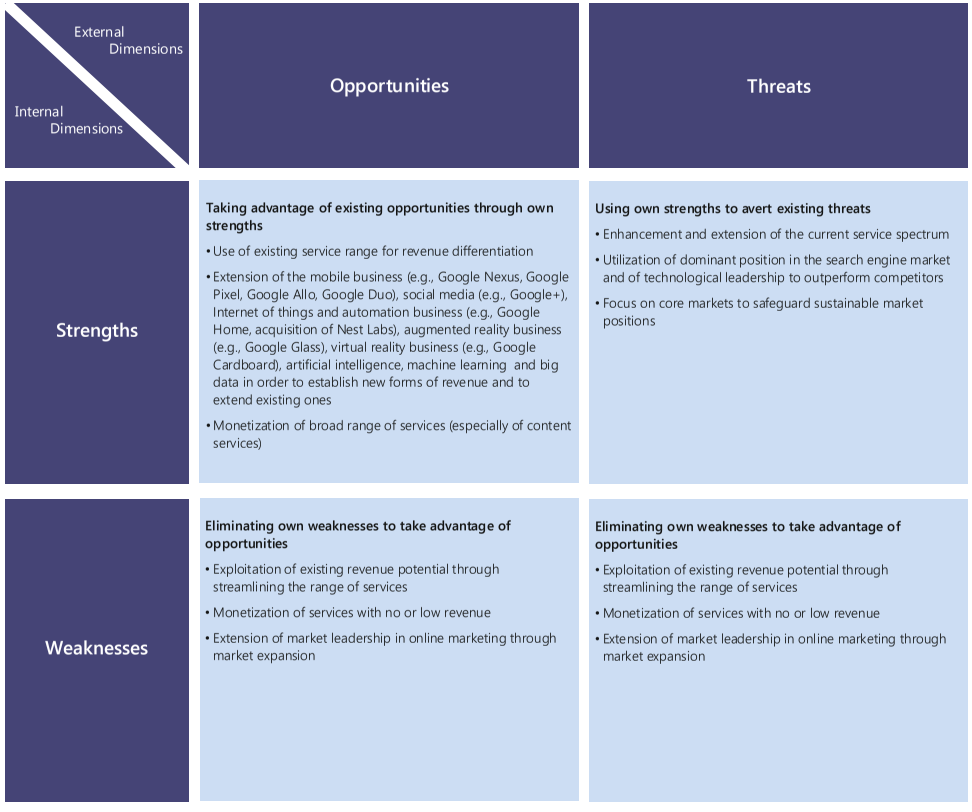

Fig. 11.11 Strategic options for Google based on a SWOT analysis

Beyond these strategic opportunities for action, Google has the following core competencies at its disposal, which at the same time are critical success factors of Google:

- An essential success factor of Google is its technologically cutting-edge search algorithm that is continuously enhanced. Thus, Google's technology competence represents one of its key strengths.
- For a long time and in contrast to other competitors (e.g., Yahoo), Google's business model management has focused its core business on its search engine and search engine marketing. Google's focus competence and business model management competence is another core asset.
- Google created a huge network that generates a major amount of revenue today. Google's ability to manage this diverse portfolio is its networking competence.
- The high diffusion and acceptance of Google's search engine leads to Google's market leadership. With regard to its brand management, this market position allows Google to maintain a unique and differentiated corporate profile. Google has demonstrated its very strong brand management competence.

Solution to Question 3

Reflect upon these potential strategic alternatives and choose the dominant one.

Given Google's dominant position in the online business sector (especially in the advertising market) and its strong position in other markets, the SO strategy seems suitable, as opportunities can be exploited with own strengths. A crucial element of this strategy is revenue differentiation:

- Utilization of the existing service spectrum for revenue differentiation.
- Extension of the mobile, social media, Internet of things and big data segments to establish new revenue flows and extend existing ones.
- Monetization of the broad range of service offers.

Solution to Question 4

Discuss various opportunities for Google to differentiate itself in the context of revenue optimization. Which recommendation for action would you give Google?

Google has a lot of potential for revenue differentiation resulting from various measures that generate revenue. These can be classified according to different revenue categories, comprising direct transaction-dependent, indirect transaction-dependent, direct transaction-independent and indirect transaction-independent revenues. Measures for generating direct transaction-dependent revenue include software sales, hardware offers for the mobile sector (e.g., smartphones or tablets), as well as extending the hardware offers in the server segment and range of payment service offers.

Software sales have a low revenue potential because many products are based on open source and are therefore difficult to realize with the current structure of service offers. In addition, this carries a high risk due to the reduced coverage and negative impact on the core business (advertising). Consequently, software sales are not suitable for revenue differentiation.

Hardware offers for the mobile sector show a very high revenue potential, but also a high risk of losing important network partners and risks with regard to competition law. Overall, this measure for revenue generation appears as highly suitable for revenue generation and differentiation. Extending hardware offers in the server segment has a low to medium revenue potential due to the highly competitive market and its special distribution structures. This measure only carries a medium risk due to Google's high technological competence. Therefore, this measure of revenue generation appears to be moderately suitable for revenue generation and differentiation.

Extending the range of payment service offers has a high revenue potential particularly in the mobile area. Although there is strong competition with providers like PayPal, this measure bears a low risk because Google already has an appropriate infrastructure, making it very highly suitable for revenue generation and differentiation.

Extending the hardware and software offers in the field of Internet of things, automation, artificial intelligence and machine learning has a high revenue potential especially with regard to smart home appliances. There is a low risk due to Google's technological leadership and moderate competition in the market. As a result, this measure is very highly suitable for revenue generation and differentiation.

In addition, extending hardware offers in the field of augmented or virtual reality are characterized by a low to medium revenue potential and a medium risk due to the moderately to highly competitive market environment. Therefore, this measure is only moderately suitable for revenue differentiation.

Moreover, measures for generating indirect transaction-independent revenues include commission fees that Google receives in its role as e-commerce intermediary (e.g., Google Product Search, Google Merchant Center and Google Shopping). Here, Google has a high revenue potential due to its role as a gatekeeper in online shopping, but at the same time a medium to high risk of engaging in competition with current customers. Overall, this measure appears as highly suitable for revenue differentiation.

Furthermore, measures for generating direct transaction-independent revenues comprise price differentiation for licenses of premium products or for business customers, as well as fee-based licenses and letting of server capacities (cloud computing). Price differentiation for licenses of premium products have a low to medium revenue potential, as only few services are suitable for this model. Given that it provides an added benefit, there is a relatively low risk, not least because it is an approved instrument (see Google Earth Plus). However, in view of the formerly free functions such price differentiations also carry a high risk of user churn. Altogether, this measure is moderately suitable for revenue differentiation.

Price differentiation for licenses for business customers has a medium revenue potential because the model is quite established but not suitable for all services. Similarly, there is a medium risk as it is an established model in online business, making it overall a moderately suitable measure for revenue differentiation. Fee-based licenses have a high revenue potential due to the high number of users. Yet, there is not only a very high risk of end user churn and a certain risk of brand

erosion, but also a medium risk in the business sector because here it is already partially established (Google Maps API). Accordingly, this measure is less suitable for revenue differentiation.

The letting of server capacities (cloud computing) has a very high revenue potential for Google, as necessary structures are already established in the emerging market. While this measure is characterized by a medium to high risk in the private customer segment due to competing offers that are free of charge, it only carries a low risk in the business customer segment and thus is very highly suitable for revenue generation and differentiation.

Finally, measures for generating indirect transaction-independent revenues particularly refer to the extension of revenues from data mining and big data analysis (selling user data). Here, Google has a high revenue potential due to its broad portfolio of diverse user data. However, this is also associated with a high risk due to problems of acceptance among users and potential user churn, thus negatively influencing Google's core business. In addition, this also carries legal risks and therefore appears to be only moderately suitable for revenue differentiation. Table 11.1 summarizes various measures of revenue generation and evaluates them in terms of their revenue potential and risk. Due to the great differentiation, not all kinds of advertising revenues are considered.

Table 11.1 Opportunities for differentiation with regard to revenue generation

	Measures for revenue generation	Revenue potential	Risk	Rating
Direct transaction-dependent	Software sales	Low potential because a lot of products are based on open source and therefore difficult to realize with the current structure of service offers	High risk due to reduced coverage and negative impact on core business (advertising market)	○
	Hardware offers for the mobile sector (smartphones, tablets, etc.)	Very high potential (see Apple)	High risk of losing important network partners, risks with regard to competition law	◕
	Extension of the hardware offers in the server segment	Low to medium potential due to highly competitive market and its special distribution structures	Medium risk due to high technology competence	◑
	Extension of the payment service range	High potential, especially in the mobile sector	Low due to existing infrastructure, but strong competition with other providers (e.g., PayPal)	●
	Extension of hardware and software offers in the field of Internet of things, automation, artificial intelligence and machine learning	High potential, especially with regard to smart home appliances	Low due to technological leadership and moderate competition	●
	Extension of hardware offers in the field of augmented or virtual reality (e.g., wearables)	Low to medium potential	Medium risk due to moderate to high competition	◑

(continued)

Table 11.1 (continued)

	Measures for revenue generation	Revenue potential	Risk	Rating
Indirect transaction-dependent	Commission fees as e-commerce intermediary (e.g., through Google Product Search, Google Merchant Center, and Google Shopping)	High potential due to Google's role as gatekeeper in online shopping	Medium to high risk due to competition with current customers	◕
Direct transaction-independent	Price differentiation for licenses (premium products)	Low to medium potential because only few services are suitable for this model	Relatively low risk as long as there is a recognizable added benefit, approved instrument (see Google Earth Plus), high risk of user churn in view of formerly free functions	◑
	Price differentiation for licenses (charged for business customers)	Medium potential because the model is quite established, but not suitable for all services	Medium risk because it is an established model in online business	◑
	License fees	High potential due to high number of users	Very high risk of end user churn, risk of brand erosion, medium risk in the business sector because here it is already partially established (Google Maps API)	◔
	Letting of server capacities (cloud computing)	Very high potential because necessary structures are already established in the emerging market	Medium to high risk in the private customer segment, low risk in the business customer segment	●
Indirect transaction-independent	Extension of revenues from data mining and big data (sale of user data)	High potential due to Google's broad portfolio of diverse user data	High risk due to problems of acceptance among users, resulting in user churn (impact on core business) and legal risks	◑

○ Not suitable ◔ Less suitable ◑ Moderately suitable ◕ Highly suitable ● Very highly suitable

References

Afuah, A. (2004). *Business models—A strategic management approach* (1st ed.). New York: McGrawHill.

Afuah, A., & Tucci, C. L. (2003). *Internet business models and strategies*. New York: McGrawHill.

Al-Debei, M. M., El-Haddadeh, R., & Avison, D. (eds.). (2008). *Defining the Business Model in the New World of Digital Business: Americas Conference on Information Systems 2008 Proceedings, Paper 300, Toronto*. http://aisel.aisnet.org/amcis2008/300.

Alphabet Inc. (2017a). *Annual Report 2016*. Accessed May 29, 2017. https://abc.xyz/investor/pdf/2016_google_annual_report.pdf.

Alphabet Inc. (2017b). *Annual report: Alphabet announces fourth quarter and fiscal year 2017 results*. Accessed December 12, 2018. https://abc.xyz/investor/static/pdf/20171231_alphabet_10K.pdf?cache=7ac82f7.

Amazon. (2017). *Personalized product recommendations*. Accessed August 29, 2017. https://www.amazon.com/Business-Model-Products-Competition-Irrelevant-ebook/dp/B06XQ5YFKQ/ref=pd_sim_351_1?_encoding=UTF8&psc=1&refRID=086QHWB4AWA9W98VBKNE.

Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal, 22*(6–7), 493–520.

Amit, R., & Zott, C. (2012). Creating value through business model innovation. *MIT Sloan Management Review, 53*(3), 40–50.

Amit, R. H., & Zott, C. (2010). Business model innovation: Creating value in times of change.

AMS. (2000). *eBusiness in the European Telecommunications Industry*. Den Haag.

Andrews, K. R. (1971). *The concept of corporate strategy*. Homewood.

Ansoff, H. I. (1965). *Corporate strategy*. New York: McGrawHill.

Azam, A. (2015). The effect of website interface features on e-commerce: An empirical investigation using the use and gratification theory. *International Journal of Business Information Systems, 19*(2), 205–223.

Baden-Fuller, C., & Morgan, M. S. (2010). Business models as models. *Long Range Planning, 43* (2–3), 156–171.

Barnard, C. (1938). *The functions of the executive*. Cambridge.

Baumol, W., Panzar, J., & Willig, R. (1988). *Contestable markets and the theory of industry structure*. New York: Saunders College Publishing/Harcourt Brace.

Beheshti, H. M., & Salehi-Sangari, E. (2007). The benefits of e-business adoption. An empirical study of Swedish SMEs. *Service Business, 1*(3), 233–245.

© Springer Nature Switzerland AG 2019

B. W. Wirtz, *Digital Business Models*, Progress in IS,
https://doi.org/10.1007/978-3-030-13005-3

Bellman, R., Clark, C. E., Malcom, D. G., Craft, C. J., & Ricciardi, F. M. (1957). On the construction of a multi-stage, multi-person business game. *Operational Research, 5*(4), 469–503.

Bieger, T., Bickhoff, N., Caspers, R., Knyphausen-Aufseß, D., & Reding, K. (eds.). (2002a). *Zukünftige Geschäftsmodelle - Konzept und Anwendung in der Netzökonomie*. Berlin: Springer.

Bieger, T., Rüegg-Stürm, J., & von Rohr, T. (2002b). Strukturen und Ansätze einer Gestaltung von Beziehungskonfigurationen - Das Konzept Geschäftsmodell. In Bieger, T., Bickhoff, N., Caspers, R., Knyphausen-Aufseß, D., & Reding, K. (Eds.), *Zukünftige Geschäftsmodelle - Konzept und Anwendung in der Netzökon* (pp. 35–61). Berlin: Springer.

Bridgeland, D. M., & Zahavi, R. (2009). *Business modelling—A practical guide to realizing business value*. Burlington: Elsevier.

Bucherer, E., Eisert, U., & Gassmann, O. (2012). Towards systematic business model innovation: Lessons from product innovation management. *Creativity and Innovation Management, 21*(2), 183–198.

Budde, F., Elliot, B. R., Farha, G., & Palmer, C. R. (2000). The chemistry of knowledge. *McKinsey Quarterly, 4,* 99–107.

Camarinha-Matos, L. M., Afsarmanesh, H., & Rabelo, R. (2013). *E-business and virtual enterprises: Managing business-to-business cooperation*. New York: Springer.

Camra-Fierro, J., Centeno, E., Bordonaba-Juste, V., Lucia-Palacios, L., & Polo-Redondo, Y. (2012). The influence of organizational factors on e-business use: Analysis of firm size. *Marketing Intelligence & Planning, 30*(2), 212–229.

Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning, 43*(2–3), 195–215.

Chaffey, D. (2009). *E-business and e-commerce management* (4th ed.). Essex: Prentice Hall; FT Prentice Hall.

Chaffey, D. (2015). *Digital business and E-commerce management: Strategy, implementation and practice* (6th ed.). Harlow: Pearson Education Limited.

Chandler, A. (1962). *Strategy and structure: Chapters in the history of the industrial enterprise*. Cambridge: M.I.T. Press.

Chen, L., Gillenson, M. L., & Sherrell, D. L. (2004). Consumer acceptance of virtual stores. A theoretical model and critical success factors for virtual stores. *ACM SIGMIS Database, 35* (2), 8–31.

Chen, S. (2005). *Strategic management of e-business* (2nd ed.). Chichester.

Chesbrough, H. (2006). *Open business models*. Boston, Massachusetts: Havard Business School Press.

Chesbrough, H. (2007). Business model innovation: It's not just about technology anymore. *Strategy & Leadership, 35*(6), 12–17.

Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning, 43*(2), 354–363.

Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change, 11*(3), 529–555.

Chesher, M., Kaura, R., & Linton, P. (2013). *Electronic business & commerce.* Springer Science & Business Media.

Choi, J., Lee, S. M., & Soriano, D. R. (2015). *An empirical study of user acceptance of fee-based online content*. Accessed November 14, 2016. http://www.tandfonline.com/doi/abs/10.1080/08874417.2009.11645325.

comScore. (2018). *Comscore explicit core search share report*. Accessed December 12, 2018. https://www.comscore.com/Insights/Rankings?&country=#tab_search_share.

comScore Releases June 2009 U.S. Search Engine Rankings. (2009). *News release 2009*. Accessed November 16, 2016. http://www.comscore.com/Insights/Press-Releases/2009/7/comScore-Releases-June-2009-U.S.-Search-Engine-Rankings?cs_edgescape_cc=DE.

Cooper, R. G. (1994). Third-generation new product processes. *Journal of Product Innovation Management, 11*(1), 3–14.
Dahan, N., Doh, J., Oetzel, J., & Yaziji, M. (2010). Corporate NGO collaboration: Co-creating new business models for developing markets. *Long Range Planning, 43*(2–3), 326–342.
Debelak, D. (2006). *Business models—Made easy*. Wisconsin: Entrepreneur Press.
Deloitte. (2002). *Deconstructing the formula for business model innovation: Uncovering value-creating opportunities in familiar places: A competitive strategy study by Deloitte Consulting and Deloitte & Touche* (pp. 1–24).
Demil, B., & Lecocq, X. (2010). Business model evolution: In search of dynamic consistency. *Long Range Planning, 43*(2), 227–246.
Denger, K., & Wirtz, B. (1995a). Die digitale revolution. *Gablers Magazin, 9*(3), 20–24.
Denger, K., & Wirtz, B. W. (1995b). Innovatives Wissensmanagement und Multimedia. *Gablers Magazin, 9*(3), 20–24.
Denicolai, S., Ramirez, M., & Tidd, J. (2014). Creating and capturing value from external knowledge: The moderating role of knowledge intensity. *R&D Management, 44*(3), 248–264.
DeWit, B., & Meyer, R. (2010). *Strategy synthesis—Resolving strategy paradoxes to create competitive advantage* (2nd ed.). Hampshire: South-Western: Cengage Learning.
Dmoz. (2016). *Dmoz*. Accessed November 15, 2016. https://www.dmoz.org/.
Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high performance knowledge-sharing network: The Toyota case. *Strategic Management Journal, 21*(3), 345–367.
Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *The Academy of Management Review, 23*(4), 660–679.
eBay Inc. (2016). *Our history*. Accessed November 22, 2016. https://www.ebayinc.com/our-company/our-history/.
eBay Inc. (2017). *Q2 2017 Company Fast Facts*. Accessed August 29, 2017. https://www.ebayinc.com/stories/press-room/#assets-fact-sheets-infographics.
elearningindustry. (2016). eLearning market statistics. Accessed June 30, 2016. https://elearningindustry.com/elearning-statistics-and-facts-for-2015.
Eppler, M. J., & Hoffmann, F. (2012). Does method matter? An experiment on collaborative business model idea generation in teams. *Innovation, 14*(3), 388–403.
Eriksson, H.-E., & Penker, M. (2000). *Business modeling with UML: Business patterns at work*. New York: John Wiley & Sons Inc.
Expedia. (2017). *Startseite Expedia*. Accessed July 26, 2017. https://www.expedia.com/?&rfrr=Header.POSRedirect.www.expedia.de.
Fahy, J., & Smithee, A. (1999). Strategic marketing and the resource based view of the firm. *Academy of Marketing Science Review, 10,* 1–21.
Fayol, H. (1916). *Aministration industrielle et générale.* Paris.
Feng, Y., Guo, Z., & Chiang, W. K. (2009). Optimal digital content distribution strategy in the presence of the consumer-to-consumer channel. *Journal of Management Information Systems, 25*(4), 241–270.
Fortune. (2015). *Nexus phones will never see huge sales—but here's why they don't need to*. Accessed December 20, 2016. http://fortune.com/2015/09/30/google-nexus-smartphones-about-innovation-not-sales/.
Gambardella, A., & McGahan, A. M. (2010). Business-model innovation: general purpose technologies and their implications for industry structure. *Long Range Planning, 43*(2–3), 262–271.
Gay, R., Charlesworth, A., & Esen, R. (2007). *Onlinemarketing. A customer-led approach*. Oxford: Oxford University Press.
Ghaziani, A., & Ventresca, M. J. (2005). Keywords and cultural change: Frame analysis of business model public talk, 1975–2000. *Sociological Forum, 20*(4), 523–559.
Gilbreth, F. (1911). *Motion study.* New York.

Goffin, K., & Mitchell, R. (2010). *Innovation management: Strategy and implementation using the pentathlon framework* (2nd ed.). Hampshire: Palgrave Macmillan.

Goh, K.-Y., Heng, C.-S., & Lin, Z. (2013). Social media brand community and consumer behavior: Quantifying the relative impact of user-and marketer-generated content. *Information Systems Research, 24*(1), 88–107.

Google. (2010). *Google-technology*. http://www.google.com/corporate/tech.html.

Google. (2017). *About Google*. Accessed July 28, 2017. https://www.google.com/about/.

Google. (2018). *Search for "jeep grand cherokee"*. Accessed December 12, 2018. https://www.google.com/search?source=hp&ei=38UQXLGPPKKHrwSvzrBA&q=jeep+grand+cherokee+&oq=jeep+grand+cherokee+&gs_l=psy-ab.3.0l10.2300.7066.8398…0.0.0.81.314.7……0…1.gws-wiz…0.0i131.iXyHTaUzg1o.

Google Watch Blog. (2018). *Google/alphabet Quartalszahlen in der Übersicht*. Accessed December 12, 2018. https://www.googlewatchblog.de/2016/02/google-alphabet-quartalszahlen-uebersicht/.

Günzel, F., & Holm, A. B. (2013). One size does not fit all: Understanding the front-end and back-end of business model innovation. *International Journal of Innovation Management, 17* (01):1340002-1–1340002-34.

Hamel, G. (2000). *Leading the revolution*. Boston: Harvard Business School Press.

Hargadon, A. (2015). How to discover and assess opportunities for business model innovation. *Strategy & Leadership, 43*(6), 33–37.

Hauschildt, J., & Salomo, S. (2016). *Innovationsmanagement.* 6. überarb., erg. und aktualisierte Aufl. Vahlens Handbücher der Wirtschafts- und Sozialwissenschaften. München: Vahlen.

Hedman, J., & Kalling, T. (2002). *IT and business models: Concepts and theories*. Malmö: Liber.

Hoovers. (2016). *Big data: It's not just for big business*. Accessed July 01, 2016. http://www.hoovers.com/about-us/our-data.html.

Hsu, C.-L., Wu, C.-C., & Chen, M.-C. (2013). An empirical analysis of the antecedents of e-satisfaction and e-loyalty: Focusing on the role of flow and its antecedents. *Information Systems and e-Business Management, 11*(2), 287–311.

Hsu, P.-F., Kraemer, K. L., & Dunkle, D. (2006). Determinants of e-business use in US firms. *International Journal of Electronic Commerce, 10*(4), 9–45.

Hughes, G. D., & Chafin, D. C. (1996). Turning new product development into a continuous learning process. *Journal of Product Innovation Management, 13*(2), 89–104.

IBM Global CEO Study. (2008). *The enterprise of the future: New York*. Accessed October 07, 2009. http://www.935.ibm.com/services/de/bcs/html/ceostudy.html.

IBM Institute for Business Value. (2008). *Paths to success: Three ways to innovate your business model*. http://www-935.ibm.com/services/us/index.wss/ibvstudy/gbs/a1028552?cntxt=a1005266. http://www-935.ibm.com/services/us/index.wss/ibvstudy/gbs/a1028552?cntxt=a1005266.

IBM Institute for Business Value. (2015). *Redefining boundaries: Insights from the global C-suite study*. Accessed July 20, 2017. https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=GBE03695USEN.

Internet Live Stats. (2017). *Google search statistics*. Accessed August 29, 2017. http://www.internetlivestats.com/google-search-statistics/.

Internet World Stats. (2017). *Internet usage statistics: The internet big picture*. Accessed May 19, 2017. http://www.internetworldstats.com/stats.htm.

ISC. 2018. "Internet Domain Survey." Accessed December 11, 2018. http://ftp.isc.org/www/survey/reports/2018/07/.

Jelassi, T., & Enders, A. (2004). *Strategies for e-business: Creating value through electronic and mobile commerce (concept and cases)*. Essex: Financial Times Prentice Hall.

Jevons, C., & Gabbott, M. (2000). Trust, brand equity and brand reality in internet business relationships: an interdisciplinary approach. *Journal of Marketing Management, 16*(6), 619–634. https://doi.org/10.1362/026725700785045967.

Johnson, M. W. (2010). *Seizing the white space: Business model innovation for groth and renewal*. Boston: Harvard Business Press.
Johnson, M. W., Christensen, C. M., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review, 89*(12), 50–59.
Jones, G. M. (1960). Educators, electrons, and business models: A problem in synthesis. *Accounting Review, 35*(4), 619–626.
Kantor, J., & Streitfeld, D. (2015). *Inside Amazon: wrestling big ideas in a bruising workplace*. Accessed November 21, 2016. http://www.nytimes.com/2015/08/16/technology/inside-amazon-wrestling-big-ideas-in-a-bruising-workplace.html.
Keen, P., & Qureshi, S. (2006). Organizational transformation through business models: A framework for business model design. In *39th Hawaii International Conference on System Sciences* (pp. 1–10).
Kian, C. W., Shafaghi, M., Woollaston, C., & Lui, V. (2010). B2B e-marketplace: An e-marketing framework for B2B commerce. *Marketing Intelligence & Planning 28*(3), 310–329.
Knyphausen-Aufseß, D., & Meinhardt, Y. (2002). Revisiting strategy: Ein Ansatz zur Systematisierung von Geschäftsmodellen. In Bieger, T., Bickhoff, N., Caspers, R., Knyphausen-Aufseß, D., & Reding, K. (Eds.), *Zukünftige Geschäftsmodelle - Konzept und Anwendung in der Netzökonomie* (pp. 63–90). Berlin: Springer.
Konczal, E. F. (1975). Models are for managers, not mathematicians. *Journal of Systems Management, 26*(1), 12–15.
Kor, Y. Y., & Mahoney, J. T. (2004). Edith Penroses's (1959) contributions to the resource-based view of strategic management. *Journal of Management Studies, 41*(1), 183–191.
Krüger, C., Swatman, P. M. C., & va der Beek, K. (2003). Business model formation within the online news market: The core + complement business model framework. In *16th Bled Electronic Commerce Conference eTransformation, Bled*.
Lambert, S., (Ed.). (2006). *Do we need a "Real" Taxonomy of e-Business Models? School of commerce Research Paper series: 06-6, Adelaide*.
Laudon, K. C., & Traver, C. G. (2014). *E-commerce: Business, technology, society* (10th ed.). Harlow, England: Pearson.
Laudon, K. C., & Traver, C. G. (2017). *E-commerce: Business, technology, society* (12th ed., Global edition). Upper Saddle River: Pearson.
Lazonick, W. (2005). Evolution of the new economy business model. *Business and Economic History, 3,* 1–60.
Lehmann-Ortega, L., & Schoettl, J.-M. (2005). From buzzword to managerial tool: The role of business models in strategic innovation. *Cladea, Annual Assembly, 2005*(5), 1–14.
Linder, J. C., & Cantrell, S. (2000). *Changing business models: Surveying the landscape.* Hamilton.
Lindgardt, Z., Reeves, M., Stalk, G., & Deimler, M. S. (2009). *Business model innovation.* New York.
LinkedIn. (2014). *The sophisticated marketer's guide to LinkedIn*. Accessed 11/07/17. https://business.linkedin.com/content/dam/business/marketing-solutions/global/en_US/campaigns/pdfs/Linkedin_SophGuide_020314.pdf.
LinkedIn. (2016). *Annual report 2015*. Accessed October 07, 2017. http://www.annualreports.com/HostedData/AnnualReportArchive/l/NYSE_LNKD_2015.PDF.
LinkedIn. (2017a). *Front page*. Accessed July 28, 2017. https://www.linkedin.com/.
LinkedIn. (2017b). *Our story*. https://ourstory.linkedin.com/.
MacInnes, I., & Hwang, J. (Eds.). (2003). *Business models for peer to peer initiatives: 16th Bled eCommerce Conference eTransformation, Bled*.
Magretta, J. (2002). Why business models matter. *Harvard Business Review, 80*(5), 86–92.
Mahadevan, B. (2004). A framework for business model innovation. In *IMRC 2004 Conference,* December 16–18.
Malhotra, Y. (2000a). Knowledge management and new organization forms: A framework for business model innovation. *Information Resources Management Journal, 13*(1), 5–14.

Malhotra, Y. (2000b). Knowledge management for e-business performance: Advancing information strategy to “internet time”. *Information Strategy: The Executive's Journal, 16*(4), 5–16.
Manville, B., & Ober, J. (2003). Beyond empowerment: Building a company of citizens. *Harvard Business Review, 81*(1), 48–53.
March, J., & Simon, H. (1958). *Organizations.* Cambridge.
Markides, C. (2006). Disruptive innovation: In need of better theory. *Journal of Product Innovation Management, 23*(1), 19–25.
McGuire, J. W. (1965). How much freedom does business REALLY want? *Business Horizons 8* (2), 73–78. http://www.sciencedirect.com/science/article/B6W45-4DTT3B4-K7/2/570ba9c7f385437c678c379377af1fc1.
McKinsey. (2008). *Google's view on the future of business: An interview with CEO Eric Schmidt* (pp. 1–8). http://www.timewarner.com/sites/timewarner.com/files/ckeditor/public/files/googleviewonthefutureSchmidt_2008.pdf. Accessed January 11, 2016.
Merriam, S. (1998). *Qualitative research and case study applications in education.* San Francisco.
Microsoft Corporation. (2009). *Microsoft's new search at Bing.com: Helps people make better decisions*. Accessed July 27, 2017. https://news.microsoft.com/2009/05/28/microsofts-new-search-at-bing-com-helps-people-make-better-decisions/#hRqc6HuOxb3dFUoR.97.
Mitchell, D., & Coles, C. (2003). The ultimate competitive advantage of continuing business model innovation. *Journal of Business Strategy, 24*(5), 15–21.
Mitchell, D. W., & Bruckner Coles, C. (2004). Establishing a continuing business model innovation process. *Journal of Business Strategy, 25*(3), 39–49.
Mukhopadhyay, S. K., & Setoputro, R. (2004). Reverse logistics in e-business: Optimal price and return policy. *International Journal of Physical Distribution & Logistics Management, 34*(1), 70–89.
Nefiodow, L. (1999). *Der sechste Kondratieff: Wege zur Produktivität und Vollbeschäftigung im Zeitalter der Information 3*. Sankt Augustin: Rhein-Sieg.
NeoGrid. (2016). *Clients and cases*. Accessed July 01, 2016. https://www.neogrid.com/uk/clients.
Netmarketshare. (2016). *Mobile/tablet operating system market share: May 2016*. Accessed 13/06/16. https://www.netmarketshare.com/operating-system-market-share.aspx?qprid=8&qpcustomd=1.
Onetti, A., Zucchella, A., Jones, M. V., & McDougall-Covin, P. P. (2012). Internationalization, innovation and entrepreneurship: Business models for new technology-based firms. *Journal of Management & Governance, 16*(3), 337–368.
Online-Learing. (2017). *Startseite*. Accessed August 29, 2017. http://online-learning.com/.
Osterwalder, A. (2004). *The business model ontology—A proposition in a design approach.* Lausanne.
Osterwalder, A., & Pigneur, Y. (2010). *Business model generation*.
Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present, and future of the concept. *Communications of the Association for Information Systems, 16*(1), 1–25.
Papakiriakopoulos, D. A., Poulymenakou, A., & Doukidis, G. (2001). Building e-business models: An analytical framework and development guidelines. In *Tagungsband 14th Bled Electronic Commerce Conference*.
Papazoglou, M., & Ribbers, P. (2006). *E-business: Organizational and technical foundations* (1st ed.). NJ: Hoboken.
Papazoglou, M., & Ribbers, P. (2011). *E-business: Organizational and technical foundations* (2nd ed., Kindle Edition). Hoboken, NJ.
Park, C. W., Jaworski, B. J., & Maclnnis, D. J. (1986). Strategic brand concept-image management. *Journal of Marketing, 50*(4), 135. https://doi.org/10.2307/1251291.
Park, E. J., Kim, E. Y., Funches, V. M., & Foxx, W. (2012). Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *Journal of Business Research, 65*(11), 1583–1589.

Pateli, A. G., & Giaglis, G. M. (2004). A research framework for analysing eBusiness models. *European Journal of Information Systems, 13*(9), 302–314.
Pauwels, K., & Weiss, A. (2008). Moving from free to fee: How online firms market to change their business model successfully. *Journal of Marketing, 72*(3), 14–31. https://doi.org/10.1509/jmkg.72.3.14.
PayPal. (2017). *We get where you're coming from*. Accessed August 29, 2017. https://www.paypal.com/us/webapps/mpp/country-worldwide.
Penrose, E. T. (1951). *The economics of the international patent system*. Baltimore: Johns Hopkins Press.
Pohle, G., & Chapman, M. (2006). IBM's global CEO report 2006: Business model innovation matters. *Strategy & Leadership, 34*(5), 34–40.
Porter, M. E. (1980). *Competitive strategy. Techniques for analyzing industries and competitors*. New York: Free Press.
Porter, M. E. (1986). *Wettbewerbsvorteile: Spitzenleistungen erreichen und behaupten.* Frankfurt a. M.
Porter, M. E. (2004). *Competitive advantage: Creating and sustaining superior performance*. New York: Free Press.
Porter, M. E., & Millar, V. (1985). How information gives you competitive advantage. *Harvard Business Review (HBR), 63*(4), 149–160.
Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review, 68*(3), 79–91.
Prahalad, C. K., & Hamel, G. (2006). The core competence of the corporation. In *Strategische Unternehmungsplanung: Strategische Unternehmungsführung: Stand und Entwicklungstendenzen*, edited by Bernard Taylor. 9. Aufl., 275–92. s.l. Berlin: Springer.
Prajogo, D., & Olhager, J. (2012). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics, 135*(1), 514–522.
Prasad, A., Mahajan, V., & Bronnenberg, B. (2003). Advertising versus pay-per-view in electronic media. *International Journal of Research in Marketing, 20*(1), 13–30. https://doi.org/10.1016/S0167-8116(02)00119-2.
PriceWaterhouceCoopers. (1999). *Leitfaden E-Business: Erfolgreiches Management.* Frankfurt am Main.
Rayport, J. F., & Jaworski, B. J. (2001). *e-Commerce.* Boston.
Rayport, J. F., & Sviokla, J. (1995). Exploiting the virtual value chain. *Harvard Business Review (HBR), 73*(6), 75–85.
Rayport, J. F., & Sviokla, J. (1996). Exploiting the virtual value chain. *The McKinsey Quarterly, 1,* 21–36.
Roberts, E. B. (1987). *Generating technological innovation*. New York, USA: Oxford University Press Inc.
Rupf, I., & Grief, S. (2002). *Automotive components: New business models, new strategic imperatives.* Boston.
Schneider, G. P. (2017). *Electronic commerce*. Australia: Cengage Learning.
Schneider, S., & Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda *International Journal of Innovation Management*, *17*(1), 134000-1–134000-34.
Schoegel, K. (2001). *Geschäftsmodelle: Konstrukt - Bezugsrahmen - Management.* München.
Schumpeter, J. (1939). *Business cycles: A theoretical, historical and statistical analysis of the capitalist process.* New York.
Schweizer, L. (2005). Concept and evolution of business models. *Journal of General Management, 31*(2), 37–56.
Senger, E., & Suter, A. (2007). Wie das Geschäftsmodell innoviert wird. *io new management 76* (Nr. 7–8), 55–58.

Seppänen, M., & Mäkinen, S. (2006). Conceptual schema of resources for business models. *Management of Innovation and Technology, 2*(21), 1066–1069.
Shapiro, C., & Varian, H. R. (1999). *Information rules. A strategie guide to the network economy*. Boston: Mcgraw-Hill Professional.
Sila, I. (2013). Factors affecting the adoption of B2B e-commerce technologies. *Electronic Commerce Research, 13*(2), 199–236.
Sila, I. (2015). The state of empirical research on the adoption and diffusion of business-to-business e-commerce. *International Journal of Electronic Business, 12*(3), 258–301.
Solaymani, S., Sohaili, K., & Yazdinejad, E. A. (2012). Adoption and use of e-commerce in SMEs. *Electronic Commerce Research, 12*(3), 249–263. https://doi.org/10.1007/s10660-012-9096-6.
Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business model innovation through trial-and-error learning: the Naturhouse case. *Long Range Planning, 43*(2/3), 383–407.
Statista. (2016). Google's advertising revenue worldwide. Accessed November 15, 2016. https://www.statista.com/statistics/266249/advertising-revenue-of-google/.
Statista. (2017a). *Google's advertising revenue worldwide*. Accessed July 27, 2017. https://www.statista.com/statistics/266249/advertising-revenue-of-google/.
Statista. (2017b). *Google's total revenue worldwide*. Accessed July 27, 2017. https://www.statista.com/statistics/266206/googles-annual-global-revenue/.
Statistic Brain. (2016a). *Google plus demographics & statistics*. Accessed December 20, 2016. http://www.statisticbrain.com/google-plus-demographics-statistics/.
Statistic Brain. (2016b). *YouTube company statistics*. Accessed December 20, 2016. http://www.statisticbrain.com/youtube-statistics/.
Susman, G. I. (Ed.). (2007). *Small and medium-sized enterprises and the global economy*. Massachusetts: Edward Elgar Publishing.
Taylor, F. W. (1911). *The principles of scientific management.* New York.
Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning, 43* (2–3), 172–194.
Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.
Tikkanen, H., Lamberg, J.-A., Parvinen, P., & Kallunki, J.-P. (2005). Managerial cognition, action and the business model of the firm. *Management Decision, 43*(6), 789–809.
Timmers, P. (1998). Business models for electronic markets. *Electronic Markets, 8*(2), 3–8.
Timmers, P. (1999). *Electronic commerce—Strategies and models for business-to-business trading*. Chichester.
Totterdell, P., Leach, D., Birdi, C., & Wall, T. (2002). An investigation of the contents and consequences of major organizational innovations. *International Journal of Innovation Management, 6*(4), 343–368.
Toufaily, E., Ricard, L., & Perrien, J. (2013). Customer loyalty to a commercial website: Descriptive meta-analysis of the empirical literature and proposal of an integrative model. *Journal of Business Research, 66*(9), 1436–1447.
Treacy, M., & Wiersema, F. (1997). *Marktführerschaft: Wege zur Spitze.* München.
Turban, E. (2015). *Electronic commerce: A managerial and social networks perspective. Springer texts in business and economics* (8th ed.). Cham: Springer.
Turban, E., King, D., Lee, J. K., Liang, T.-P., and Turban, D. C. 2015. *Electronic commerce: A managerial and social networks perspective.* Berlin: Springer.
Turban, E., King, D., Viehland, D., & Lee, J. (2006). *Electronic commerce. A managerial perspective.* Upper Saddle River: Pearson Prentice Hall.
Twigg, C., & Miloff, M. (1998). The global learning infrastructure. In Tapscott, D., Lowy, A., & Ticoll, D. (Eds.), *Blueprint to the digital economy* (pp. 179–201). New York.
Voelpel, S. C., Leibold, M., & Tekie, E. B. (2004). The wheel of business model reinvention: How to reshape your business model to leapfrog competitors. *Journal of Change Management, 4*(3), 259–276.

Wang, Y., Ma, S. S., & Li, D. (2015). Customer participation in virtual brand communities: The self-construal perspective. *Information & Management, 52*(5), 577–587.
Webster, F. (2014). *Theories of the information society*. Routledge.
Wehrli, H. P., & Wirtz, B. W. (1997). Mass Customization und Kundenbeziehungsmanagement - Aspekte und Gestaltungsvarianten transaktionsspezifischer Marketingbeziehungen. *Jahrbuch der Absatz- und Verbrauchsforschung, 43*(2), 116–138.
Weill, P., & Vitale, M. (2013). *Place to space: Migrating to eBusiness models.* Harvard Business Press.
Weiner, J., & LinkedIn. (2016). *LinkedIn + Microsoft: Changing the way the world works*. https://www.linkedin.com/pulse/linkedin-microsoft-changing-way-world-works-jeff-weiner.
Wikimedia Foundation Inc. (2017a). *Frequently asked questions—Wikimedia Foundation*. Accessed January 16, 2017. https://wikimediafoundation.org/wiki/FAQ/en.
Wikimedia Foundation Inc. (2017b). *Our projects—Wikimedia Foundation*. Accessed January 16, 2017. https://wikimediafoundation.org/wiki/Our_projects.
Wikipedia. (2017a). *Electronic business—Wikipedia*. Accessed January 17, 2017. https://en.wikipedia.org/w/index.php?oldid=759189127.
Wikipedia. (2017b). *Google*. Accessed July 12, 2017. https://de.wikipedia.org/wiki/Google#cite_note-lang-1.
Wikipedia. (2017c). *Wikipedia—Wikipedi*a. Accessed January 16, 2017. https://en.wikipedia.org/w/index.php?oldid=760156067.
Wikipedia. (2017d). *Wikipedia: Wikimedia Foundation—Wikipedia*. Accessed January 16, 2017. https://en.wikipedia.org/w/index.php?oldid=756839739.
Wirtz, B. W. (1995a). Strategischer Wettbewerb im Televisionsmarkt - Aspekte der Entwicklung und Regulierung im Rundfunkbereich. *List-Forum, Band 21, Heft 2*, 195–206.
Wirtz, B. W. (1995b). Technologieinnovationen, Marketingstrategie und Preismanagement im Handel. *THEXIS, 12*(4), 46–51.
Wirtz, B. W. (2000a). Der virtuelle Kunde im Internet ist flüchtig. *Frankfurter Allgemeine Zeitung (FAZ), 14.12.2000*, 31.
Wirtz, B. W. (2000b). *eCommerce: Die Zukunft Ihres Unternehmens von @ bis z.* Mittelstandsschriftenreihe der Deutschen Bank 19. Frankfurt a. M.
Wirtz, B. W. (2000c). *Electronic business* (1st ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2000d). *Medien- und Internetmanagement* (1st ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2000e). Rekonfigurationsstrategien und multiple Kundenbindung in multimedialen Informations- und Kommunikationsmärkten. *Zeitschrift für betriebswirtschaftliche Forschung (ZfbF), 52*(5), 290–306.
Wirtz, B. W. (2000f). Wissensmanagement und kooperativer Transfer immaterieller Ressourcen in virtuellen Organisationsnetzwerken. *Zeitschrift für Betriebswirtschaft, ZfB-Ergänzungsheft, 70* (2), 97–115.
Wirtz, B. W. (2001a). *Electronic business* (2nd ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2001b). Reconfiguration of value chains in converging media and communications markets. *Long Range Planning, 34*(4), 489–506.
Wirtz, B. W. (2005). *Medien- und Internetmanagement* (4th ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2006). *Medien- und Internetmanagement* (5th ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2010a). *Business model management: Design - Instrumente - Erfolgsfaktoren von Geschäftsmodellen* (1st ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2010b). *Electronic business* (3rd ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2011a). *Business model management: Design - Instrumente - Erfolgsfaktoren* (2nd ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2011b). *Media and internet management* (1st ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2013a). *Business model management: Design - Instrumente - Erfolgsfaktoren von Geschäftsmodellen* (3rd ed.). Wiesbaden: Springer Gabler.
Wirtz, B. W. (2013b). *Electronic business* (4th ed.). Wiesbaden: Springer Gabler.
Wirtz, B. W. (2013c). *Medien- und Internetmanagement* (8th ed.). Wiesbaden: Gabler.

Wirtz, B. W. (2013d). *Multi-channel-marketing Grundlagen - Instrumente - Prozesse* (2nd ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2015a). *Media Management* (1st ed.). Speyer.
Wirtz, B. W. (2015b). *Medien- und Internetmanagement.* 9., aktualisierte u. überarb. Aufl. 2016. Wiesbaden: Springer Fachmedien Wiesbaden GmbH.
Wirtz, B. W. (2016a). *Business model management: Design—instruments—success factors* (2nd ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2016b). *Medien- und Internetmanagement* (9th ed.). Wiesbaden: Gabler.
Wirtz, B. W. (2017). *Media management* (2nd ed.). Speyer.
Wirtz, B. W. (2018a). *Business model management: Design—Instrumente - Erfolgsfaktoren* (4th ed.). Wiesbaden: Springer Gabler.
Wirtz, B. W. (2018b). *Electronic business* (6th ed.). Wiesbaden: Springer Gabler.
Wirtz, B. W., & Becker, D. (2001). Geschäftsmodelle im Electronic Business - Eine Analyse zu Erscheinungsformen, Erfolgsrelevanz und Entwicklungsperspektiven von Geschäftsmo-dellen. In Scheer A.-W. (Ed.), *Die eTransformation beginnt!* (pp. 159–189). Heidelberg.
Wirtz, B. W., & Becker, D. (2002). Geschäftsmodellansätze und Geschäftsmodellvarianten im Electronic Business - Eine Analyse zu Erscheinungsformen von Geschäftsmodellen. *WiSt - Wirtschaftswissenschaftliches Studium*, *31*(2), 85–90.
Wirtz, B. W., & Bronnenmayer, M. (2011). B2B-Geschäftsmodelle im E-Business. *Wirtschaftswissenschaftliches Studium (WiSt), 40*(9):454–461.
Wirtz, B. W., & Daiser, P. (2015). *E-government: strategy, process, instruments* (1st ed.). Speyer.
Wirtz, B. W., & Daiser, P. (2017a). Business model innovation: An integrative conceptual framework. *Journal of Business Models 5*(1).
Wirtz, B. W., & Daiser, P. (2017b). *E-government: Strategy, process, instruments* (2nd ed.). Speyer.
Wirtz, B. W., Göttel, V., & Daiser, P. (2016a). Business model innovation: Development, concept and future research directions. *Journal of Business Models*, *4*(1).
Wirtz, B. W., & Kleineicken, A. (2000). Geschäftsmodelltypologien im Internet. *Wirtschaftswissenschaftliches Studium (WiSt)*, *29*(11), 628–635.
Wirtz, B. W., & Lihotzky, N. (2003). Customer relation management in the B2C electronic business. *Long Range Planning, 36*(6), 517–532.
Wirtz, B. W., & Nitzsche, P. (2011). Integriertes business model. *Das Wirtschaftsstudium (WISU), 40*(7), 945–951.
Wirtz, B. W., Nitzsche, P., & Ullrich, S. (2014). User integration in social media: An empirical analysis. *International Journal of Electronic Business, 11*(1), 63–84.
Wirtz, B. W., Olderog, T., & Schwarz, J. (2003). Strategische Erfolgsfaktoren in der Internetökonomie. Eine empirische Analyse. *Zeitschrift für betriebswirtschaftliche Forschung (ZfbF), 55*(2), 60–77.
Wirtz, B. W., Pelz, R., & Ullrich, S. (2011). Marketing competencies of publishers and ad sales success: an empirical analysis. *Journal of Media Business Studies, 8*(1), 23–46. https://doi.org/10.1080/16522354.2011.11073517.
Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016b). Business models: Origin, development and future research perspectives. *Long Range Planning, 49*(1), 36–54.
Wirtz, B. W., & Thomas, M.-J. (2014). Design und Entwicklung der Business Model-Innovation. In Schallmo, D. R. A. (Ed.), *Kompendium Geschäftsmodell-Innovation: Grundlagen, aktuelle Ansätze und Fallbeispiele zur erfolgreichen Geschäftsmodell-Innovation* (pp. 31–50). Wiesbaden: Springer Gabler.
Wirtz, B. W., & Ullrich, S. (2008). Geschäftsmodelle im Web 2.0 - Erscheinungsformen, Ausgestaltung und Erfolgsfaktoren. *Praxis der Wirtschaftsinformatik, 261,* 20–31.
Wirtz, B. W., & Vogt, P. (2003). E-collaboration im B2B-Bereich. In Bütgen, M. (Ed.), *Online-Kooperationen. Erfolg im E-Business durch strategische Partnerschaften* (pp. 265–284). Wiesbaden: Gabler.

Yang, D.-H., You, Y.-Y., & Kwon, H.-J. (2014). A framework for business model innovation using market, component and innovation tool. *International Journal of Applied Engineering Research, 9*(21), 9235–9248.

Yip, G. S. (2004). Using strategy to change your business model. *Business Strategy Review, 15*(2), 17–24.

Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. *Information Systems Research, 16*(1), 61–84.

Zhu, K., Kraemer, K. L., & Xu, S. (2006). The process of innovation assimilation by firms in different countries: A technology diffusion perspective on e-business. *Management Science, 52* (10), 1557–1576.

Zollenkop, M. (2006). *Geschäftsmodellinnovation*. Wiesbaden: Deutscher Universitäts-Verlag.

Zott, C., & Amit, R. (2007). Business model design and the performance of entrepreneurial firms. *Organization Science, 18*(2), 181–199.

Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, *43*(2–3), 216–226. Accessed July 28, 2015.

Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management, 37*(4), 1019–1042.