

ANALYZING THE BUSINESS MODEL CONCEPT— A COMPREHENSIVE CLASSIFICATION OF LITERATURE

Completed Research Paper

Thomas Burkhart
Thomas.Burkhart@dfki.de

Julian Krumeich
Julian.Krumeich@dfki.de

Dirk Werth
Dirk.Werth@dfki.de

Peter Loos
Peter.Loos@dfki.de

German Research Center for Artificial Intelligence (DFKI),
Institute for Information Systems (IWi)
Saarbrücken, Germany

Abstract

The business model concept is characterized by numerous fields of application which are promising in business practice. Consequently, research on business models has attracted increasing attention in the scientific world. However, for a successful utilization, the widely-criticized lack of theoretical consensus in this field of research has to be overcome. Thus, this paper conducted a comprehensive and up-to-date literature analysis examining 30 relevant literature sources focusing mainly on business model research. To achieve this, the analysis was based on a classification framework containing 17 evaluation criteria. Hereby, a systematic and objective penetration of the research area could be achieved. Moreover, existing research gaps as well as the most important fields to be addressed in future research could be revealed.

Keywords: Business Models, Business Model Concept, eBusiness, Literature Analysis, Research Agenda, State-of-the-Art, Business Strategy

Introduction

During the mid-1990s, the term “business model” emerged as a buzzword in business talk and practice-oriented journals emphasizing the growing shift from traditional to electronic business (cf. Baden-Fuller and Morgan 2010, p. 156; Magretta 2002, p. 3 et seqq.). In the course of entering this “Digital Economy”, the competitive landscape had changed forcing companies to face new challenges (cf. Ghaziani and Ventresca 2005, p. 531; Jetter et al. 2009; Sampler 1998). For example, small startups became quickly able to compete with well established-companies, even on a global level. (Jetter et al. 2009; cf. Sampler 1998, p. 343 et seq.).

However, as the dot-com bubble burst in 2000, the success of the New Economy had been put into question (cf. Amit and Zott 2001, p. 511; McGrath 2010, p. 247 et seq.). Thus, researchers began to study why many ventures had failed, while others have been successful (cf. Dubosson-Torbay et al. 2002, p. 5). As a result, practice-oriented journals were no longer the only journals interested in Internet business models, but increasingly scholarly ones (as can be seen in the frequency analysis in the next section). Since the beginning of this more academic perspective, the number of publications on this topic have been constantly rising and the concept of business models became not only popular in the of e-Business area, but also in the fields of information systems and strategic management research (cf. Osterwalder 2004, p. 1 et seqq. and the next section).

This multidisciplinary interest emerged from the concept’s numerous potential fields of application. However, to serve them adequately, a scientific foundation is required. In general, the business model concept can be used as a management method helping to comprehend and analyze the current business logic of a company as well as to plan strategic decisions by designing and simulating new business concepts (cf. Kijl and Boersma 2010, p. 11; Osterwalder et al. 2005; Seppänen 2008, p. 2). Furthermore, the concept can serve as a means of communication, for instance by presenting the business idea of prospective founders to different stakeholders, e.g. potential investors (cf. Shi and Manning 2009, p. 54).

To make fruitfully use of these promising fields of application, it will be essential to develop software tools for an effective management of business models. In order to fulfill this task, business models also need to be taken into account from the perspective of information systems. The demand for such systems becomes most evident regarding the visualization or even simulation of business models, which are not feasible without software support (cf. Osterwalder et al. 2005, p. 17). Moreover, there are further domains that are interesting for information systems research. For example, the business model concept can be employed for Business/IT Alignment. Here, the concept can function as a mutual means of communication between the business and IT domain (cf. Osterwalder et al. 2005, p. 17 et seqq.). As business models represent the business logic of a company, they can also be utilized during the development of enterprise applications. (cf. Gordijn and Akkermans 2001, p. 10). In this context, the concept can be used for requirements engineering by gathering and representing high-level business goals (cf. de Castro and Marcos 2009).

The shown relevance of the business model concept for information systems research is reflected in many papers published in information systems journals like the European Journal of Information Systems (Al-Debei and Avison 2010; cf. Hedman and Kalling 2003; Pateli and Giaglis 2004) or the Communications of the Association for Information Systems (cf. Osterwalder et al. 2005). Even though, several research domains have intersection points with the concept, research is mainly conducted in silos (cf. Zott et al. 2011, p. 1020). Consequently, knowledge on business models is quite fragmented, which calls for a clarification and synthesizing of the concept to be able to utilize it successfully (cf. Al-Debei and Avison 2010).

Motivation and Contribution of this Paper

Despite the fact, that business models have been addressed by researchers for more than a decade now, the concept still lacks a theoretical consensus and reveals several research gaps, which is criticized throughout the scientific literature (cf. Al-Debei and Avison 2010; Weill et al. 2011; Zott et al. 2011). However, such definitional and conceptual dissent is nothing extraordinary during the development phase of new concepts with wide-ranging usefulness and multidisciplinary applicability (cf. Zott et al.

2011, p. 1034). Nevertheless, to achieve progress in research, a stronger theoretical foundation as well as the convergence of the different perspectives have to be accomplished (cf. Zott et al. 2011). The latter one is from particular importance regarding knowledge transfer among involved disciplines.

In 2004, a step in this direction was done by Pateli and Giaglis (2004) as they conducted an analysis on business model literature to clarify the relation between business models and related concepts and hereby uncovered several research gaps. They discovered that the relevance of different business model components and their relations has to be elucidated. Further, means of representation as well as computer-aided design and visualization tools have to be developed and knowledge on evaluation criteria for “ex ante evaluation and for ex post assessment” has to be build up. In addition, existing business model dimensions should be synthesized in order to realize a multi-perspective concept, based on which software-based management tools can be developed.

Now, seven years after this analysis, this paper follows up with an up-to-date literature analysis pursuing several research goals, which are provided in table 1. These goals should be accomplished on the basis of a comprehensive classification of business model literature. Again, it should be pointed out that a cross-disciplinary view on business model research is needed in order to achieve its fields of application—particular the ones in the interest of both the strategic management and the information systems research. Consequently, to “pave the way for more cumulative research on business models” and to overcome the isolated research within different “silos” (cf. Zott et al. 2011, p. 1034 and 1038), this paper tries to achieve a step in consolidating existing viewpoints of the concept.

Table 1. Research goals of this paper
<ul style="list-style-type: none"> • Provide a cross-disciplinary and up-to-date overview on business model literature covering the last decade of research. • Point out what seems to be the current understanding of the concept and examine whether a change in the understanding of the concept has occurred during the last decade. • Clarify whether some research progress have been achieved compared to the literature analysis conducted by Pateli and Giaglis (2004). • Uncover existing research gaps that have to be tackled to utilize the concept within the information systems domain. • Propose a classification framework that can be used and adapted for further analysis on this topic (e.g. for analyses on a smaller time period of research).

Methodology for the Literature Classification

In the first step towards a classification and analysis of business model literature, a broad foundation of journal and conference papers was built up. This had been achieved by performing a search on the literature databases EBSCO Business Source Premier, Thomson Reuters Web of Knowledge and Google Scholar using the search term “business model(s)”. Afterwards, literature mainly focusing on business model research was picked up and screened to find further promising literature in provided references. As a result, far more than 100 papers could be identified focusing on the field of business models.

In order to classify the most relevant papers within business model research during the last decade, the selection of literature has to meet some criteria. In detail, the literature should

- be of high-quality, which was guaranteed by selecting only sources from highly-ranked (at least an “A” (according to Australian Research Council 2011a; Australian Research Council 2011b) and/or an ISI impact factor > 1.5 (according to Thomson Reuters Web of Knowledge 2011)) journals and conferences;
- be highly-considered among scientist reflected in the citation frequency on Google Scholar and Thomas Reuters Web of Knowledge; as well as
- mirroring the increasing number of publications, i.e. the more recent the date of publication, the more papers should be included.

However, with this technique some of the most actual literature might not have been selected as it does not satisfy the “citation frequency” requirement. To overcome this concern, recent promising, but low-cited papers were manually selected. Furthermore, a small amount of papers published in lower-ranked journals and conferences (two “B” and even two “C” ones) have been chosen because they seem to represent promising business model research streams and thus should be included in a comprehensive and up-to-date literature review. It must further be stated that the very good contribution to the field of research done by the special issue of the Long Range Planning Journal is mirrored in a high number of sources selected from this journal.

As a result, 30 relevant publications have been selected which stem from the e-Business, information systems and strategic management research (cf. Al-Debei and Avison 2010; Alt and Zimmermann 2001; Amit and Zott 2001; Baden-Fuller and Morgan 2010; Chesbrough and Rosenbloom 2002; Demil and Lecocq 2010; Gordijn et al. 2000; Gordijn and Akkermans 2001; Hedman and Kalling 2003; Johnson et al. 2008; Kijl and Boersma 2010; Kindström 2010; Kraemer et al. 2000; Magretta 2002; Mahadevan 2000; Malone et al. 2006; McGrath 2010; Morris et al. 2005; Onetti et al. 2010; Osterwalder et al. 2005; Pateli and Giaglis 2004; Petrovic et al. 2001; Rappa 2004; Samavi et al. 2009; Teece 2010; Timmers 1998; Weill et al. 2011; Zott and Amit 2008; Zott et al. 2011; Zott and Amit 2010). Therewith, the cross-disciplinary view is warranted. To be able to observe a potential progression in the understanding of the concept over the time more easily, the literature has been sorted in the classification chronologically.

To apply the proposed methodology, the remainder of this paper is organized as follows. Section 2 deals with the origin of the concept, points out the dissent in definitions and delimitates the concept from related fields of research. To achieve a systematic and objective penetration of the research field, a classification framework with 17 characteristics is deduced and described in section 3. Within section 4, the classification of the 30 literature sources into the developed framework is conducted. In addition, analyzing this methodical review reveals similarities and differences as well as existing research gaps in business model research. Section 5 summarizes the paper and provides an outlook on future research.

Discussion on Business Models—Origin, Definitions and Delimitation

The practical and economic importance of business models becomes particularly evident, when companies change their business model through innovations. According to Afuah and Tucci (2001, p. 45), companies with well-formulated and innovative business models gain competitive advantages that result in higher profits compared to competitors.

This statement was verified by a large-scale analysis conducted by Pohle and Chapman (2006) as they questioned 765 CEOs worldwide regarding the topic innovation. As a result, companies which set their innovation focus on business models had gained significant more operating margin growth in contrast to those companies focusing just on product or service innovations.

Similar results were reported by Amit and Zott (2010, p. 4). In their paper, a study of the Economic Intelligence Unit was presented according to which a majority of 4000 questioned senior managers had considered innovative business models rather as a source of competitive advantage than new and innovative products or services. One of the most famous examples illustrating this statements was the evolution of Apple’s business model which perfectly portrays the importance of the concept. At the beginning of Apple’s business activities, they were mainly concentrated on manufacturing innovative hardware products. During the last decade, they had radically changed their business model, which led to an increasing public awareness and reputation of the company and made Apple the most valuable IT-company. The innovative shift of Apple’s business model was achieved by launching the iPod and iPhone in combination with the iTunes software that represents a long-lasting service component in combination with their hardware products (cf. Johnson et al. 2008, p. 59).

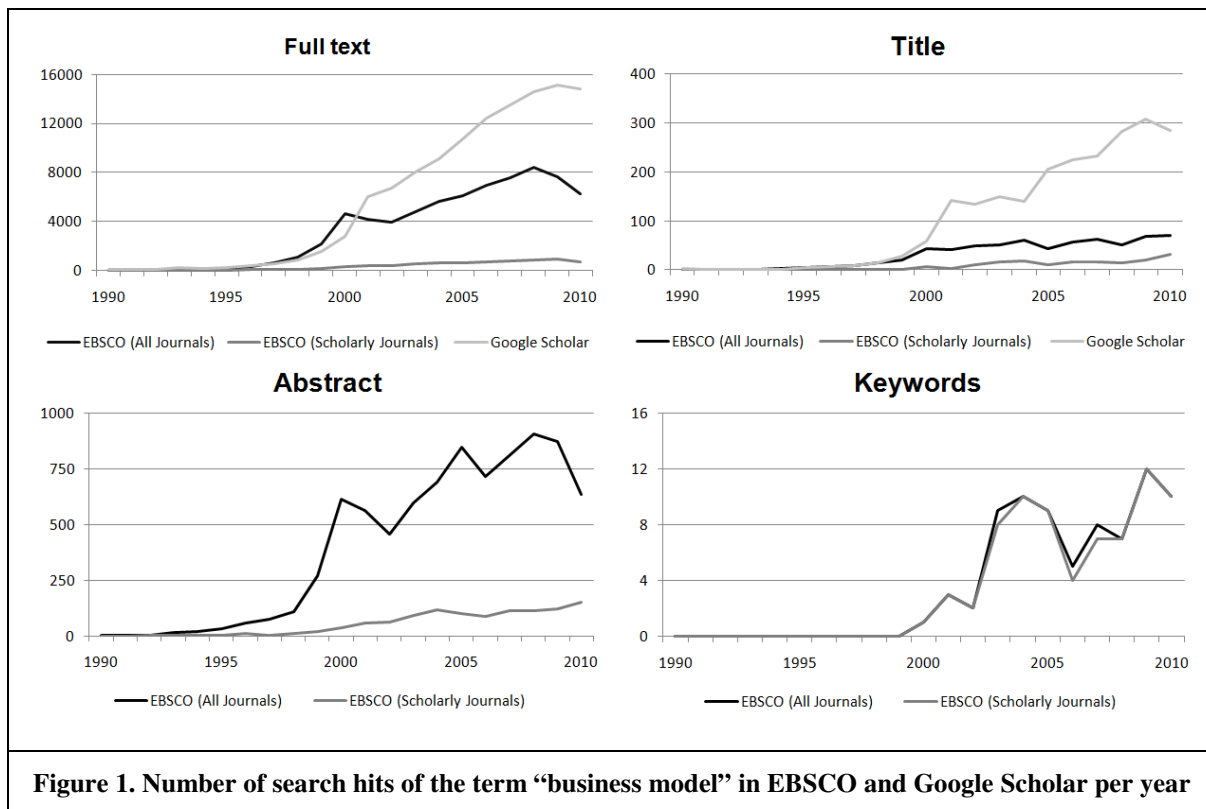
Origins of the Business Model Research

Even though, scientific papers mentioning the term “business model” have already been published in 1957 (Bellman et al. 1957) and 1960 (Jones 1960), the concept of business models can be considered as a rather young field of research, since an actual consideration did not start before the commercial internet boom at

the end of the 1990's (cf. Hedman and Kalling 2001, p. 1; Klang et al. 2010, p. 2; Lambert 2008, p. 277 et seq.; Magretta 2002, p. 3 et seq.; Osterwalder et al. 2005, p. 6 et seq.; Rappa 2004, p. 35; Seppänen 2008, p. 3 et seq.; Stähler 2002, p. 37; Teece 2010, p. 174).

The increasing appearance in research is mainly caused by the shift from traditional to internet-based business activities. The growing usage of modern information and communication technology based on the Internet infrastructure led to altered economic and social conditions as well as drastic changes in the nature of competition (cf. Sampler 1998). As a result, this new situation has been frequently described as the “new digital competitive landscape” (cf. Bettis and Hitt 1995). To emphasize this new business orientation of companies and to differentiate them from traditional competitors, the term “business model” was very often used in a lurid style (cf. Stähler 2002, p. 37, who mentioned e.g. 'Killer Business Model'). Consequently, everybody, even practice-oriented journals, were talking about business models and thus the term emerged as a buzzword during the internet boom (cf. Magretta 2002, p. 3).

Due to the hype of dot-com ventures, emerging companies neither needed a particular strategy nor any promising revenue sources to seem to be profitable for investors (cf. Teece 2010, p. 174). The key to success was just to have any kind of Internet-based business model to be considered as strategically well-placed (cf. Earle and Keen 2000, p. 7; Magretta 2002, p. 3; Stähler 2002, p. 49). The consequences of this blindness was the burst of the so-called dot-com bubble. However, the collapse was not the fault of the business model concept, but its ill-conceived usage (cf. Magretta 2002, p. 3; Rappa 2004, p. 35). Hence, scholars got interested in business models in order to be able to explain why many ventures had failed, while others have been successful (cf. Dubosson-Torbay et al. 2002, p. 5). Since scientific research often emerge because existing knowledge is not sufficient enough for solving new problems (cf. Bunge 1967), the events mentioned above can be considered as the origin of the business model concept as a field of research.



To illustrate the concept's time of origin and its raising consideration in research, many authors took the approach of examining the number of search hits of the term “business model” in databases per year (cf. Osterwalder et al. 2005, p. 6; Seppänen 2008, p. 3 et seq.; Stähler 2002, p. 37). Figure 1 displays an analysis distinguishing between hits within full text, title, abstract and keywords based on a search on EBSCO Business Source Premier and the scientific search engine Google Scholar. The analysis clearly

reveals that the term was initially used during mid and end of the 1990's. The number of hits within keywords shows that both indicated curves (EBSCO (All Journals) as well as EBSCO (Scholarly Journals)) are nearly congruent. This indicates that in-depth considerations of the concept—in contrast to just mentioning the term within text—can only be found in academic journals and mainly since the burst of the dotcom bubble. In addition to the time of origin, the analysis clearly reveals an upward trend in business models research.

For an thoroughly analysis on the term's origin and its diverse usage within different research domains, it is referred to Ghaziani and Ventresca (2005).

Heterogeneous Definitions on Business Models

Even though there are many scientific papers focusing on defining business models, no generally accepted definition could be found so far (cf. Weill et al. 2011, p. 17). The missing consensus among proposed definitions results in wide discussion throughout literature (cf. Chesbrough and Rosenbloom 2002, p. 6; Mahadevan 2000, p. 7; Osterwalder et al. 2005, p. 8; Timmers 1998, p. 4; Zott et al. 2010, p. 6). However, Stähler (2002, p. 41)—also criticizing the dissents in existing definitions—sees the reasons for this fragmentation within the varying focuses of the definitions. In the following, formal differences in definitions will be presented as a detailed analysis concerning the differences in content will be achieved based on the classification in the next section.

First of all, differences can already be noticed regarding the length of definitions. While some are even longer than one page, others comprehend only a couple of words (cf. Shi and Manning 2009, p. 49; Stähler 2002, p. 41).

Certainly, one of the most cited definition is the one given by Timmers (1998). He defines business models as «*an architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues.*» In contrast to such a concrete and textual definition, there are many rather abstract forms describing business models based on their constitutive components. Take, for instance, Alt and Zimmermann (2001) who define business models based on six generic components: *Mission* (describes the overall vision and value proposition), *Structure* (defines the addressed industry, customers and products), *Processes* (a more detailed view on mission and structure focusing on the elements of the value creation process), *Revenues* (describes the sources of revenues), *Legal issues* (has to be considered in each component) and *Technology* (can also influence all other components due to emerging technologies).

Furthermore, differences in definitions do also exist regarding the approaches of how they have been derived. Osterwalder et al. (2005), for example, followed a quite semantic approach by analyzing both parts of the term “business model”. According to them, through the combination of both parts of their semantic analysis, their definition is broad enough to cover all kind of business models. As a result, they define business models as follows: «*A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.*»

In contrast to this approach, most definitions are derived based on a literature analysis in combination with the set up of some requirements. Following this idea Al-Debei et al. (2008) applied four principles—e.g. the definition should be comprehensive and general applicable—in combination with a literature analysis, and defined business models as follows: «*The business model is an abstract representation of an organization, be it conceptual, textual, and/or graphical, of all core interrelated architectural, co-operational, and financial arrangements designed and developed by an organization presently and in the 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.*» Moreover, Aziz et al. (2008) conducted their literature analysis more objectively, but defined business models also based on their components. Therefore, they identified 54 business model components within various literature sources. On this basis, the identified components were ranked according to their frequency of usage on a scale of 1 (not important) - 5 (important). For their final definition, they only used components that had

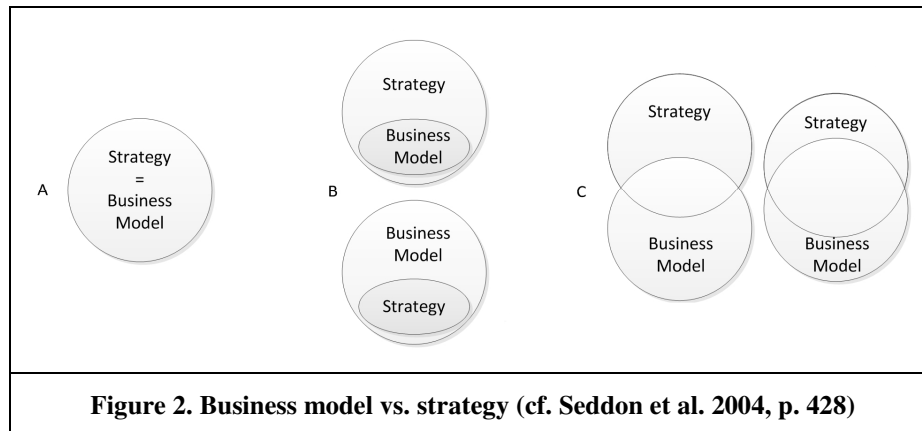
been ranked at least with a 4; consequently, their definition contained ten components that constitute business models.

Delimitation of the Business Model Research

Due to the similarity of the terms “business model” and “business process model”, they can easily be mixed up. Take, for instance, the usage of the term “business modeling” that is generally used for modeling business processes and not for business models (cf. Lambert 2008, p. 281; Osterwalder et al. 2005, p. 12). Thus, both concepts should be clearly distinguished as they represent and are used for different aspects (cf. Osterwalder et al. 2005, p. 12).

From a conceptual perspective, business models describe—in simple terms—what a company is doing in order to create and commercialize value, whereas business process models describe how this can be realized on an operational level (cf. Osterwalder et al. 2005, p. 12). Thus, business process models are focused on the “how”, while business models aim at describing the “what” (cf. Gordijn et al. 2000, p. 40 et seqq.). From a more technical perspective, a differentiation of both concepts is important regarding the process of requirements engineering to development information systems. If a business concept should be implemented into an e-Commerce system, one should start with identifying stakeholder requirements; business models can perfectly represent these. Afterwards, system requirements can be depicted by business process models (cf. Gordijn et al. 2000, p. 40 et seqq.).

In contrast to the distinction of business models and business process models, there is no common consensus regarding the delimitation between business models and strategy (cf. Al-Debei et al. 2008, p. 4 et seq.; Osterwalder et al. 2005, p. 13). In literature, three differentiations can be observed (cf. figure 2).



Firstly, both terms are interchangeably used (cf. figure 2, A) (cf. Al-Debei et al. 2008, p. 4; Aziz et al. 2008, p. 797; Casadesus-Masanell and Ricart 2009; Magretta 2002, p. 6).

Secondly, on the one hand, business models are understood as a part of strategy, i.e. business models are an abstraction of a firm’s strategy that can be applied to various companies (cf. figure 2, B) (cf. Krstov and Sinkovec 2007, p. 4 et seq.; Seddon et al. 2004, p. 428 et seq.). Consequently, two companies can differ in their strategy, but are using the same business model. On the other hand, business models are comprehended as a superior concept including strategy, business processes and corresponding information systems (cf. figure 2, B) (cf. Pateli and Giaglis 2003, p. 337).

Thirdly, business model and strategy are understood as more or less linked but still distinct concepts (cf. figure 2, C). According to that, strategy focuses on competitors, whereas business models concentrate more on financial and value creation aspects in companies (cf. Magretta 2002, p. 6 et seq.; Mansfield and Fourie 2004, p. 40 et seq.; Seddon et al. 2004, p. 428 et seq.). This means, a strategy describes how a company can perform better than its competitors, while business models are illustrating how different facets of the business are fitting together (cf. Magretta 2002, p. 6). Furthermore, business models are seen as the link between a strategy and corresponding business processes, which is also represented by different levels of aggregation in each of these concepts (cf. Al-Debei et al. 2008, p. 4; Pateli and Giaglis 2003, p. 337). Accordingly to the explanation or rather distinction of business models and business

process models, one can say that strategy focuses on the “why” companies does business activities and “why” they are better than their competitors (cf. Pigneur and Werthner 2009, p. 120).

Criteria for a Business Model Research Framework

A comprehensive scientific analysis of business model literature is achieved by conducting a classification of existing approaches in this field of research. Therefore, in this section, several criteria and their corresponding attributes are identified and motivated based on an extensive literature study. For the sake of overview, the criteria are grouped into five categories (cf. table 2).

Table 2. Categories within the research framework	
Category	Description
Classification of the underlying literature	The first category contains criteria that describe each classified scientific publication on a meta level. Thus, this category aims at providing information regarding which research areas have been mainly analyzed and which suffer from an insufficient consideration. Furthermore, the category should point out in which manner scientific knowledge has been gained.
Comprehension of business models	Within the second category, the relationship between the concepts business model and business strategy, the aggregation level of business models as well as the fact whether business models are seen as static or dynamic units will be clarified.
Usage of business models	The third category describes the purpose for using the business model concept. Therefore, information on different kinds of business models and the concept’s proposed range of application within a company should be provided.
Focus of business models	The fourth category points out who is the addressee of business models, how far-reaching a company’s business is represented by business models and whether there are several points of views suggested.
Representation and evaluation of business models	The last category consists of criteria that describe the constitutive components of business models and resulting relationships between them. It also depicts the ways of representing and evaluating business models. As a result, existing gaps in the representation and evaluation of business models should be revealed because these aspects are particularly important for the purpose of business models, namely the communication and analysis of companies’ business logic.

Classification of the Underlying Literature

The first criterion “field(s) of research” characterizes the analyzed fields of research within business model research. Therefore, the criterion consists of seven attributes representing various fields of research (cf. in the following Pateli and Giaglis 2004): The first attribute “definitions” broadly focuses on the definition of business models including research on the concept’s development, purpose and delimitation. If the underlying literature addresses research on business model components, the focal point is consequently “components”. Literature that classifies business models or scientific papers in this field is covered by the attribute “typologies/taxonomies” (for a more detailed distinction between typology and taxonomy, it is referred to Baden-Fuller and Morgan 2010). To represent business models, a certain kind of representation language is needed. Consequently, literature focusing on this aspect addresses the field of research in “representations”. Research on procedure models for changing business models is covered by the attribute “change methodologies”. Adaption factors, which drive a company to change their business model, are captured within the attribute “adaption factors”. Last, research on evaluating business models via criteria and metrics is covered by the attribute “evaluation models”.

The criterion “knowledge gaining” comprises the two attributes “literature-driven” and “empirical-driven” expressing in which way knowledge in the field of business models was gained.

Comprehension of Business Models

The first criterion “delimitation of business models” describes the understanding regarding the relationship between the business model and the business strategy concept. The attributes are defined as presented in the last section. Thus, both concepts can either be seen as “synonymous”, “more or less linked but distinct” or as “one is part of the other”.

The “level of business model aggregation” is the focal point in the second criterion. It describes how aggregated the business model concept is understood in literature (cf. Lambert 2008, p. 282). It must be noted that the attributes—low, middle and high—are not selective, i.e. one business model approach can only be assessed with regard to other approaches.

In business model literature, discussions towards the “model state of business models” can be found. In this regard, static and dynamic approaches can be found (cf. e.g. Demil and Lecocq 2010). On the one hand, from a static view, business models describe the current or future state of a company and its method for generating values, which is often described as a company’s blueprint (cf. Bouwman and MacInnes 2006). On the other hand, from a dynamic point of view, the process of business model evolution is addressed. Adaption factors for this process (this aspect is also considered as a field of research according to the “delimitation of business models” criterion in the first category) can be market changes, new legal regulations or the emergence of new technologies (cf. de Reuver et al. 2009, p. 3 et seq.). The faster a company is able to react to such drivers, the more likely it can gain competitive advantages.

Usage of Business Models

The first criterion “purpose of business models” contains three attributes based on Alt and Zimmermann (2001, p. 6). Firstly, business models can be used as “instance models” representing the current business model of companies, e.g. for discussion or analysis purposes. Secondly, business models can be understood as “type models” describing types of business models. Thirdly, business models can be used as “simulation models” illustrating a to-be state of a company or showing different possible business orientations of a company in the future.

Besides this rather abstract distinction of the business models usage, the concept is also applied to different “business types”. In literature, the concept either focus on “eBusiness” companies, companies within “specific industries” or it has been addressed from a rather “general business” perspective (cf. de Reuver et al. 2009).

The third criterion “support during company lifecycle” clarifies the question during which stages of a company’s lifecycle the business model concept can be applied. According to Brem (2008, p. 156), a company’s lifecycle can be divided into a pre-seed, foundation, operating/developing and declining stage. Moreover, beside using the business model concept during different stages of a company’s lifecycle, its usage within the product and service lifecycles is considered (cf. Ballon 2007, p. 8) by the last criterion „support during product/service lifecycle“. Each stage of the lifecycle is being represented by one of the following attributes: development, market introduction, growth, maturity and saturation and decline stage.

Focus of Business Models

“Addressees of business models” describes the stakeholders addressed by the business model concept. Lambert (2008, p. 280 et seq.) distinguishes between external and internal addressees. For the latter, she differentiates between managers, other decision makers and information system developers. In the context of this paper, a more detailed breakdown than “external” and “internal” addressees seems not necessary.

The second criterion “point of views on business models” characterizes whether the business model concept suggests different perspectives on a represented company, e.g. regarding different addressees (cf. e.g. Samavi et al. 2009). Different views can be achieved by varying the level of detail or omitting a number of aspects, i.e. some parts of the business model are for example represented by “black boxes” as

they should not be seen by each addressees. Consequently, the criterion consists of the attributes “single” and “multiple” points of view on business models.

The last criterion “scope of business models” illustrates how far-reaching the business model concept is used to describe a company. From this point of view, it seems to be interesting if the concept does only cover aspects “within company borders” or if its scope goes “beyond company borders”.

Representation and Evaluation of Business Models

The business model concept is often considered from a component-based perspective. This means the concept is described and defined based on several components, of which a wide variety is discussed and introduced in literature (cf. Onetti et al. 2010). Shafer et al. (2005, p. 200) identifies 42 different components just within twelve business model definitions. Thus, to cover such a vast variety, the attributes of this criterion do not represent single components, but rather six groups containing them. These groups are based on the distinction done by Morris et al. (2005):

- *Offering factors*: describe how the company creates value for its stakeholders
- *Market factors*: express for whom the company creates values
- *Internal capability factors*: deal with the internal activities and competences of the company
- *Competitive strategy factors*: address issues of the competitive position of the company
- *Economic factors*: bundle all economic-related aspects of the company
- *Personal/investor factors*: point out which time, scope and size ambitions the company has

The second criterion “relation between components” states whether the relation between components is either seen as interdependent—i.e. changes in one component influence other components and vice versa—or as independent in the classified literature (cf. Hedman and Kalling 2003; Klang et al. 2010, p. 14 et seqq.). It should be noted that if an attribute is symbolized as partly applied, the literature does only follow this understanding without providing a deeper analysis of this aspect.

In order to make successfully use of the business model concept, there is a need for an adequate representation. Therefore, textual or a graphical business model notation—or a combination of both—are proposed (cf. Pateli and Giaglis 2004). Besides a type of notation, it should be distinguished between a creative and a structured process of representing business models. This characteristic is captured in the criterion “process of representation”. In this context, a structured process is determined by a procedure model, which can for instance be based on a standardized questionnaire in order to cover all aspects in a comparable way (cf. Morris et al. 2005).

In accordance with the famous quote of Lord Kelvin (1881, p. 73) “[...] when you can measure what you are speaking about, and express it in numbers, you know something about it [...]”, it is quite important to be able to measure and evaluate business models in order to make qualitative statements on them. Therefore, the last criterion focuses on the “evaluation and metric of business models”. However, before a business model can be measured reasonably, its validity have to be ensured. In this context, Klang et al. (2010, p. 15) criticized the enormous amount of components and the insufficient understanding in how they should be combined in order to be a valid construct. Thus, the attribute “validity” covers this aspect. Having ensured the validity of a business model, one important factor to be measured is the performance of the business model, e.g. the financial, process or growth performance (cf. Pateli and Giaglis 2004, p. 311). Besides an actual measured or forecasted performance, the risks of a business model should be evaluable. Business model risks can be classified, for instance, in value of market, firm share and competitive sustainability risks (cf. Shi and Manning 2009, p. 49 et seqq.). In combination with a risk measurement, it could be quite promising to be able to measure the degree of innovation of business models. This could be achieved by comparing a business model with the one of competitors or a reference models with regard to different criteria (e.g. the usage of new technology).

Classification and Analysis of Relevant Business Model Literature

By applying the methodology presented in the first section, 30 relevant literature sources have been identified. Using the framework developed and motivated in the previous section, the literature has been classified and the results illustrated in figure 3. An analysis on this structured overview revealed various patterns regarding commonalities and differences. Subsequently, these findings are initially presented in detail and summarized at the end of this section.

Analysis on the “Classification of the Underlying Literature”

Since the beginning of business model research, definitional and conceptual examinations of the concept have attracted the most consideration in literature. New approaches and directions can continuously be found, e.g. McGrath’s (2010) paper “Business Models: A Discovery Driven Approach”. This demonstrates the concept’s ongoing development as it emerged in research just a decade ago.

A slightly increasing amount of analyses on business model components could be observed. Referring to this, it can be stated that a component-based view on business models seems to have dominated research for the last years. In contrast, textual definitions and descriptions without bundling certain aspects to specific components had been often suggested at the beginning of business model research.

Typologies/Taxonomies were scattered in literature and even if considered they were not in the main focus of research. Moreover, means for representing business models were among the least examined fields in business model research. Implications caused by this insufficient consideration will be presented later in this section. In contrast, growing attention was paid to research on change methodologies, which seems to be a result of the more and more dynamic consideration of business models (cf. the next subsection). That is underlined by the fact that just in 2010 four out of the eleven selected papers from this year put a major focus on this topic. However, underlying adaptation factors were less analyzed and consequently represent only a minor field of research.

Due to the small amount of evaluations conducted on business models, knowledge gaining was rarely achieved in an empirical manner. Nevertheless, at the beginning of business model research, knowledge had been often gained by carrying out small-scale empirical analysis without building broadly on existing knowledge from literature. Consequently, a slowly growing transfer of research results had been the consequence. Today, this drawback seems to be resolved. Existing literature is often the starting point for further analysis; on the other hand, large-scale empirical analyses are still missing, though.

Analysis on the “Comprehension of Business Models”

The analysis showed that a common understanding seems to have established regarding the delimitation between the concepts business model and business strategy. Consequently, they are linked but yet distinct concepts serving different purposes. Therefore, this paper adopts the distinction of Casadesus-Masanell and Ricart (2010). According to them, business models are “a reflection of the firm’s realized strategy.” A distinction however can sometimes be difficult as “in simple competitive situations there is a one-to-one mapping between strategy and business model”.

Furthermore, there is also a common understanding regarding the concept’s level of abstraction. Accordingly, business models are basically highly aggregated units since their main purpose is to clearly represent a company’s logic behind their way of doing business, e.g. to support strategic decision-making processes. Adopting the view of Baden-Fuller and Morgan (2010), business models are not too particular to cover every detail within companies, but they are still not too general to fail distinguishing main differences between individual enterprises.

At the beginning of the concept’s scientific consideration, business models were often considered as a static representation of a company. More recent, dynamic components have been frequently added to the understanding, which leads to a combination of both viewpoints. For a detailed consideration, please refer to Samavi et al. (2009) who illustratively present this aspect. The reason for the increasing combination of both point of views goes back to the fact that the usage of business models as a company’s static blueprint is not be seen as the only relevant aspect anymore, while the evolution of business models over time

becomes more relevant. Nevertheless, a pure dynamic consideration would concentrate too less on the actual state of a company, for example regarding performance measurements. However, due to the limited insight on adaption factors (cf. the analysis of the first category), it has not been clarified yet which external factors trigger changes on existing business models or make them essential as well as how these changes affect the internal structure.

Analysis on the “Usage of Business Models”

Throughout literature, business models were mainly used as instance models, i.e. they represent real-existing companies. Due to the concept’s increasing dynamic consideration, it is increasingly applied to a simulation context describing future business orientations. Nevertheless, the usage as simulation models is not the primary role of such models, but rather complementary. In contrast, type models were found seldom.

As mentioned in the previous section on the origins of the business model concept, the shift from traditional to electronic business triggered many research activities in the field of business model research. As a result, research was initially limited to e-Business companies. However, already after a few years, the concept has been extended and applied to generally all kind of businesses and without focusing on a specific industry. This progression is reflected in the numerous journals on general management in which publications on business models have been issued.

Despite the broad variety of application fields during a company’s lifecycle, business models were mainly used within the developing/operating stage. Since that is usually considered as the most time consuming stage within a company’s lifecycle, a broad range was therefore covered. More recent, the concept was increasingly considered to be applicable during the foundation stage. However, not only as a means of communication with potential investors, but in addition as an instrument for decision support utilizable by prospective entrepreneurs (cf. e.g. Teece 2010, p. 174; Zott and Amit 2010, p. 217).

In contrast to the explicit usage during different stages within companies’ lifecycle, a certain support within product or service lifecycles is almost nonexistent. This might be caused by the purpose of the concept. As business models represent the business logic of a company in an aggregated manner, concrete products or services would be normally too detailed for this unit of analysis.

Analysis on the “Focus of Business Models”

Business models were generally understood as a concept with only a single point of view on the business logic of companies. A multi-perspective view was normally only proposed in papers dealing with graphical notations since they allow for varying the level of detail.

Regarding the concept’s addressees, business models were mainly considered for internal purposes. An extension to external persons, e.g. investors, was partially proposed. However, this extension applied additionally not exclusively with regard to internal addressees. Thus, the concept is rather a unit of analysis than a means of communication with external stakeholders.

Within the entire analyzed literature, business models were understood as a concept covering business aspects that reach beyond the borders of the company in focus. Consequently, its environment is not seen as a black box. The opposite is the case: the firm’s interaction with its environment, e.g. regarding value flows and the generation of a value proposition, as well as its place within a network of companies is the main aspect of the business model concept.

Analysis on the “Representation and Evaluation of Business Models”

As noted in the analysis of the first category, most literature followed a component-based perspective on business models. In this respect, components referring to the groups “offering factors”, “market factors” and “internal factors” were always considered. Furthermore, components related to “economic factors” were very often considered; however, they were yet excluded by one literature sources because—according to its authors—economic aspects would not be relevant for the business model purpose (cf. Amit and Zott 2001; Onetti et al. 2010). On the other hand, components referring to “competitive strategy factors” were

only partly considered. If so, both concepts business model and business strategy were considered as synonymous or business strategy at least as a part of the business model concept. In accordance with that, Onetti et al. (2010), who followed a linked but distinct point of view, explicitly excluded them from the business model concept. Components which referred to “Personal/Investor factor” were only rarely considered within literature, which is because components within this group can be also seen as strategy-related aspects. However, based on a dynamic point of view, they might be an important aspect regarding business model evolution.

Without any exception, business model components were understood as interdependent elements. Surprisingly, detailed analysis on how these components are interrelated could not be found. As a result, the question of what is the impact on other components, on the one hand, and consequently to the internal structure of business models, on the other hand, in case one of the elements has changed has not been clarified yet. However, knowledge on this aspect seems to be essential to give guidelines for the design or change of business models, especially with regard to software-based tools. Thus, this research gap should be tackled in future.

Regarding the ways business models were represented in literature, textual notions could be mainly observed; consequently, graphical notations were only applied in seldom cases. Furthermore, expressing interrelated aspects in a textual manner is a heavy task with many obstacles. On top of that, even though there have been very little graphical notations or ontologies proposed in literature, a sufficient transfer of knowledge—in the way that proposed notions are used by other researchers—could hardly ever be observed. As an exception, the approach developed by Gordijn and Akkermans (2001) was sporadically mentioned by other researchers. A more recent approach provided by Samavi et al. (2009) seemed to be very promising. Nevertheless, it remains unclear whether this approach will be accepted in future literature.

Thus, the development of a jointly used graphical representation seems to be necessary, particular for analyses on relationships and dependencies within and between business model components. Furthermore, for a broader use of the business model concept in business practice, a graphical notation is required to be able to use the concept in a manageable and beneficial way—similar to the business process model concept. On top of the lack of notations—both textual and graphical ones—a process for representing business models is missing. Hence, within the few textual or even graphical representations, the process of modeling is very creative, unstructured and thus the models not comparable. Even though a few structured approaches exist, their level of maturity cannot be compared to the one known from business process modeling methods.

An important criterion in the underlying research framework is the “evaluation and metric”. However, it revealed that comparable metrics have been only used so far regarding performance indicators—one example is the return on invested capital (cf. Malone et al. 2006, p. 15). However these metrics do not originate from business model research. Furthermore, there is a lack of analyses on the validation of business models. Moreover, albeit concrete business model innovations are presented in literature, there is no measurement policy or metric available to evaluate them. Scientific knowledge on risk factors is also missing. Even though the approach suggested by Shi and Manning (2009) has not been classified because it does not meet the requirements of the applied methodology, it should be mentioned at this point and be considered in further research on business model risk. The same applies to the approach proposed by Girotra and Netessine (2011), which also attracts interest from this perspective. Nevertheless, concrete methods or metrics to evaluate the risk structure of business models have not been proposed yet.

In general, it can be stated that the insufficient knowledge on evaluating business models is based on the lack of understanding the interdependencies between business model components as well as on the inconsistent and subjectively consideration—i.e. without any structured determination—of business models. However, especially because business models should be used for analyzing purposes, an objectively evaluation and representation using appropriate means have to be addressed in future research.

Results of the Analysis

The results of the detailed analysis in the previous sections revealed several patterns in the understanding of business models in literature which are presented in a condensed way by table 3. The numbers in squared brackets hereby indicate how often the respective attribute was marked in the conducted classification. Since 30 literature sources have been classified, this is the maximum number achievable.

Table 3. Identified patterns through the analysis of the classification
<ul style="list-style-type: none"> • Business models are a high-level aggregation of a company's business logic [27] • The concept is applicable to all kind of businesses [21] • It considers static [12] as well as dynamic [19] aspects • The addressees of business models are generally company internal people [23], external ones [11] are additionally mentioned • Aspects that reach beyond the company's border are being addressed [27] • To represent business models, textual [20] means of representation are normally used; graphical ones can only be found rarely [3] • The representation process is mainly done in a creative manner [18] • A component-based perspective [16] on business models can be found frequently and does always consider offering [16/16], market [16/16] and internal [16/16] components; economy ones [15/16] can be very often observed. • Components are understood as interdependent units [14/16]

The following definition tries to express the identified patterns in a concise and aggregated way. It should be noted that the definition follows a component-based view on business models. Further, the definition does not apply to the whole decade of business model literature, which was analyzed, as a shift in the understanding of some criteria was observed. Thus, it does only try to express the current understanding.

The business model concept is linked but still distinct to the concept of business strategy. It describes—mainly textual on a highly aggregated level—the business logic of an underlying company by a combination of interdependent offering, market, internal as well as economical business model components in a static and dynamic way beyond the company's borders. Furthermore, it is not limited to a certain type of business or industry and is thus generally applicable and intended for internal as well as external addressees.

Pateli and Giaglis (2004, p. 312) criticized many research gaps in 2004. As the analysis showed, only a few ones have been overcome so far: the relation to other concepts, i.e. strategy and processes, seems clarified and mostly accepted throughout literature (cf. Casadesus-Masanell and Ricart 2010 for a well-done clarification). Furthermore, the absence of change methodologies has been tackled (cf. e.g. Bucherer 2011 for a structured approach on business model innovation). Nevertheless, many research gaps are still present contributing to the circuitousness, divergences as well as missing structure of this field of research. The following table 4 lists the major gaps identified through the analysis. These need to be tackled and should also serve as guidelines for future research to gain well-founded knowledge on the business model concept.

Table 4. Major research gaps
<ul style="list-style-type: none"> • Insufficient knowledge on business model components in particular regarding interdependencies within and between them. • Absence of formalized means of representations as well as procedure model to allow a structured and comparable visualization of business models. • Limited insights on criteria and metrics for an appropriate evaluation of business models, which is mainly caused by the small quantity of (large-scale) empirical studies.

- Nonexistent software-based tool for the management of business model can be found so far, neither for visualization, evaluation or simulation purposes nor as a holistic approach.
- Promote a common language and understanding of the concept to consolidate the work of different research streams.

Conclusion and Outlook

Business models are a promising unit of analysis in business practice that has attracted increasing interest in research. However, research in this field is still very unstructured and little consensus exists among scientists, which is widely-criticized in literature. Thus, this paper focused on improving the current situation by structuring the research field to achieve a more holistic view of the concept. Therefore, business models were first of all discussed regarding their origins, definitions and delimitation to other fields of research. Afterwards, a classification framework was developed containing 17 evaluation criteria and corresponding attributes. For a better overview, the criteria were split into five groups. Based on this framework, a classification of knowledge on business models, which is represented in literature, could be accomplished. The classified literature had to meet several requirements: the sources should be of high-quality, highly-considered among researchers and cover different research streams over the last decade of research. To achieve this goal, a comprehensive literature research covering various literature databases has been conducted. On this basis, two journal rankings as well as the citation frequency of the literature were used to select promising and relevant papers covering the business model research sufficiently. As a result, 30 papers could be identified and thus classified.

The results of the analysis showed that many research gaps are still existent in the field of business model research which have to be overcome to achieve a successful usage of the business model concept. One major gap revealed in the limited knowledge on influencing factors and interdependencies of business model components. Consequently, they primarily have to be analyzed to achieve a better understanding of the structure of business models. Furthermore, research should be promoted in the field of business model representation. Until now, no commonly accepted notation, neither graphical nor textual, can be found. Moreover, evaluation criteria and corresponding metrics have hardly been proposed in literature. To gain insight on these, large-scale empirical analyses on existing business models are required, which are also absent.

References

- Afuah, A. and Tucci, C. L. 2001. *Internet business models and strategies: text and cases*, New York City, USA: McGraw-Hill/Irwin.
- Al-Debei, M. M. and Avison, D. 2010. "Developing a unified framework of the business model concept," *European Journal of Information Systems* (19:3), pp. 359-376.
- Al-Debei, M. M., El-Haddadeh, R., and Avison, D. 2008. "Defining the Business Model in the New World of Digital Business," in *Proceedings of the 14th Americas Conference on Information Systems (AMCIS '08)*, Toronto, Canada, pp. 1-11.
- Alt, R. and Zimmermann, HD. 2001. "Introduction to Special Section - Business Models," *Electronic Markets* (11:1), pp. 3-9.
- Amit, R. and Zott, C. 2001. "Value Creation in E-Business," *Strategic Management Journal* (22:6-7), pp. 493-520.
- Amit, R. and Zott, C. 2010. *Business model innovation: Creating value in times of change*, Navarra, Spain: IESE Business School Working Paper No. 870.
- Australian Research Council 2011a. "Excellence in Research for Australia (ERA) 2010 Ranked Conference List," http://www.arc.gov.au/era/era_2010/archive/era_journal_list.htm (accessed September 2011a).
- Australian Research Council 2011b. "Excellence in Research for Australia (ERA) 2010 Ranked Journal List," http://www.arc.gov.au/era/era_2010/archive/era_journal_list.htm (accessed September 2011b).
- Aziz, S., Fitzsimmons, K., and Douglas, E. 2008. "Clarifying the Business Model Construct," in *AGSE International Entrepreneurship Research Exchange*, Melbourne, Australia, pp. 795-813.

- Baden-Fuller, C. and Morgan, M. S. 2010. "Business Models as Models," *Long Range Planning* (43:2-3), pp. 156-171.
- Ballon, P. 2007. "Business modelling revisited: the configuration of control and value," *The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media* (9:5), pp. 6-19.
- Bellman, R., Clark, C., Craft, C., Malcolm, DG., and Ricciardi, F. 1957. "On the construction of a multi-stage, multi-person business game," *Operations Research* (5:4), pp. 469-503.
- Bettis, R. A. and Hitt, M. A. 1995. "The New Competitive Landscape," *Strategic Management Journal* (16:Special Issue (S1)), pp. 7-19.
- Bouwman, H. and MacInnes, I. 2006. "Dynamic Business Model Framework for Value Webs," in *Proceedings of the 39th Hawaii International Conference on System Sciences (HICSS '06)*, Hawaii, USA, pp. 43-53.
- Brem, A. 2008. *The Boundaries of Innovation and Entrepreneurship - Conceptual Background and Essays on Selected Theoretical and Empirical Aspects*, Wiesbaden, Germany:Gabler Verlag.
- Bucherer, E. 2011. *Business Model Innovation – Guidelines for a Structured Approach*, Aachen, Germany:Shaker Verlag.
- Bunge, M. 1967. *Scientific research: I-II. Studies in the Foundations Methodology and Philosophy of Science*, Heidelberg:Springer.
- Casadesus-Masanell, R. and Ricart, JE. 2009. *From Strategy to Business Modells and to Tactics*, Navarra, Spain:IESE Business School Working Paper No. 813.
- Casadesus-Masanell, R. and Ricart, J. E. 2010. "From Strategy to Business Models and onto Tactics," *Long Range Planning* (43:2-3), pp. 195-215.
- Chesbrough, H. and Rosenbloom, R. 2002. "The role of business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies," *Industrial and Corporate Change* (11:3), pp. 529-555.
- de Castro, V. and Marcos, E. 2009. "Towards a Service-oriented MDA-based Approach to the Alignment of Business Processes with IT Systems: From the Business Model to a Web Service Composition Model," *International Journal of Cooperative Information Systems* (18:2), pp. 225-260.
- de Reuver, M., Bouwman, H., and MacInnes, I. 2009. "Business model dynamics: a case study," *Journal of Theoretical and Applied Electronic Commerce Research* (4:1), pp. 1-11.
- Demil, B. and Lecocq, X. 2010. "Business Model Evolution: In Search of Dynamic Consistency," *Long Range Planning* (43:2-3), pp. 227-246.
- Dubosson-Torbay, M., Osterwalder, A., and Pigneur, Y. 2002. "eBusiness Model Design, Classification and Measurements," *Thunderbird International Business Review* (44:1), pp. 5-23.
- Earle, N. and Keen, P. 2000. *From .com to .profit. Inventing Business Models that Deliver Value and Profit*, San Francisco, USA:Jossey-Bass.
- Ghaziani, A. and Ventresca, M. J. 2005. "Keywords and Cultural Change: Frame Analysis of Business Model Public Talk, 1975-2000," *Sociological Forum* (20:4), pp. 523-559.
- Girotra, K. and Netessine, S. 2011. "How to Build Risk into Your Business Model," *Harvard Business Review* (4:56), pp. 100-105.
- Gordijn, J. and Akkermans, H. 2001. "e³-value: Design and Evaluation of e-Business Models," *IEEE Intelligent Systems* (16:4), pp. 11-17.
- Gordijn, J., Akkermans, H., and van Vliet, H. 2000. "Business Modelling Is Not Process Modelling," in *ER 2000 Workshops on Conceptual Modeling Approaches for E-Business and The World Wide Web and Conceptual Modeling*, SW. Liddle, HC. Mayr, and B. Thalheim (eds.), Berlin et al.:Springer-Verlag, pp. 40-51.
- Hedman, J. and Kalling, T. 2001. *The Business Model: A Means to Understand the Business Context of Information and Communication Technology. Working Paper No. 9*, Lund:Institute of Economic Research in the School of Economics and Management at Lund University.
- Hedman, J. and Kalling, T. 2003. "The business model concept: theoretical underpinnings and empirical illustrations," *European Journal of Information Systems* (12:1), pp. 49-59.
- Jetter, M., Satzger, G., and Neus, A. 2009. "Technological Innovation and Its Impact on Business Model, Organization and Corporate Culture – IBM's Transformation into a Globally Integrated and Service-Oriented Enterprise," *Business & Information Systems Engineering* (1:1), pp. 37-45.
- Johnson, MW., Christensen, CM., and Kagermann, H. 2008. "Reinventing Your Business Model," *Harvard Business Review* (86:12), pp. 57-68.
- Jones, GM. 1960. "Educators, Electrons, and Business Models: A Problem in Synthesis," *Accounting Reviews* (35:4), pp. 619-626.

- Kijl, B. and Boersma, D. 2010. "Developing a business model engineering & experimentation tool - the quest for scalable 'lollapalooza confluence patterns'. Paper 567," in *Proceedings of the Sixteenth Americas Conference on Information Systems (AMCIS 2010)*, Lima, Peru, pp. 1-13.
- Kindström, D. 2010. "Towards a service-based business model – Key aspects for future competitive advantage," *European Management Journal* (28:6), pp. 479-490.
- Klang, D., Wallnöfer, M., and Hacklin, F. 2010. "The Anatomy of the Business Model: A Syntactical Review and Research Agenda," in *Druid Summer Conference 2010 on Opening Up Innovation: Strategy, Organization and Technology*, London, pp. 1-32.
- Kraemer, K. L., Dedrick, J., and Yamashiro, S. 2000. "Refining and Extending the Business Model With Information Technology: Dell Computer Corporation," *The Information Society* (16:1), pp. 5-21.
- Krstov, L. and Sinkovec, U. 2007. "Relations between Business Strategy, Business Models and e-Business Applications," in *Information and Intelligent Systems Conference*, Zagreb, Kroatien, pp. 1-6.
- Lambert, S. 2008. "A Conceptual Framework for Business Model Research," in *21st Bled eConference "eCollaboration: Overcoming Boundaries Through Multi-Channel Interaction"*, Bled, Slovenia, pp. 277-289.
- Magretta, J. 2002. "Why Business Models Matter," *Harvard Business Review* (80:5), pp. 86-92.
- Mahadevan, B. 2000. "Business Models for Internet-based e-Commerce: An anatomy," *California Management Review* (42:4), pp. 55-69.
- Malone, T., Weill, P., Lai, R., D'Urso, V., Herman, G., Apel, T., and Woerner, S. 2006. *Do Some Business Models Perform Better than Others?*, Cambridge, USA:MIT Working paper 4615-06.
- Mansfield, GM. and Fourie, L. 2004. "Strategy and business models - strange bedfellows? A case for convergence and its evolution into strategic architecture," *South African Journal of Business Management* (35:1), pp. 71-88.
- McGrath, R. G. 2010. "Business Models: A Discovery Driven Approach," *Long Range Planning* (43:2-3), pp. 247-261.
- Morris, M., Schindehutte, M., and Allen, J. 2005. "The entrepreneur's business model: toward a unified perspective," *Journal of Business Research* (58:6), pp. 726-735.
- Onetti, A., Zucchella, A., Jones, M., and McDougall-Covin, P. 2010. "Internationalization, innovation and entrepreneurship: business models for new technology-based firms," *Journal of Management and Governance* (15:3), pp. 1-32.
- Osterwalder, A. 2004. *The business model ontology – a proposition in a design science approach*, PhD Thesis, Université de Lausanne:Ecole des Hautes Etudes Commerciales.
- Osterwalder, A., Pigneur, Y., and Tucci, C. 2005. "Clarifying Business Models: Origins, Present and Future of the Concept," *Communications of the Association for Information Systems* (16:1), pp. 1-25.
- Pateli, A. and Giaglis, G. 2003. "A Framework for Understanding and Analysing eBusiness Models," in *16th Bled eConference "eTransformation"*, Bled, Slovenia, pp. 329-348.
- Pateli, A. and Giaglis, G. 2004. "A research framework for analysing eBusiness models," *European Journal of Information Systems* (13:4), pp. 302-314.
- Petrovic, O., Kittl, C., and Teksten, R. D. 2001. "Developing Business Models for eBusiness," in *International Conference on Electronic Commerce (ICEC) 2001*, Vienna, Austria, pp. 1-6.
- Pigneur, Y. and Werthner, H. 2009. "Design and management of business models and processes in services science," *Information Systems and E-Business Management* (7:2), pp. 119-121.
- Pohle, G. and Chapman, M. 2006. "IBM's global CEO report 2006 : business model innovation matters," *Strategy & Leadership* (34:5), pp. 34-40.
- Rappa, MA. 2004. "The utility business model and the future of computing services," *IBM Systems Journal* (43:1), pp. 32-42.
- Samavi, R., Yu, E., and Topaloglou, T. 2009. "Strategic reasoning about business models: a conceptual modeling approach," *Information Systems and E-Business Management* (7:2), pp. 171-198.
- Sampler, J. L. 1998. "Redefining Industry Structure for the Information Age," *Strategic Management Journal* (19:4), pp. 343-355.
- Seddon, PB., Lewis, GP., Freeman, P., and Shanks, G. 2004. "The Case for Viewing Business Models as Abstractions of Strategy," *Communications of the Association for Information Systems* (13:1), pp. 427-442.
- Seppänen, M. 2008. *Business Model Concept: Building on Resource Components*, Tampere, Finland:Faculty of Business and Technology Management, Tampere University of Technology Working Paper.

- Shafer, S. M., Smith, H. J., and Linder, J. C. 2005. "The power of business models," *Business Horizons* (48:3), pp. 199-207.
- Shi, Y. and Manning, T. 2009. "Understanding Business Models and Business Model Risks," *The Journal of Private Equity* (12:2), pp. 49-59.
- Stähler, P. 2002. *Geschäftsmodelle in der digitalen Ökonomie. Merkmale, Strategien und Auswirkungen*, Lohmar:Eul Verlag.
- Teece, D. J. 2010. "Business Models, Business Strategy and Innovation," *Long Range Planning* (43:2-3), pp. 172-194.
- Thomson Reuters Web of Knowledge 2011. "Journal Citation Reports®," <http://webofknowledge.com> (accessed August 2011).
- Thomson, W. 1881. *Electrical Units of Measurement*, London:Popular Lectures.
- Timmers, P. 1998. "Business Models for Electronic Markets," *Journal on Electronic Markets* (8:2), pp. 3-8.
- Weill, P., Malone, T. W., and Apel, T. G. 2011. "The Business Models Investors Prefer," *MIT Sloan Management Review* (52:4), pp. 16-19.
- Zott, C. and Amit, R. 2008. "The Fit between Product Market Strategy and Business Model: Implications for Firm Performance," *Strategic Management Journal* (29:1), pp. 1-26.
- Zott, C., Amit, R., and Massa, L. 2010. *The Business Model: Theoretical Roots, Recent Developments, and Future Research*, Navarra, Spain:IESE Business School Working Paper No. 862.
- Zott, C. and Amit, R. 2010. "Business Model Design: An Activity System Perspective," *Long Range Planning* (43:2-3), pp. 216-226.
- Zott, C., Amit, R., and Massa, L. 2011. "The Business Model: Recent Developments and Future Research," *Journal of Management* (37:4), pp. 1019-1042.