



The dynamic approach to business models

Anna-Greta Nyström¹ · Miia Mustonen²

Received: 15 January 2017 / Accepted: 14 November 2017 / Published online: 27 November 2017
© Academy of Marketing Science 2017

Abstract The many definitions of business models can be summarized into two distinct approaches, the static and the transformational. This paper proposes a third approach, namely a dynamic approach to business models and argues that the flexible and adaptive nature of business models can be developed further based on the industrial network approach. The business model is embedded in business contexts and business networks, and is dependent on changes in the business environment. Due to these mutual dependencies between business network actors, and in the pursuit of new capabilities and resources, the business model may also build on co-production, collectivity and sharing, and be utilized by the many actors embedded in value networks. This differs from the traditional view, in which companies create value independently of each other. A networked, flexible, and co-produced business model offers a novel tool for strategizing turbulent business environments.

Keywords Business model · Business network · Dynamic · Flexible · Co-production

The business model concept is widely used among practitioners across industrial fields. Since 1990, there has been an increase in scholarly publications on the topic and the concept has been a target of debate among scholars, mainly concerning the definition of the business model and its key elements (DaSilva and Trkman 2014; Zott et al. 2011). The research on business models is quite vigorous, with different definitions, conceptualizations, and constructs (for thorough literature reviews, see George and Bock 2011 and Zott et al. 2011). Scientific contributions have been made to several different research streams, such as entrepreneurship, strategic management, and innovation. However, researchers continue to explore “the black box” of business models (Zott et al. 2011) through combining different perspectives, such as capabilities (Battistella et al. 2017), change management and dynamics (Achtenhagen et al. 2013), strategy-as-practice (Hacklin and Wallnöfer 2012), innovation and reconfigurations (Spieth et al. 2016), as well as experimentation and learning (Andries et al. 2013), to name a few recent

examples. Even though interesting research results on business models have been reported, there is a lack of consensus concerning the theoretical underpinnings of business models (Arend 2013; Hedman and Kalling 2003; Schweizer 2005). More contributions, especially conceptual and theoretical, are called for in the disciplines of marketing (Simmons et al. 2013) and strategy (DaSilva and Trkman 2014).

A business model is generally defined as the logic of the firm, the way it operates and how it creates and captures value for its stakeholders (cf. Casadesus-Masanell and Ricart 2010); it is also referred to as a “blueprint” for running a business (Osterwalder et al. 2005). Business models are rather abstract constructions that work as conceptual tools rather than operational tools and therefore, in the literature on business models, the use of business models as tools for strategizing has been touched on less often. Attempts have been made in the field of entrepreneurship, to explain how experimentation during uncertain periods, takes place in conjunction with opportunity identification, which subsequently translates into viable business models (Andries et al. 2013). However, the question of how business models should adapt to changing conditions in various industries or specific markets is still unanswered.

When firms, e.g., in the technology intensive industries witness technological advancements, regulatory upheaval, and also experience the fierce pace of change in media consumption behavior among end-customers, they must deploy flexible and rapidly changing business models. Such business models are crucial to keep, or consciously alter, their market and network position, as new entrants seek to enter the market.

✉ Anna-Greta Nyström
anna-greta.nystrom@abo.fi

Miia Mustonen
miia.mustonen@vtt.fi

¹ School of Business & Economics, Åbo Akademi University, Vänrikinkatu 3B, 20500 Turku, Finland

² VTT Technical Research Center of Finland, 02044 VTT, PL 1000 Oulu, Finland

Cuthbertson et al. (2015) describe how the entrant Apple by deploying a flexible and evolving business model, which did not constrain the company to any particular industry, business area or activity, eventually led to large changes in the mobile phone industry. Simultaneously, the industry witnessed a media convergence, i.e., the merging of content into digital platforms (cf. Fidler 1997; Jenkins 2004; McPhillips and Merlo 2008), and the advancement of digital technologies allowing end-users to access content through any device, at any time, and from any place. This shift could also be observed in terms of how people then started to consume media content - via portable devices such as tablets and smartphones (cf. Tilson and Lyytinen 2006; West and Mace 2010; de Reuver et al. 2013). The business model deployed by Apple (in the case of mobile phones) illustrates the notion of business models as vehicles for shaping the architectures, markets, and marketing activities of new industries (Brusoni et al. 2009; Doganova and Eyquem-Renault 2009; Pisano and Teece 2007). Thus, Apple's business model prepared the way for the development of apps and other digital mobile services. Such a perspective can, for example, be easily connected to the research stream on entrepreneurial opportunities (see e.g., Alvarez and Barney 2010).

The business model as a concept clearly has a purpose among both practitioners and scholars, even though researchers, especially DaSilva and Trkman (2014), have critically discussed the concept, questioning whether it has a clear role in strategic management literature. The discussion on business models in the domain of marketing has, however, mainly centered on innovation (Teece 2010) and value networks (Chesbrough 2006; Sandulli and Chesbrough 2009). In contrast, in this paper, we discuss approaches to business models with the aim of contributing to the marketing discipline. The issue of flexibility and adaptability in business models is addressed (a) by discussing different approaches to business models and (b) by defining the dynamic nature of business models, and (c) by particularly reflecting on the networked and embedded nature of business models. After the prerequisites for dynamic business models have been outlined, it is possible to plan the marketing function more carefully. Thus, we have developed a conceptual framework and then outlined directions for future research.

Defining the business model concept

The concept of the business model is generally viewed as poorly defined (Chesbrough and Rosenbloom 2002; Mahadevan 2000; Morris et al. 2005; Zott et al. 2011). The various definitions use wording such as: narratives or stories that explain how firms work (Magretta 2002), representation (Morris et al. 2005; Shafer et al. 2005), schema (Clarke and

Freytag 2011), mental model (Storbacka and Nenonen 2011), structural template (Amit and Zott 2001), recipe (Baden-Fuller and Morgan 2010), device (Magretta 2002; Doganova and Eyquem-Renault 2009), statement (Stewart and Zhao 2000), method (Afuah and Tucci 2001), pattern (Brousseau and Penard 2006), and business architecture (Timmers 1998; Dubosson-Torbay et al. 2002; Ballon 2007). However, the most common description of a business model is associated with the logic of the value creation of the company (Ghaziani and Ventresca 2005), and specifically with how money is made through positioning in the value chain (Afuah and Tucci 2001; Chesbrough and Rosenbloom 2002; Magretta 2002). Amit and Zott (2001) highlight designing content, structure, and governance with the goal of creating value through the exploitation of business opportunities.

The business model is thus used to explain complex processes that capture (Chesbrough 2007), create, and share (Doganova and Eyquem-Renault 2009) value. The discussion on value creation positions business models as being close to a company's emergent strategy making (Ghezzi et al. 2005). In a sense, business models can be understood as an abstraction of strategy. In fact, Seddon et al. (2004) argue that any single strategy can be achieved through different business model configurations, while Richardson (2008) explicitly considers business models as an articulation of strategy, and Teece (2010) positions business models at the core of strategy. Strategy entails the pursuit of reaching a desired goal and is, therefore, automatically an activity causing change. Zott et al. (2011) summarize four common themes in defining business models, namely (a) business models emerging as a new unit of analysis, (b) business models emphasizing the system level, that is, holistic approaches to explaining how firms "do business", (c) firm activities influencing conceptualizations of proposed business models, and (d) business models seeking to explain how value is created. However, the literature on business models not only centers on definitions and descriptions, but also on identifying the elements (Osterwalder et al. 2005) and building blocks (Battistella et al. 2017, DaSilva and Trkman 2014; Zott et al. 2011) of business models.

Approaches to the business model concept

The theoretical bases of the business model concept are fragmented. Most research on business models is based on entrepreneurship theories. The resource based view and theories on transaction costs have also emerged as potential theoretical stances for theorizing on business models, but are criticized for failing to capture the whole picture. Building on a Penrosian point of view, Demil and Lecqoc (2010) distinguish between two different approaches to business models, namely the static and the transformative approaches. The authors point out that the two approaches are

complementary rather than conflicting, and fulfil different functions. Both approaches underline change and take as a starting point the study of the evolutionary processes of business models, which is, per se, a very specific goal. One of the main contributions is the focus on the interplay and relationships between the elements of business models. In the next sections, we first describe the approaches suggested by Demil and Lecqoc (2010) and then based on these viewpoints we continue by distinguishing between the potential theoretical bases, in order to suggest novel, complementary approaches to the business model concept.

The static approach to business models

The notion of business models offers both practitioners and academics a tool for sense-making and strategizing. In a similar vein to the definitions presented above, Demil and Lecqoc (2010) view business models as blueprints or recipes, which assist managers in conceptualizing the value creating activities within the firm. Demil and Lecqoc (2010) refer to this as the *static approach*; it allows typologies to be constructed in order to study the relationships between, e.g., business models and performance. For managers, such a point of view gives a consistent picture, for example, of the components and how they are arranged in the business model. The focus is on the word ‘model’. One challenge with the static approach is the lack of description as regards any process of evolution within the business model (ibid.).

The transformational approach to business models

The second approach to how the business model concept is used is referred to as the *transformational approach*, indicating that the business model serves as a tool to address change. This approach shifts the focus towards innovation both within the firm as well as the business model per se. Business models have been identified not only as vehicles for innovation but also as subjects of innovation (Zott et al. 2011). The transformational approach assists managers when reflecting on how they can change and develop the business model. The approach thus focuses on single business models and how they evolve, and, simultaneously act as practical tools for strategy among the company’s managers. In this approach, there is, however, a danger of focusing on the business model components rather than taking a holistic view or analyzing the interaction between the components (Demil and Lecqoc 2010). The ongoing dynamics in business models are created by the interactions between and within the business model components. The interaction between the components intrinsically affects the outcomes and building blocks of the business model. In the transformational approach to business models, Demil and Lecqoc (2010) move towards a networked

structure, where each component relies on every other component.

However, even though relationships between components become a focal point in understanding business model change, Demil and Lecqoc (2010) only briefly touch upon relationships between the actors associated with the business models, both internal and external to the studied business model. Nevertheless, it is evident in the case study that different actors affect the outcome of, e.g., managerial decisions and actions taken to develop the business model. The business model is considered to be in a permanent state of transitory disequilibrium, leading to great pressure on the competence of managers to maintain or improve its performance. There is still much to explore in terms of the factors affecting managerial decisions concerning the business model, both from an internal and external perspective.

The emerging research combining business models with the industrial network approach, highlighting relationships and interaction between companies (Calia et al. 2007, Mason and Spring 2011, Palo and Tähtinen 2013) has potential to add to our knowledge of the transformative approach to business models. We thus turn next to the networked business model approach.

The network approach to business models

Guiding and shaping actions within and between actors has emerged among industrial network researchers as a recent focus concerning business models (Mason and Spring 2011, Mason and Mouzas 2012, Coombes and Nicholson 2013, Palo and Tähtinen 2013, Bankvall et al. 2016). Ghezzi (2013) noted that the focus of researchers has shifted from single firms to a network of firms, transforming the concept of business models from a rather monolithic entity to a multifaceted concept. Mason and Spring (2011) challenged researchers to explore business models beyond the dominant firm level of analysis and more towards the network level. In fact, one characteristic of a business model is that it is centered on a focal firm, although it has wider boundaries than that of the firm (Zott et al. 2011). Similarly, the literature on open business models strongly recognizes the interaction and relationships between actors as it describes value creation and capturing through systematic collaboration with outside partners (Osterwalder and Pigneur 2010). This discussion focuses on the integration of external resources and exchange with partners and how this creates additional value (Chesbrough 2006). Frankenberger et al. (2013) have called for more research on the configuration of the networks and their impact, especially on open business models.

In the business network context, business models are investigated as a combination of multiple and diverse design dimensions and interrelations. The industrial network approach entails companies not being independent from each

other (Håkansson 1982; Håkansson and Snehota 1995), but engaging in activities with other companies and establishing relationships with those actors forming the business networks. In this context, the company is not isolated from events taking place in the network, nor from other actors. Rather, the company is embedded in dynamic business networks (Gadde et al. 2003), which evolve over time, and where changes to one part of the network will cause changes to its surrounding structure (Halinen et al. 1999). The company is created through the relationships and the interactions it has with other actors (Mason and Spring 2011; Palo and Tähtinen 2013). Taking into account that a business model may be based on a specific company, the network approach to business models depicts business models as not being able to be exclusively understood based on an individual company (Freytag and Munksgaard 2017). A business model is created in an interaction between companies and based on the relationships that a company has with other companies, as well as how other companies relate to the focal company (Mason and Spring 2011). For instance, Calia et al. (2007) explore business model reconfigurations and show how technological innovation can result in changes in the company's operational and commercial activities, and how business networks can provide the resources necessary for such reconfiguration.

The network approach to business models emphasizes the fact that business models cannot be understood solely from the inside, but must also take the business context into account. This includes: (a) activity flows within and between companies, (b) relationships between individuals within the company and between companies, and (c) resource connections within and between companies (Freytag and Munksgaard 2017). Taking a network perspective on business models allows researchers to explore how business models can be formed and practiced as well as how they evolve; this perspective provides a theoretical lens, especially for the transformative approach to business models. The network approach builds on extensive research on the dynamic nature of business networks (cf. Abrahamsen et al. 2012; Anderson et al. 1998) and places change and evolution at the core. The transformational approach to business models entails the same characteristic, namely the 'constant state of becoming' which thus provides the basic assumption when moving towards exploring business models in a networked setting.

Towards a dynamic approach to business models

The transformational approach to business models focuses on evolution and change. Business model scholars have presented a variety of research findings and thoughts describing the evolutionary characteristics of business models, and specifically their elements, i.e., business model agility (Battistella

et al. 2017), business model innovation (DaSilva and Trkman 2014; Gambardella and McGahan 2010; Spieth et al. 2014), business model evolution (Cavalcante et al. 2011; Morris et al. 2005), business model reconfiguration (Chesbrough 2010; Forkmann et al. 2017; Sandstrom and Osborne 2011), business model redesign (Osterwalder 2004), as well as reshaping, adjusting, redefinition, and adaptation (Teece 2010). In addition, Kavadias et al. (2016) proposed a transformative business model, which demonstrated the ability of business models to change the business environment.

The research stream on change agrees on the need for transformation and a constant revision of the business model over time. Successful companies, which have operated for some time, risk failure if they continue with activities without adapting their business model to changes, for example, in competitive situations (Doz and Kosonen 2010; Osterwalder and Pigneur 2010; Teece 2010).

Based on the discussion above, we can deduce two major thoughts, firstly that (a) business models are dynamic and change over time, and secondly that (b) as the company does not act in isolation, but is rather embedded in business networks, the surrounding business environment affects the business model of a single company to a much higher degree than so far recognized in the business model literature. In the next section, we discuss the main drivers of dynamic business models, namely (a) change, as in changing business environments, (b) adaptability and capabilities, and (c) flexibility, as demonstrated by the repositioning and reconfiguring of the business model. We then continue to reflect on the factors that can direct research on static and transformative business models towards the dynamic approach to business models.

The business context in transition and its impact on business models

Examples of disruptive and changing business environments can be found in many fields. We use here the information and communications technology sector and especially telecommunications as an example, taking into account its ongoing paradigm shift. The 5th generation (5G) of mobile communication systems is foreseen as encompassing novel features that are not present in the existing mobile communication systems. One such feature is the integration of vertical industries into mobile communication systems. These verticals include energy, media and entertainment, health, factories, and the automotive industries (5G-PPP 2016). This integration will transform an environment that was once purely based on bilateral relationships between mobile operators and their customers, into a universe of specialized companies providing services at different positions in the value chain. The ability for these companies to identify their source of revenue will be one of the key prerequisites for a successful rollout of 5G. From a

regulatory perspective, the integration of verticals will require the monitoring of specific harmonization measures required for commonly used cases, as well as a review of the spectrum regulations applicable to verticals, to assess whether they are 5G compatible or not (ECC 2017). Such changes will challenge the way existing companies address the market through their business model.

In 1998, Gaines had already noted that convergence was promoting a trend towards vertically integrated companies and alliances. In technologically advanced markets, a motivation for vertical integration is often the need to seize a new opportunity (Kavassalis and Lehr 2000). Vertical integration is often viewed as a strategy to protect, exploit, or extend market power and may also be used to develop complementary skills. Thus, for some decades, the changes within ICT and telecommunications have been referred to using the concept of convergence. Borés et al. (2003), p. 1) suggested one of the early definitions of convergence, namely “a process by which the telecommunications, broadcasting, information technologies and entertainment sectors (collectively known as ICT – Information and Communications Technologies) may be converging towards a unified market”. The concept has been used in different ways and for different purposes, e.g., combining technologies and consumer devices (Adner and Levinthal 2000, Shepard 2000), digitalization within media (Yoffie 1996), and the blurring of industry and market borders between telecommunications, information technology, and the media (Borés et al. 2003; Fransman 2000). The ICT sector and related business environments as well as ecosystems are constantly changing, and the value companies seek to create and capture seems to evolve in line with the new business opportunities that arise.

The dynamic nature of the business environment can be depicted as that of companies constantly having to re-evaluate and re-negotiate their business models; this can be done by either adapting them to the current business environment, or by directing and shaping the future business environment. Christensen (2003) and Markides (2008) show the difficulty companies have in transforming their business model as the market changes or is disrupted. It is noteworthy that the *static* and the *transformational approach* to business models do not address the business model’s ability to adapt to the changing business environment. All adaptations to market conditions and external events do not have a transformative nature, but are rather incremental and are more related to fine-tuning parts of the business model. According to Christensen (2003), successful companies manage to respond well to incremental changes in their markets. However, disruptive innovation creates entirely new markets, and is considered a weaker starting point for large companies (ibid.).

The example given above, not only affects both the business environment of companies but also their ability to stay competitive in their markets. It also affects the end-users or

consumers, as their behavior and expectations tend to change. The ICT and telecommunications sector has its own qualities and attributes as regards what drives change, but they are not very different from those taking place in other business fields, where technology plays a role. As communication is facilitated and information becomes available, the disruptive and convergent nature of the advancements in technology signal the need for all technology-based industries to pay attention to their business models and their dynamic nature. New entrants tap into these advancements and cause disruption; examples include Airbnb and Uber, both of which build on a matchmaking platform and thus benefit from connectivity. Netflix benefits from digitalization and leveraging user data to provide a rich customer experience, while Twitch.tv taps into the social dimension of human beings as well as consumers’ (technical) ability to produce content. These business models consist of unique elements, which must evolve alongside technological advancements, such as the increased use of mobile streaming to access digital content (cf. the Digital News Report 2017 issued by Reuters Institute at the University of Oxford). In the wellbeing sector, consumers may use apps, e.g., to exercise or do yoga at home, often together with an instructor and other participants (via a video connection).

So far, research has given scant attention to using business models to direct or directly shape the business environment (cf. Johnson et al. 2008). Kavadias et al. (2016) developed the notion of transformative business models, which have the ability to transform industries if (a) new entrants use the model to displace incumbents and/or (b) competitors adopt it. Examples can be found in current phenomena, for instance, the sharing economy (cf. Codagnone et al. 2016). Newcomers such as Airbnb, Taskrabbit, and Uber have built business models that rely heavily on the activities of consumers and the co-production of products and services. Kavadias et al. (2016) found the characteristics of transformative business models to be the following: (a) personalization, (b) a closed-loop process that replaces a linear consumption loop, (c) asset sharing, (d) usage-based pricing, (e) a collaborative ecosystem, and (f) an agile and adaptive organization. These characteristics can, in one way or the other, be observed in the business model examples of Airbnb, Taskrabbit, and Uber. However, new technology cannot transform an industry unless a new business model can be linked to an emerging market need.

Adapting the business model to the shifting business context

Both practitioners and scholars are still perplexed by how, why, and when to adapt business models according to the changing logic of the business environment. There is a clear need to complement business model research with a processual view and methodology, following the work of Van de Ven (1992) and

Pettigrew (1997). Adaptability is perhaps the aspect most often discussed in relation to business model agility and reconfiguration, and refers to the incremental changes made to existing business models. However, the notion of adapting business models based on changes occurring in the business environment goes much deeper than that. Adapting includes having the ability and capability to continually develop, strengthen, and modify the business model when an opportunity or threat arises. Strategic agility, i.e., the ability to dynamically revise or reinvent the company and its strategy (Fartash et al. 2012) is thus required. This includes adapting to unforeseen changes in the business environment in a timely manner. Strategic agility is the dynamic process of anticipating or adjusting to trends and customer needs while still following the company's vision (Fartash et al. 2012). Being strategically agile is at the core of adaptability, as it encompasses developing the ability to dynamically revise or reinvent the business model according to the changes in the business environment (Doz and Kosonen 2010).

The notion of adaptability and changing business environments thus leads us towards one of the main themes that has perplexed business model researchers for decades, namely strategy. The relationship between business models and strategy theory divides opinions, as it is still not clear how business models emerge from strategy (Arend 2013; Schneider and Spieth 2013). Neither is it clear how business models evolve with strategy (Spieth et al. 2016, Zott and Amit 2008), which means that our understanding of the mutual dependencies and cause-effect relationships between business models and strategy are still fragmented and limited. It has even been suggested that the business model concept has a cannibalizing tendency towards other management terms, such as strategy (DaSilva and Trkman 2014).

In organizational management literature, adaptability refers to an organizational capacity to redefine the underlying character of a company in response to large-scale change (Denison and Mishra 1995). Adaptability also requires the capacity to interpret signals and adjust the organization accordingly; “an effective organization must develop norms and beliefs that support its capacity to receive and interpret signals from its environment and translate these into internal cognition, behavioral, and structural changes” (Denison and Mishra 1995, p. 215).

Adaptability is also concerned with reactions, i.e., the company's reaction to such events as opportunities or threats, new entrants appearing on the market or a shift in consumer trends. In such cases, the company may adapt fully to the new environment, for example, by replacing its old business model with a new one, or semi-adapt by reconfiguring the original business model, or perhaps not adapt at all (no changes/static business model). More research is called for on organizational outcomes produced by the adaptability of business models to changes in the business environment.

Capabilities and conditions for changes in business models

Continually and successfully shaping and reshaping, adapting, renewing, and configuring the underlying business model is a prerequisite for successful organizations (Osterwalder and Pigneur 2010). Continuous change also prohibits the company from suffering from inertia regarding change (Achtenhagen et al. 2013). An important aspect concerning the literature on change in business models is the notion that strategizing plays a crucial role in the changes made to business models (Casadesus-Masanell and Ricart 2010). Business models can be viewed as sets of relationships and feedback loops between variables and their consequences. The purpose of strategic management is to develop these into virtuous cycles, leading to the evolution of the chosen business model. However, change and innovation in business models is not sufficient as a means of staying competitive; business models must evolve adaptively and consistently with the firm's evolving economic, ecologic, social, and technological environments (Chesbrough 2007; Morris et al. 2005).

Capabilities are a core concept of business models, and often used to explain their success and management. In highly uncertain environments, companies depend on continuously reconfiguring their capabilities as well as adding new capabilities (Simon et al. 2008). Dynamic capabilities describe and explain the company's resources that distinguish it and are difficult to imitate, and most importantly, enable the firm to change by shaping and adapting to the environment (cf. Teece 2007). Capabilities are the know-how that is retained, maintained, and developed by an organization over time (Mason and Spring 2011). Dynamic capabilities provide an evolutionary perspective and imply constant change, and are closely linked to the transformative approach to business models. It is essential to draw more attention to critical capabilities in business model research, especially as there is an emerging research stream studying value networks; this research is based on the fact that a firm may access and utilize competitors' capabilities through its business networks and follows the work on indirect capabilities by Loasby (1998) (cf. Araujo et al. 2003; Araujo and Novello 2004; D'Adderio 2001; Mason and Leek 2008; Mason and Spring 2011; Teece 2007).

Changing an existing business model also imposes restrictions. Arend (2013) identified the restrictions imposed by path dependencies (Cavalcante et al. 2011), institutional constraints (Hargadon and Douglas 2001), constraints caused by culture and leadership (Morris et al. 2005), and restrictions caused by the effects on the value chain of the rest of the industry (Gambardella and McGahan 2010). There is still much to explore concerning how business models are used in a strategic sense and as a tool to position the company in relation to incumbents, in the value chain or value network, in order to

stay at the forefront in the changing business environment, and in order to shape the market. Achtenhagen et al. (2013) identify three capabilities for successful shaping, adaptation, and renewal of business models, namely (a) an orientation towards experimenting with and exploiting new business opportunities, (b) a balanced use of resources, and (c) achieving coherence between leadership, culture, and employee commitment, which together shape key strategizing actions.

Flexibility as a method of repositioning in changing business environments

In order to understand the meaning and implications of the relationship between a company's business model and its changing business environments, it is necessary to consider the concept of flexibility. Farrell and Oczkowski (2002) argue that business models must be flexible and adaptable, especially if they aim at fostering innovation. Mason and Mouzas (2012) proposed the concept of flexible business models, and this concept has become inherently linked to the network approach to business models and the question of how best to utilize the business network's resources. According to Mason and Mouzas (2012) flexibility refers to the firm's capability in (a) integrating the considerations of end-customers, and (b) accessing resources without corporate ownership. They assume that business model flexibility is likely to be dependent on the interaction between the business model architecture and the business model focus. Flexibility thus refers to the ability of the network to sense and respond to market changes initiated by end-customer preferences. This is similar to Sanchez and Mahoney (1996) view on flexibility, namely the company's ability to reposition itself in a market and to dismantle its previous strategies to meet new customer needs.

Mason and Mouzas (2012) approach business models as an outcome of the relationships between companies, or actors in business networks. The concept of a flexible business model is, however, not representative of either the static or the transformational approach to business models identified by Demil and Lecqoc (2010). Even though the flexibility concept highlights the relevance of the network approach to business models, it does not address the notion of dynamics (constant change) in business networks, nor does it acknowledge business networks as being embedded in specific business contexts. Nevertheless, the notion of flexible business models denotes the dynamic and adaptive nature of business models, and may very well be a tool for studying how business models become a tool for strategizing. Flexible business models should also be extended to both the level of the firm and the individual employee; they should be studied further in order to evaluate how and whether flexible business models allow companies to strategize and position themselves on the

market, and thus build further on the research into strategy-as-practice (cf. Hacklin and Wallnöfer 2012).

The dynamic approach to business models

Based on the identified drivers affecting business models, we propose a third approach in addition to the static and transformational approach, namely the *dynamic approach* to business models. The dynamic approach to business models relies on (a) the networked nature of business relationships (the network approach), (b) strategic agility and adaptability, as well as (c) flexibility, as defined in the previous discussion. Table 1 summarizes the different approaches to business models. The dynamic approach to business models implies a state of always becoming; thus, the 'perfect' and 'unique' business model is not the goal per se. Rather, the business model is and should be adaptive, changeable, and flexible, and created in conjunction with the firm's business partners, network actors and other stakeholders (in some cases also end-users and consumers). This allows companies to navigate fast moving business environments, in which forces such as convergence processes, regulatory aspects, and technological advancement cause turbulence and temporal positions on the market as well as in the business networks. Radical or disruptive innovation is a natural characteristic of the dynamic approach to business models.

The dynamic approach to business models becomes very relevant in the context of the ICT and telecommunications sector, where technological development in the fields of communication shape and shift focus rapidly on markets. The introduction of 5G is expected to fuel the Internet of Things (IoT), connecting billions of devices and sensors. Future visions of IoT encompass new markets and disruptive rather than incremental innovations. However, the actors in such business environments are perhaps accustomed to constant and rapid technological development and its consequences. Although technology development is not always driven by end-user needs, Mason and Mouzas (2012) explicitly view changes in end-user preferences as drivers and antecedents of flexible business models. Technological change is a social process, which involves several actors and stakeholders, such as producers, governments, and regulators. The different stakeholders must be taken into consideration when developing, adapting, repositioning, and reinventing business models; thus, making the whole issue much more complex than any single business model label or title is able to convey. Therefore, the dynamic approach addresses a multitude of issues related to different levels of embeddedness (macro, meso, and micro) in the business environment.

Table 1 Approaches to business models

Approach to business models	Static approach	Transformational approach	Network approach	Dynamic approach
Description of the approach	The business model aids managers in conceptualizing value creating activities in the company.	The business model serves as a tool to address change.	The business model is created in interaction between companies and based on the relationships that the company has with other companies, and how other companies relate to the focal company.	The approach builds further on the transformative and network approach to business models encompassing embeddedness in the business environment, constant change, and technological development.
Focus of the approach	The focus is on the configuration of the business model elements that produce performance.	The focus is on the managerial issues related to changing the business models.	The focus is on the business relationships and interaction between actors in a business network.	The focus is on business networks as embedded in the business environment. The business models are based on adaptability, strategic agility, and flexibility.
Implications of the approach	Value is created independently by the business actors in the ecosystem.	Value is created independently by the business actors in the ecosystem.	Business models and subsequent value are co-created in the interaction and exchange between business network actors.	The approach entails accessing indirect resources through, e.g., shared or collective business models, and customer co-created business models. Value is co-created between different actors.
Level of analysis	Firm	Firm	Relationship Network	Network
References	Amit and Zott (2001) Baden-Fuller and Morgan (2010) Chesbrough and Rosenbloom (2002) Demil and Lecqoc (2010) Magretta (2002)	Afuah and Tucci (2001) Demil and Lecqoc (2010) Doganova and Eyquem-Renault (2009) Zott et al. (2011)	Bankvall et al. (2016) Calia et al. (2007) Coombes and Nicholson (2013) Mason and Mouzas (2012) Mason and Spring (2011) Palo and Tähtinen (2013)	This paper

The dynamic approach identifies change, adaptability, and flexibility as the basis of business models. It differs from the transformative approach by going beyond the firm as the focus and placing the emphasis on the business environment and business network, in which the company is embedded; this approach also includes how the company may use the resources and capabilities in the network to dynamically manage its own business model. The dynamic approach to business models spans the boundaries of the company's business model, by taking networked partners, competitors, and other stakeholders (business models, capabilities, resources, relationships, and networks, etc.) into account, as well as events taking place in the surrounding business environment.

The dynamic and networked actor: Shared and collective business models

The dynamic approach to business models also recognizes shared or collective business models, which are co-created by several companies or business network actors. The notion of shared or collective business models can be traced back to Håkansson and Snehota (1989a, 1989b), who argued that companies do not exist in isolation, but are rather connected through relationships and embedded in the business environment. This means that even though a firm may initiate internal development it is not possible to realize such development in isolation from the business environment. Companies must

maintain a variety of relationships with other actors (Dwyer et al. 1987; Powell et al. 1996). Value is often co-produced in interaction with business partners and network actors, which means that the company is also restricted by their value network. Interdependencies between actors in value networks imply that there is also interdependency between the business models of different actors. For instance, Freytag and Clarke (2012) argue that even though companies want to change and adapt to business conditions, it may be difficult, as other companies will have formed certain expectations based on the company's previous activities and actions.

The business network actors strategize, as they collectively agree on and design their business models. Collective business models may emerge over time, creating a business ecosystem. The essence of these ecosystems is collaborative agreement (Adner 2006) and the members of the business ecosystems evolve symbiotically (Rong et al. 2015). In dynamic and turbulent business environments, collective business models may very well serve a purpose for companies who struggle with their market position and keeping pace with changing market conditions.

As companies are embedded in a number of relationships, their business model will also be embedded in other companies. Individual companies cannot change their business model without taking their business partners into consideration. Parolini (1999) defines this embedded context, or value network, as a set of activities linked together with the aim of delivering a value proposition to the end-user. The exchange patterns that take place within the value network are at the very core of defining business models. Chesbrough and Rosenbloom (2002), Magretta (2002), and Teece (2010) take a stance on companies acting independently in the market, which is strongly criticized by researchers (cf. Bankvall et al. 2016). A company does not define and articulate its business model independently of other companies, and subsequently this is true of its value delivery or value proposition (Håkansson and Snehota 1989a, 1989b). Rather, business models rely on other companies and can be considered interdependent. Similarly, Palo and Tähtinen (2013) argue that it is impossible for a single company to govern all the relevant resources and activities required to create customer value.

Customer shared and co-created business models

The dynamic approach to business models considers the customers as an important and irreplaceable actor in the business network, in which a business model is embedded. Customer participation in different company processes has become a vital part of current research and development activities, ranging from product development (cf. Haumann et al. 2015) to utilizing brand communities (Hollebeek et al. 2014), and ad hoc open innovation networks (Leminen et al. 2012). Co-production is defined as the customers' active participation

in the creation of products, services, or goods (cf. Lusch and Vargo 2012). Early researchers focused on the reasons for engaging customers in a firm's processes and the incentives needed to entice customers to do so. Haumann et al. (2015) recognize yet another stream of co-production research, focusing on the psychological consequences of customers' participation in co-production. They support this notion by showing how the engagement of consumers in the production process (co-production) enhances their evaluation of the self-produced product and changes their attitudes toward the firm offering the co-production. This finding may explain the success behind the business models of Airbnb and Uber, who strongly rely on this co-production aspect.

A firm draws upon those resources and (direct and indirect) capabilities, which are required to make their business model successful. The idea of involving customers in co-production, managed by a network of actors is not intrinsically new; there is a rich research stream regarding open innovation networks, which explores the topic from various perspectives. One example of open innovation networks is the research on living labs (Almirall and Casadesus-Masanell 2010; Gassman 2006; Leminen et al. 2012).

However, the antecedents and consequences of co-production in the setting of business models is a novel research area, especially if the dynamic approach to business models is applied. The question then becomes: How can the network or actors benefit from involving customers as producers of the business model and thus partly responsible for executing the business model? Consequently, the business model becomes difficult to control and manage, as there are a considerable number of stakeholders linked to it. Changes in customer trends, opinions, and general trends may occur at a rapid pace, which requires agility and flexibility from the business model utilizer or owner (the company and/or business network). Nevertheless, customer co-produced business models can also be viewed as a form of shared and collective business models. In the dynamic approach, customer co-produced business models are distinguished as a specific and possible subcategory of business models.

Concluding discussion and directions for further research

The goal of this paper has been to conceptually develop the notion of business models and specifically highlight the need for a dynamic approach to the use of business models. The dynamic approach to business models entails a flexible and adaptive attitude towards the company's business model and relies on embedded business networks to reconfigure, develop, and adapt the business model to events and changes in the business environment. First, we discussed two different approaches to business models, the static and transformative

(Demil and Lecqoc 2010), and proposed the dynamic approach as a novel way of approaching business models. The dynamic approach to business models relies on the industrial network approach, a research stream relying on interaction and relationships between a set of connected actors, who access and share resources in the network. The network approach also acts as a basis for the flexible business model, highlighting the need for adaptability to events and turbulence taking place at different levels in the business environment (firm-network-market level). Second, we reflected upon the consequences of, or trends imposed by the dynamic approach to business models. We identified shared and collective business models among business actors as well as customer co-created business models and discussed the idea of accessing indirect resources through participation in collective and shared business models. Actors must perform specific tasks for the business model to work successfully and there may be a network of actors utilizing (partly or fully) a particular business model.

The industrial network approach becomes a means of furthering our understanding of business models in theory and practice. The network approach provides an understanding of the importance of developing and maintaining business relationships in order to ensure stability and the ability to pursue business opportunities through access to knowledge. The argument is that firms are dependent on resources controlled by other firms, and vice versa, i.e., there exist mutual interdependencies between firms. This approach may benefit the notion of business models, as it becomes increasingly important to access resources in a flexible and timely manner, as an opportunity arises.

For instance, in the coming 5G context, different actors will search for indications and signs of opportunities as the next generation of mobile technology enables the Internet of Things. In other words, when everything can communicate with everything else, new opportunities will arise, but not all of them will require an individual and unique business model. Rather, sharing, cooperation, flexibility, adaptability, improvisation and so forth, will be the important capabilities and characteristics of firms wishing to create value for themselves and their surrounding networks. The dynamic approach to business models shifts attention towards creating markets, evolving with the context, and shaping the context, especially in those contexts that develop rapidly and are technology-intensive. This, of course, has implications. Therefore, future researchers should especially take into consideration the network context and its embedded nature and how business models evolve accordingly. They should also, in particular, empirically research the prerequisites and consequences of the dynamic approach to business models. Business models enable a socially shared way of ascribing meaning to the world. “Business models evolve with the context within which they are practiced – but that in turn influence and shape the context” (Mason and Spring 2011, 1039–1040).

The following three topics were identified as focal areas of future research on business models. Hypotheses and research questions related to each are discussed in the following.

Topic 1. Marketing in dynamic business models

Even though research on business models in general deals with “from idea to market” and value creation for the company, the marketing aspect is rarely a focus area in the discussion. Business model research has received little attention from marketing scholars (Coombes and Nicholson 2013), as the research focus is often on structure (cf. Morris et al. 2005). The practical aspects of how business models are visible in the everyday work of company employees is rarely a focus in research. Nevertheless, the question of how employees realize the business model in their work, how the business model guides the value creation, relationship management, and the provision of customer satisfaction, are all important parts of the marketing function.

However, Simmons et al. (2013) as well as Frankenberger et al. (2013) call for more attention towards a holistic view of the firm (connecting the internal and external) with an especial focus on the boundary-spanning role of marketing. Business modelling is based on processes that are influenced by multiple actors (business network) and there is an interplay and interaction between those actors and between the business models in the network. In the literature on business models, marketing is therefore referred to as a boundary-spanning concept, which explains the embeddedness of a firm in its surrounding ecosystem (Zott et al. 2011; Teece 2010). Marketing is thus a tool to explain the logic of the market, the relationships, and the mutual dependencies between actors. Industrial marketing, especially, serves as a tool to understand how the business model functions in the dynamic approach, as the business model in this context is influenced by business relationships and constructed in interaction with actors in the business environment. Concurrently, the business network poses restrictions as the firm may be locked into a certain position due, for example, to institutional pressure, which only allows the firm to adopt a static approach to certain business models. We summarize our main conclusions as follows:

- Value-creation in business networks is achieved through co-created and shared business models.
- The business network enables and restricts the flexibility and adaptability of a firm’s business model.
- Access to resources and capabilities provided by the business network enhances the business model.
- Access to (indirect) capabilities and resources in the business network positively affects the evolution of the firm’s business model.

Topic 2. Strategizing in dynamic business models

Business models are tools for strategizing in complex and changing business environments, which allow companies to position themselves on the market or in the business network, and to re-position and seek new markets and network positions. Strategizing takes place through the different approaches to business models (static, transformative, dynamic). Companies should seek to adapt quickly and easily to changing customer needs and business environments by modifying their expectations of the business model as either a static guide or a visionary goal. The business model should be flexible, adaptable, and changeable according to the needs identified by the different stakeholders.

The business model should be evaluated based on its ability to provide a flexible response to a continuously changing environment, which should also be mirrored at the strategic level as well. In changing business environments, knowledge is vital and potentially improves managers' strategic decision making (Combs 1999), as well as their collaboration with partners, and generally improves performance. Thus, in addition to accessing knowledge and resources, networks and alliances are important in managing change (Lee and Park 2008; Sandulli and Chesbrough 2009). Concurrent with strategizing in business models, which entails accessing resources, capabilities, and knowledge, under the dynamic approach to business models the firm must also be flexible and adaptable. This means it should have the ability to dynamically revise and reinvent the business model and to think in new ways in circumstances where the business environment is turbulent and changing. However, strategizing takes place in the business network as well, meaning that there may be constraints and/or enabling elements involved (for a review on strategizing in business networks, see Nyström et al. 2017). We summarize our main conclusions as follows:

- The business model is a tool for strategizing in business networks
- The business model allows for repositioning in the business network by gaining access to new resources
- The business model allows for repositioning in the business network by gaining access to new capabilities

Topic 3. Co-creating dynamic business models

Managers should carefully follow developments and trends among end-customers and customers' customers in order to stay agile and flexible should an opportunity or threat arise. In times of uncertainty and insecure markets, experimentation and opportunity identification become critical capabilities, as well as the ability to translate opportunities into viable business models (Andries et al. 2013). Opportunities may be

identified by other actors than the focal firm, for instance by customers or competitors. A company does not necessarily seek to exploit an opportunity on its own, but rather jointly in business networks, and thus co-creating the required business model. Co-creating business models may require establishing boundaries in the form of, for instance, open innovation networks (living labs, test laboratories, online communities etc.) or long-term relationships based on trust and commitment (business network actors). We summarize our main conclusions as follows:

- The dynamic approach to business models deepens relationships between network actors as they co-produce business models.
- Customer co-production increases the likelihood of a successful business model.

Theorizing the dynamic approach to business models

Demil and Lecqoc (2010) introduced two approaches to business models, namely the static and the transformative, to explain how researchers have dealt with the concept of business models. This paper contributes by discussing a third approach, the dynamic approach to business models, taking the dynamic, flexible, and evolutionary nature of business models further by including the industrial network approach. The dynamic approach to business models is explained through specific characteristics: networks, adaptability, flexibility, and co-creation. The paper does not enlarge on which capabilities are needed, but rather aims to raise awareness of the role of the business model in business networks, as well as the role of business networks in business models.

Additionally, the paper explores why this perspective may help and guide researchers and practitioners to better and more rigorously strategize and design marketing activities based on current and future business models. The influences of the dynamic approach on business models can be seen in the ICT and telecommunications sector, where it is evident that no firm acts in isolation. In this sector, the majority of innovation and subsequent business model configuration takes place in cooperation with different actors, blurring the borders of the industry for the partners (convergence effect). Assets are shared, business models are shared and there is an increasing need for continual discussion on co-creation and collective development. Business network relationships may be used as a tool for developing business models. Therefore, when adopting the dynamic approach to business models, future research should focus on thick descriptions of the business model evolution from an industrial network approach, and specifically cover co-produced business models using processual and case study methodology.

References

- 5G-PPP (2016). 5G empowering vertical industries, White paper, 5G Infrastructure Public Private Partnership, European Commission. Retrieved January 12 2017 from https://5g-ppp.eu/wp-content/uploads/2016/02/BROCHURE_5PPP_BAT2_PL.pdf
- Abrahamsen, M., Henneberg, S. C., & Naudé, P. (2012). Using actors' perceptions of network roles and position to understand network dynamics. *Industrial Marketing Management*, 41(2), 259–269. <https://doi.org/10.1016/j.indmarman.2012.01.008>.
- Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of business models—Strategising, critical capabilities and activities for sustained value creation. *Long Range Planning*, 46(6), 427–442. <https://doi.org/10.1016/j.lrp.2013.04.002>.
- Adner, R. (2006). Match your innovation strategy to your innovation ecosystem. *Harvard Business Review* 1–11.
- Adner, R., & Levinthal, D. A. (2000). Technology speculation and the path of emerging technologies. In G. S. Day, P. J. H. Schoemaker, & R. E. Gunther (Eds.), *Wharton on managing emerging technologies*. New York: John Wiley & Sons.
- Afuah, A., & Tucci, C. L. (2001). *Internet business models and strategies: Text and cases*. New York: McGraw-Hill.
- Almirall, E., & Casadesus-Masanell, R. (2010). Open versus closed innovation: A model of discovery and divergence. *Academy of Management Review*, 35(1), 27–47. <https://doi.org/10.5465/AMR.2010.45577790>.
- Alvarez, S. A., & Barney, J. B. (2010). Entrepreneurship and epistemology: The philosophical underpinnings of the study of entrepreneurial opportunities. *The Academy of Management Annals*, 4(1), 557–583. <https://doi.org/10.1080/19416520.2010.495521>.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6/7), 493–520. <https://doi.org/10.1002/smj.187>.
- Anderson, H., Havila, V., Andersen, P., & Halinen, A. (1998). Position and role – Conceptualizing dynamics in business networks. *Scandinavian Journal of Management*, 14(3), 167–186. [https://doi.org/10.1016/S0956-5221\(97\)00037-7](https://doi.org/10.1016/S0956-5221(97)00037-7).
- Andries, P., Debackere, K., & van Looy, B. (2013). Simultaneous experimentation as a learning strategy: Business model development under uncertainty. *Strategic Entrepreneurship Journal*, 7(4), 288–310. <https://doi.org/10.1002/sej.1170>.
- Araujo, L., & Novello, S. (2004). Sticky knowledge: Barriers to knowing in the firm. *Management Learning*, 35(1), 90–92.
- Araujo, L., Dubois, A., & Gadde, L.-E. (2003). The multiple boundaries of the firm. *Journal of Management Studies*, 40(5), 1255–1277. <https://doi.org/10.1111/1467-6486.00379>.
- Arend, R. J. (2013). The business model: Present and future – Beyond a skeuomorph. *Strategic Organization*, 11(4), 1–13.
- Baden-Fuller, C., & Morgan, M. (2010). Business models. *Long Range Planning*, 43(2-3), 156–171. <https://doi.org/10.1016/j.lrp.2010.02.005>.
- Ballon, P. (2007). Business modelling revisited: The configuration of control and value. *Info*, 9(5), 6–19. <https://doi.org/10.1108/14636690710816417>.
- Bankvall, L., Dubois, A., & Lind, F. (2016). Conceptualizing business models in industrial networks. *Industrial Marketing Management*, 60, 196–203 Available online <http://www.sciencedirect.com/science/article/pii/S0019850116300645>.
- Battistella, C., De Toni, A. F., De Zan, G., & Pessot, E. (2017). Cultivating business model agility through focused capabilities: A multiple case study. *Journal of Business Research*, 73, 65–82. <https://doi.org/10.1016/j.jbusres.2016.12.007>.
- Borés, C., Saurina, C., & Torres, R. (2003). Technological convergence: A strategic perspective. *Technovation*, 23(1), 1–13. [https://doi.org/10.1016/S0166-4972\(01\)00094-3](https://doi.org/10.1016/S0166-4972(01)00094-3).
- Brousseau, E., & Penard, T. (2006). The economics of digital business models: A framework for analyzing the economics of platforms. *Review of Network Economics*, 6(2), 81–110.
- Brunson, S., Jacobides, M. G., & Prencipe, A. (2009). Strategic dynamics in industry architectures and the challenges of knowledge integration. *European Management Review*, 4, 209–216.
- Calia, R. C., Guerrini, F. M., & Moura, G. L. (2007). Innovation networks: From technological development to business model reconfiguration. *Technovation*, 27(8), 426–432. <https://doi.org/10.1016/j.technovation.2006.08.003>.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and to tactics. *Long Range Planning*, 43(2-3), 195–215. <https://doi.org/10.1016/j.lrp.2010.01.004>.
- Cavalcante, S., Kesting, P., & Ulhøi, J. (2011). Business model dynamics and innovation: (re)establishing the missing linkages. *Management Decision*, 49(8), 1327–1342. <https://doi.org/10.1108/00251741111163142>.
- Chesbrough, H. (2006). *Open business models: How to thrive in the new innovation landscape*. Boston: Harvard Business School Press.
- Chesbrough, H. W. (2007). Business model innovation: It's not just about technology anymore. *Strategy and Leadership*, 35, 12–17.
- Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning*, 43(3-4), 354–363. <https://doi.org/10.1016/j.lrp.2009.07.010>.
- 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. <https://doi.org/10.1093/icc/11.3.529>.
- Christensen, C. M. (2003). *The innovator's dilemma*. New York: Harvard Business School Press.
- Clarke, A.H. & Freytag, P.V. (2011). Business model creation in networks – Is there such a thing as a fresh start? Paper presented at the 27th Annual IMP Conference, Glasgow, Scotland.
- Codagnone, C., Biagi, F. & Abadie, F. (2016). The passions and the interests: Unpacking the 'sharing economy'. Institute for Prospective Technological Studies, JRC Science for Policy Report. doi: <https://doi.org/10.2139/ssrn.2793901>.
- Combs, J. G., Ketchen, D. J. Jr. (1999). Explaining interfirm cooperation and performance: toward a reconciliation of predictions from the resource-based view and organizational economics. *Strategic Management Journal*, 20(9), 867–888.
- Coombes, P. H., & Nicholson, J. D. (2013). Business models and their relationship with marketing: A systematic literature review. *Industrial Marketing Management*, 42(5), 656–664. <https://doi.org/10.1016/j.indmarman.2013.05.005>.
- Cuthbertson, R., Furseth, P. I., & Ezell, S. J. (2015). Apple and Nokia: The transformation from products to services. In R. Cuthbertson, P. I. Furseth, & S. J. Ezell (Eds.), *Innovating in a service-driven economy*. London: Palgrave Macmillan. https://doi.org/10.1057/9781137409034_9.
- D'Adderio, L. (2001). Crafting the virtual prototype: How firms integrate knowledge and capabilities across organisational boundaries. *Research Policy*, 30(9), 1409–1424. [https://doi.org/10.1016/S0048-7333\(01\)00159-7](https://doi.org/10.1016/S0048-7333(01)00159-7).
- DaSilva, C. M., & Trkman, P. (2014). Business models: What it is and what it is not. *Long Range Planning*, 47(6), 379–389. <https://doi.org/10.1016/j.lrp.2013.08.004>.
- de Reuver, M., Ongena, G., & Bouwman, H. (2013). Should mobile internet be an extension of the fixed web? Fixed-mobile reinforcement as mediator between context of use and future use. *Telematics and Informatics*, 30(2), 111–120. <https://doi.org/10.1016/j.tele.2012.02.002>.
- Demil, B., & Lecqoc, X. (2010). Business model evolution: In search of dynamic consistency. *Long Range Planning*, 43(2-3), 227–246. <https://doi.org/10.1016/j.lrp.2010.02.004>.

- Denison, D., & Mishra, A. K. (1995). Towards a theory of organizational culture and effectiveness. *Organizational Science*, 6(2), 204–223.
- Doganova, L., & Eyquem-Renault, M. (2009). What do business models do?: Innovation devices in technology entrepreneurship. *Research Policy*, 10, 1559–1570.
- Doz, Y. L., & Kosonen, M. (2010). The dynamics of strategic agility: Nokia's rollercoaster experience. *California Management Review*, 50(3), 95–118. <https://doi.org/10.2307/41166447>.
- Dubosson-Torbay, M., Osterwalder, A., & Pigneur, Y. (2002). E-business model design, classification, and measurements. *Thunderbird International Business Review*, 44(1), 5–23. <https://doi.org/10.1002/tie.1036>.
- Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *Journal of Marketing*, 51(2), 11–27. <https://doi.org/10.2307/1251126>.
- ECC (2017). CEPT Roadmap for 5G. Electronic Communications Committee of European Conference of Postal and Telecommunications Administrations, ECC(17)076 Annex 13. Retrieved November 23 2017 from https://cept.org/Documents/ecc/37374/ecc-17-076-annex-13_roadmap-for-5g-update-ecc
- Farrell, M. A., & Oczkowski, E. (2002). Are market orientation and learning orientation necessary for superior organizational performance? *Journal of Market-Focused Management*, 5(3), 197–217. <https://doi.org/10.1023/A:1022990622706>.
- Fartash, K., Davoudi, S. M. M., & Semnan, I. (2012). The important role of strategic agility in firms' capability and performance. *International Journal of Engineering and Management Research*, 2(3), 6–12.
- Fidler, R. (1997). *Mediamorphosis: Understanding new media*. Thousand Oaks: Sage Publications.
- Forkmann, S., Ramos, C., Henneberg, S. C., & Naudé, P. (2017). Understanding the service infusion process as a business model reconfiguration. *Industrial Marketing Management*, 60, 151–166. <https://doi.org/10.1016/j.indmarman.2016.05.001>.
- Frankenberger, K., Weiblen, T., & Gassman, O. (2013). Network configuration, customer centrality, and performance of open business models: A solution provider perspective. *Industrial Marketing Management*, 42(5), 671–682. <https://doi.org/10.1016/j.indmarman.2013.05.004>.
- Fransman, M. (2000). Convergence, the internet and multimedia: Implications for the evolution of industries and technologies. In: E. Bohlin, K. Brodin, A. Lundgren and B. Thomgren (Eds.), *Convergence in communications and beyond*. Amsterdam: North Holland.
- Freytag P. V. & Clarke, A. H. (2012). Understanding change in industry and business models – On the changing role of advertising agencies. Paper presented at the 28th Annual IMP Conference, Rome, Italy.
- Freytag, P. V. & Munksgaard, K. (2017): Knowledge Sharing as a Starting Point for Business Model Innovation, paper presented at the European Marketing Association Conference (EMAC), 23–26.5.2017, Groningen, The Netherlands.
- Gadde, L.-E., Huemer, L., & Håkansson, H. (2003). Strategizing in industrial networks. *Industrial Marketing Management*, 32(5), 357–364. [https://doi.org/10.1016/S0019-8501\(03\)00009-9](https://doi.org/10.1016/S0019-8501(03)00009-9).
- Gaines, B. R. (1998). The learning curves underlying convergence. *Technological Forecasting and Social Change*, 57(1), 7–34. [https://doi.org/10.1016/S0040-1625\(97\)00078-4](https://doi.org/10.1016/S0040-1625(97)00078-4).
- 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. <https://doi.org/10.1016/j.lrp.2009.07.009>.
- Gassman, O. (2006). Opening up the innovation process: Towards an agenda. *R&D Management*, 36(3), 223–228. <https://doi.org/10.1111/j.1467-9310.2006.00437.x>.
- George, G., & Bock, A. J. (2011). The business model in practice and its implications for entrepreneurship research. *Entrepreneurship Theory and Practice*, 35(1), 83–111.
- Ghezzi, A., Nogueira Cortimiglia, M., & Germán Frank, A. (2005). Strategy and business model design in dynamic telecommunications industries: A study on Italian mobile network operators. *Technological Forecasting and Social Change*, 90, 346–354.
- Ghezzi, A. (2013). Revisiting business strategy under discontinuity. *Management Decision*, 51(7), 1326–1358.
- 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. <https://doi.org/10.1007/s11206-005-9057-0>.
- Hacklin, F., & Wallnöfer, M. (2012). The business model in the practice of strategic decision making: Insights from a case study. *Management Decision*, 50(2), 166–188. <https://doi.org/10.1108/00251741211203515>.
- Håkansson, H. (Ed.). (1982). *International marketing and purchasing of industrial goods. An interaction approach*. London: Wiley.
- Håkansson, H., & Snehota, I. (1989a). No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*, 5(3), 187–200. [https://doi.org/10.1016/0956-5221\(89\)90026-2](https://doi.org/10.1016/0956-5221(89)90026-2).
- Håkansson, H., & Snehota, I. (1989b). No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*, 5(3), 187–200. [https://doi.org/10.1016/0956-5221\(89\)90026-2](https://doi.org/10.1016/0956-5221(89)90026-2).
- Håkansson, H., & Snehota, I. (1995). Relationships in business. In H. Håkansson & Snehota (Eds.), *Developing Relationships in Business Networks* (pp. 1–23). London: Routledge.
- Halinen, A., Salmi, A., & Havila, V. (1999). From dyadic change to changing business networks: An analytical framework. *Journal of Management Studies*, 36(6), 779–794. <https://doi.org/10.1111/1467-6486.00158>.
- Hargadon, A. B., & Douglas, Y. (2001). When innovations meet institutions: Edison and the design of the electric light. *Administrative Science Quarterly*, 46(3), 476–501. <https://doi.org/10.2307/3094872>.
- Haumann, T., Güntürkün, P., Schons, L. M., & Wieseke, J. (2015). Engaging customers in coproduction processes: How value-enhancing and intensity-reducing communication strategies mitigate the negative effects of coproduction intensity. *Journal of Marketing*, 79(6), 17–33. <https://doi.org/10.1509/jm.14.0357>.
- Hedman, J., & Kalling, T. (2003). The business model concept: Theoretical underpinnings and empirical illustrations. *European Journal of Information Systems*, 12(1), 49–59. <https://doi.org/10.1057/palgrave.ejis.3000446>.
- Hollebeek, L. D., Glynn, M., & Brodie, R. J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of Interactive Marketing*, 28(2), 149–165. <https://doi.org/10.1016/j.intmar.2013.12.002>.
- Jenkins, H. (2004). The cultural logic of media convergence. *Cultural Studies*, 7(1), 33–43.
- Johnson, M. W., Christensen, M. C., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review*, 86(12), 50–59.
- Kavadias, S., Ladas, K. & Loch, C. (2016). The transformative business model, Harvard Business Review, October, 91–98.
- Kavassalis, P. & Lehr, W. (2000). The flexible specialization path of the internet. In: E. Bohlin, K. Brodin, A. Lundgren and B. Thomgren (Eds.), *Convergence in communications and beyond*. Amsterdam: North Holland.
- Lee, H-U., & Park, J-M. (2008). The influence of top management team international exposure on international alliance formation. *Journal of Management Studies*, 45(5), 961–981.

- Leminen, S., Westerlund, M., & Nyström, A.-G. (2012). Living labs as open innovation networks. *Technology Innovation Management Review*, 2(9), 6–11.
- Loasby, B. J. (1998). The organisation of capabilities. *Journal of Economic Behavior & Organization*, 35(2), 139–160. [https://doi.org/10.1016/S0167-2681\(98\)00056-0](https://doi.org/10.1016/S0167-2681(98)00056-0).
- Lusch, R. F., & Vargo, S. L. (2012). Marketing Value. *Marketing News*, 46(6), 30.
- Magretta, J. (2002). Why business models matter. *Harvard Business Review*, 80(5), 86–92.
- Mahadevan, B. (2000). Business models for internet-based e-commerce: An anatomy. *California Management Review*, 42(4), 55–69. <https://doi.org/10.2307/41166053>.
- Markides, C. C. (2008). Game-changing strategies. Wiley.
- Mason, K., & Leek, S. (2008). Learning to build a supply network: An exploration of dynamic business models. *Journal of Management Studies*, 45(4), 774–799. <https://doi.org/10.1111/j.1467-6486.2008.00769.x>.
- Mason, K., & Mouzas, S. (2012). Flexible business models. *European Journal of Marketing*, 46(10), 1340–1367. <https://doi.org/10.1108/03090561211248062>.
- Mason, K., & Spring, M. (2011). The sites and practices of business models. *Industrial Marketing Management*, 40(6), 1032–1041. <https://doi.org/10.1016/j.indmarman.2011.06.032>.
- McPhillips, S., & Merlo, O. (2008). Media convergence and the evolving media business model: An overview and strategic opportunities. *The Marketing Review*, 8(3), 237–253. <https://doi.org/10.1362/146934708X337663>.
- Morris, M., Schindehutte, M., & Allen, J. (2005). The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research*, 58(6), 726–735. <https://doi.org/10.1016/j.jbusres.2003.11.001>.
- Nyström, A.-G., Ramström, J., & Törnroos, J.-Å. (2017). Conceptualizing mechanisms influencing strategizing in business networks. *Journal of Business & Industrial Marketing*, 32(6), 777–785. <https://doi.org/10.1108/JBIM-06-2015-0105>.
- Osterwalder, A. (2004). *The business model ontology: A proposition in a design science approach*, doctoral dissertation, University of Lausanne, Switzerland.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation*. New Jersey: Wiley & Sons.
- Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present and future of the concept. *Communications of the Association for Information Science (CAIS)*, 16, 1–25.
- Palo, T., & Tähtinen, J. (2013). Networked business models for emerging technology-based services. *Industrial Marketing Management*, 42(5), 773–782. <https://doi.org/10.1016/j.indmarman.2013.05.015>.
- Parolini, C. (1999). *The value net: A tool for competitive strategy*. Chichester: John Wiley & Sons Ltd..
- Pettigrew, A. M. (1997). What is a processual analysis? *Scandinavian Journal of Management*, 13(4), 337–348. [https://doi.org/10.1016/S0956-5221\(97\)00020-1](https://doi.org/10.1016/S0956-5221(97)00020-1).
- Pisano, G. P., & Teece, D. J. (2007). How to capture value from innovation: Shaping intellectual property and industry architecture. *California Management Review*, 1, 278–296.
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Inter-organizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1), 116–145. <https://doi.org/10.2307/2393988>.
- Reuters Institute (2017). Digital News Report. Retrieved July 10, 2017 from <http://www.digitalnewsreport.org/>
- Richardson, J. (2008). The business model: An integrative framework for strategy execution. *Strategic Change*, 17(5/6), 133–144. <https://doi.org/10.1002/jsc.821>.
- Rong, K., Hu, G., Lin, Y., Shi, Y., & Guo, L. (2015). Understanding business ecosystems using a 6C framework in internet-of-things-based sectors. *International Journal of Production Economics*, 159, 41–55. <https://doi.org/10.1016/j.ijpe.2014.09.003>.
- Sanchez, R., & Mahoney, J. T. (1996). Modularity, flexibility and knowledge management in product and organizational design. *Strategic Management Journal*, 17(S2), 63–76. <https://doi.org/10.1002/smj.4250171107>.
- Sandstrom, C., & Osborne, R. G. (2011). Managing business model renewal. *International Journal of Business and Systems Research*, 5(5), 461–474.
- Sandulli, F., & Chesbrough, H. (2009). The two faces of open business models. SSRN working paper series, 1–25.
- Schneider, S., & Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda. *International Journal of Innovation Management*, 17(1), 1340001 (34 pages). <https://doi.org/10.1142/S136391961340001X>.
- Schweizer, L. (2005). Concept and evolution of business models. *Journal of General Management*, 31(2), 37–56. <https://doi.org/10.1177/03063700503100203>.
- Seddon, P. B., Lewis, G. P., Freeman, P., & Shanks, G. (2004). The case for viewing business models as abstractions of strategy. *Communications of the Association for Information Systems*, 13, 427–442.
- Shafer, S., Smith, H., & Linder, J. (2005). The power of business models. *Business Horizons*, 48(3), 199–207. <https://doi.org/10.1016/j.bushor.2004.10.014>.
- Shepard, S. (2000). *Telecommunications convergence. How to profit from the convergence of technologies, services, and companies*. New York: McGraw-Hill.
- Simmons, G., Palmer, M., & Truong, Y. (2013). Inscribing value on business model innovations: Insights from industrial projects commercializing disruptive digital innovations. *Industrial Marketing Management*, 42(5), 744–754. <https://doi.org/10.1016/j.indmarman.2013.05.010>.
- Sirmon, D. G., Gove, S., & Hitt, M. A. (2008). Resource management in dyadic competitive rivalry: The effects of resource bundling and deployment. *Academy of Management Journal*, 51(5), 919–935. <https://doi.org/10.5465/AMJ.2008.34789656>.
- Spieth, P., Schneckenberg, D., & Ricart, J. E. (2014). Business model innovation—state of the art and future challenges for the field. *R&D Management*, 44(3), 237–247. <https://doi.org/10.1111/radm.12071>.
- Spieth, P., Schneckenberg, D., & Metzler, K. (2016). Exploring the linkage between business model (&) innovation and the strategy of the firm. *R&D Management*, 43(3), 403–413.
- Stewart, D. W., & Zhao, Q. (2000). Internet marketing, business models, and public policy. *Journal of Public Policy & Marketing*, 19(2), 287–296. <https://doi.org/10.1509/jppm.19.2.287.17125>.
- Storbacka, K., & Nenonen, S. (2011). Markets as configurations. *European Journal of Marketing*, 45(1/2), 241–258. <https://doi.org/10.1108/03090561111095685>.
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2/3), 172–194. <https://doi.org/10.1016/j.lrp.2009.07.003>.
- Tilson, D., & Lyytinen, K. (2006). The 3G transition: Changes in the US wireless industry. *Telecommunications Policy*, 30(10–11), 569–586. <https://doi.org/10.1016/j.telpol.2006.09.002>.
- Timmers, P. (1998). Business models for electronic markets. *Electronic Markets*, 8(2), 3–8. <https://doi.org/10.1080/10196789800000016>.

- Van de Ven, A. H. (1992). Suggestions for studying strategy processes: A research note. *Strategic Management Journal*, 13(S1), 169–188.
- West, J., & Mace, M. (2010). Browsing as the killer app: Explaining the rapid success of Apple's iPhone. *Telecommunications Policy*, 34(5–6), 270–286. <https://doi.org/10.1016/j.telpol.2009.12.002>.
- Yoffie, D. B. (1996). Competing in the age of digital convergence. *California Management Review*, 38(4), 1–35.
- Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: implications for firm performance. *Strategic Management Journal*, 29(1), 1–26.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management*, 37(4), 1019–1042. <https://doi.org/10.1177/0149206311406265>.