

## **Variation in the Use of Business Models: Essence, Levels, and Activities**

Teea Palo

*Department of Marketing, Oulu Business School, P.O. Box 4600, 90014 University of Oulu,  
Finland, teea.palo@oulu.fi*

Competitive paper submitted to the 30<sup>th</sup> IMP Conference

This study examines the ways in which business models are used by market actors in their efforts to create and stabilize business in interaction with others in emerging technology-based service context. This study is interested in the dynamic, processual, and interactive nature of business models instead of their mere structure. By integrating business models into two contemporary discussions on networks and markets, the study widens the scope of business models and explicates the variation in the use of business models. Through a longitudinal study on a service development project the paper shows ways of using of business models by market actors in developing and providing emerging technology-based service offerings. The results of the study show the multi-faceted essence of business models, the levels at which market actors use them, and the activities that market actors perform with them. This study contributes to the business model literature by integrating notions from the network approach and market studies literature. The study also contributes to the network approach by explicating the nature and formation of business nets, and adds to our understanding of market dynamics.

**Keywords:** Business model, market actor, business net, market, technology-based service

## Variation in the Use of Business Models: Essence, Levels, and Activities

### INTRODUCTION

Companies that develop technological innovations often face difficulties in turning them into service offerings and connecting them with markets. These difficulties often result from the multitude of actors needed in the provision of the service, and the complexity of organizing business among them. This study examines the ways in which business models are used by market actors in their efforts to create and stabilize business in interaction with others. This study is interested in the dynamic, processual, and interactive nature of business models instead of their mere structure.

Despite the valuable contributions in the business model research regarding the concept and the more recent efforts to understand the dynamic nature of business models, gaps remain in our knowledge of the use of business models. Much of the existing business model research considers business models as something that companies innovate and transform (e.g., Chesbrough 2010, Teece 2010), and in the end, own. Despite its credits, this is a rather limited view on the essence of the business model concept. Furthermore, the use of business models in the activities of market actors has not been thoroughly examined. The present study examines business models in the making instead of existing business models. Hence, a business model is conceptualized not as an outcome of a process but as a device that is put into practice (see Kjellberg & Helgesson 2007) in emerging technology-based service context.

Business models have rarely been positioned within the marketing domain. Although research on business models draws ideas from a wide range of areas, the business model concept has yet to receive widespread attention in the marketing discipline, though the concept could enrich discussion on marketing (Nenonen & Storbacka 2010). Marketing scholars have engaged the business model concept only to a very limited degree; however, marketing researchers, especially in industrial marketing, could learn from the business model literature, and vice versa (Coombes & Nicholson 2013). In this study, business models are elaborated within the industrial network approach and the market studies approach.

By integrating business models into two contemporary discussions on networks and markets, the study widens the scope of business models and explicates the variation in the use of business models. Through longitudinal empirical research the paper shows ways of using of business models by market actors in developing and providing emerging technology-based service offerings.

The results of the study show the multi-faceted essence of business models, the levels at which market actors use them, and the activities that market actors perform with them. Business models can be used as structures and narratives to develop and stabilize business. Business models also frame action at different interlinked levels (organization, net and market) in which business models become shared among actors. This study contributes to the business model literature by integrating notions from the network approach and market studies literature. The study also contributes to the network approach by explicating the nature and formation of business nets, and adds to our understanding of market dynamics.

The paper is structured as follows. First, literature on business models, networks and markets is reviewed, following a conceptual framework of the use of business models. After presenting the methodology and the service development project, the empirical findings of the study are discussed. The paper concludes with theoretical and managerial implications, discussion of limitations and future research avenues.

## LITERATURE REVIEW

### Business models

The extant business model literature draws from and integrates a range of disciplines (Chesbrough & Rosenbloom 2002, Shafer et al. 2005). It has evolved since its very early emergence in the academic literature (Bellman et al. 1957, Jones 1960), and it saw explosive growth during the dotcom boom.

Much of the literature has focused on defining the business model concept and identifying different types of building blocks, components, or elements of business models. Doganova and Eyquem-Renault (2009) call this as an essentialist view of business models that provides simplified descriptions of companies. Such definitions share a common view of the business model concept, namely, a description or representation of reality beyond the firm. Following this stream of literature, many scholars have reviewed business model definitions, presenting classifications of business model elements while attempting to make sense of the wide range of literature (see e.g., Hedman & Kalling 2003, Morris et al. 2005, Nenonen & Storbacka 2010, Osterwalder et al. 2005, Shafer et al. 2005). One of the most known classifications of the business model elements is that of Osterwalder et al. (2010), who presented the business model canvas which is being widely used in business consulting. Another and more recent approach, drawing on the extant business model literature is the business model framework developed by Mason and Spring (2011), who identify three widely used elements of a business model: technology, market offering, and network architecture.

Put simply, a business model is a model of a business. The essence of business models has much revolved around the word ‘model’. It often creates images of Excel sheets with complex mathematical formulas. Hence, the business model concept has been used irreplaceable with terms such as revenue logic or model. However, there is a flipside to this view. The notion of business model “*refers in the first instance to a conceptual, rather than a financial, model of a business*” (Teece 2010: 173). Business models are much more than just models in a traditional sense. The functions of a business model are multifold: to articulate the value proposition, identify the market segment, define the structure of the value chain, estimate the cost structure and profit potential, describe the position of the firm within the value network, and formulate the competitive strategy (Chesbrough & Rosenbloom 2002). As Magretta (2002: 86) states, “*a good business model begins with an insight into human motivations and ends in a rich stream of profits*”. Hence, in addition to conceptualizing models merely as formulas, diagrams, or ‘structures’, it is important to consider what models can do.

Morgan (2001) discusses the relation of models to the world. She considers ‘stories’ to be an essential part of how models are used. For a model to explain or describe the world, it needs a story to explain how it works and what it can do. In line with this concept, Magretta (2002: 87) considers a business model to be a ‘story’ explaining how a business works, with specific characters, plausible motivations, and a plot. Therefore, the identity of the model is determined by not only its structure but also the questions that we can ask and the stories that

we can tell with it (Morgan 2001). Hence, models have a dual character as stories (or narratives) and structures. Doganova and Eyquem-Renault (2009: 1567) discuss business models as boundary objects made of narratives and calculations that are complementary: “*the narrative draws a world and justifies the selection of entities to be taken into account; the calculation detaches and associates these entities to create new ones, which are then stabilized and transformed into the characters of the story told*”.

Focus has shifted toward business model development and innovation (see e.g., Chesbrough 2010, Teece 2010). Scholars have addressed the dynamic nature of business models as devices to explore the market (Doganova & Eyquem-Renault 2009), to shape, coordinate (Mason & Spring 2011) and frame action (Mason & Palo 2012), and to address change and focus on innovation (Demil & Lecocq 2010). Following this line of argument, the conceptualization of business models focuses more on what business models can do instead of what they can describe. Baden-Fuller and Morgan (2010) consider business models to have a multifaceted character: they enable us to classify businesses in taxonomy, and they may function as models in the scientific sense or as formulas for managers and scholars. In this study, a business model is conceptualized as a device in contexts of uncertainty (Doganova & Eyquem-Renault, 2009), such as technology-based service markets, and in nets of market actors to coordinate and mobilize action (Mason & Spring 2011; Mason & Palo, 2012).

#### Business models within networks and markets

Most of the definitions of business models found in the extant literature adopt a firm-centric view of business, focusing on intra-organizational factors and external elements from the perspective of the firm. Business models are based on the idea of developing, producing, marketing, and selling a product by oneself (Chesbrough & Schwartz 2007), and hence, business models are considered to be centered on a particular actor (Amit & Zott 2001). Although networks have been identified as a key element of business models (Shafer et al. 2005, Tikkanen et al. 2005, Timmers 1998, Weill & Vitale 2001), these kinds of conceptualizations often provide a description of the firm at a single point in time and fail to show the power of business models to bring about change in the network (Mason & Spring 2011).

A business model can provide an even broader conceptualization for capturing the evolution of value creation from individual firms to networks (Nenonen & Storbacka 2010, Zott & Amit 2008). Business models can be considered as tools for forming the network for a new innovation or venture (Doganova & Eyquem-Renault 2009). The level of business model use now shifts from individual actors to a network or a net of actors.

The Industrial Marketing and Purchasing (IMP) group, also known as the industrial network approach (INA), has done extensive work in understanding business relationships and networks in industrial markets. It has been acknowledged that a network is a source of ideas as well as a vehicle for the transmission of ideas in innovation (Håkansson & Snehota 1989). The outcome of companies' innovation activities depends how they are connected to the activities of other companies in socio-technical structures (Håkansson & Lundgren 1995). When introducing new technology, the originator of the new product technology may not possess the skills to produce or to market and sell the application, and hence, it needs to assess which skills it will develop by itself and which skills it will rely on others to obtain (Thomas & Ford 1995). Gemünden et al. (1996) acknowledge the need for different types of actors contributing specific resources and know-how for companies' innovation processes.

Indeed, the development of competitive offerings in ICT markets often requires a coalition among platform and service providers, and hence, building a network is critical (Partanen & Möller 2012). Therefore, innovation and business development are interactional, networked, and systemic phenomena in today's networked economies (Håkansson & Olsen 2012). Although R&D networks and innovation networks have been studied to some extent (e.g., Heikkinen et al. 2007), research on networks in commercializing innovations is still scarce (Aarikka-Stenroos & Sandberg 2012).

Möller and Rajala (2007) discuss emerging business nets that develop and commercialize new technologies, products, or business concepts, and classify them into three categories. First, innovation nets are mainly loose science- and technology-based research networks consisting of universities, research institutions, and research organizations of corporations. Second, in dominant design nets companies try to create dominant technological designs to favour their positions in the field. Third, application nets are formed to achieve commercially viable business applications out of the evolving technology. These nets are mostly driven by a hub firm and involve a web of component, software and other technology providers and pilot customers.

The concept of the focal net has also been used to refer to the dyadic business relationship and its immediate business network, including direct and indirect relationships (Alajoutsijärvi et al. 1999). A focal net consists of those actors whom the management of the focal actor considers to be relevant and within the network horizon (Möller & Wilson 1995, Möller & Halinen 1999). A focal net mediates 'macro' forces, such as technological changes, on individual actors and mediates the effects of the actions of actors or dyads on the greater network environment (Möller & Halinen 1999). Ritter et al. (2004) use the term value net to refer to the relationships in which the focal firm is a direct participant, e.g., with customers, suppliers, competitors, and complementors, including inter- and intrafirm relationships.

The complexity of technologies has forced companies to cooperate with competitors and other actors, such as governmental agencies, universities, and research institutions (Möller & Halinen 1999). Relationships can be formed among corporate units, independent organizations, and entrepreneurs (Piercy & Cravens 1995). Gemünden et al. (1996) identify the most important types of innovation partners and their contributions to an actor's innovation activities. In addition to buyers and suppliers, potential partners may be research and training institutes, competitors, distributors, consultants, co-suppliers, and administrations.

This study focuses on business nets that contain a specific set of actors aiming to develop, produce, and market emerging technology-based services. Single companies often lack sufficient resources to commercialize a new offering. Consequently, the resources of other actors in the net facilitate both the development and commercialization of innovations (Aarikka-Stenroos & Sandberg 2012). The business net concept considers the net to be intentionally formed, with a limited number of parties involved, but it is still a new and emerging net that is formed to develop, produce, and market emerging technology-based services (Möller et al. 2005). Such an emerging net may evolve and change during the process of developing the service and commercializing it, becoming a more stable business net. To understand how market actors can connect an emerging technology-based service with a market, the formation of the net of actors who develop, produce, and market such services and the ways in which the actors can coordinate and mobilize others in the net need to be taken into account. The business model can be a useful device in this.

Failures to connect emerging technology-based services with markets are common (e.g., Lundgren 1995, Srinivasan 2008, Teece 2010). The changing character of markets from market transactions and short-term dyadic relationships to long-term relational exchanges and networks has been affected by, among other factors, technological development (Möller & Wilson 1995). A more recent stream of literature on market dynamics is that of the market studies (e.g., Araujo et al. 2010, Kjellberg & Helgesson 2007, Kjellberg et al. 2012). The market studies literature calls for a refocus regarding the conceptualization of a market (Mason 2012) and examines markets in the making rather than existing markets (Kjellberg & Helgesson, 2007). *“Markets are not, they become”* (Kjellberg et al. 2012: 220). This is especially true in the emergence of new technology and related services.

The basic assumption has been that customers are to be identified in existing markets, whereas a more interactive approach calls for constructive segmentation to shape the market and thus expand the view of descriptive aspects to include constructive aspects (Harrison & Kjellberg 2010). Construction is the key in market studies. According to Araujo (Araujo 2007:212), *“the construction of markets is an accomplishment that depends on the mobilization of varying bodies of expertise and calculative agencies, including marketing practices”*. It can be assumed that markets are constructed by multiple market actors trying to influence the actions of others in the market. Callon and Muniesa (2005: 1230) define markets as *“collective devices that calculate compromises on the value of goods”*. Market actors need to create enough stability and shared understanding to enable the actors to change the market. Thus, market practices can be considered as attempts to institutionalize but at the same time reshape existing arrangements (Araujo 2007) for changes to take place.

In the market studies literature, markets are conceptualized as being constituted by practice (Kjellberg & Helgesson 2006, Kjellberg & Helgesson 2007) and are thus continuous results of market practices (Kjellberg et al. 2012). This way, markets take on a variety of forms (Araujo et al., 2010; Kjellberg et al., 2012) as a result of the multitude of practices shaping markets (Kjellberg & Helgesson, 2006). Therefore, there is no stable set of dimensions that can describe a market (Araujo et al., 2010) but markets are dynamic.

Processes and devices through which markets are shaped, such as business models, need to be elucidated (see Kjellberg et al. 2012). The business models that the market actors hold are translated into market-shaping practices (and vice versa). Through business models market actors can also imagine future markets and make them a reality. Srinivasan (2008) also calls for ‘market experimentation’ devices. This study argues that business models can be used by market actors to anticipate emerging opportunities and threats in the market and, accordingly, to plan and shape the future market in cooperation with other market actors.

#### Variation in the use of business models

Emerging technology-based services provide a contextual premise for this research. Technological development presents various challenges as well as opportunities for actors embedded in today’s society, economy, and markets. Indeed, the traditional ways of ‘managing’ markets may no longer work; instead, new types of ‘market management’ or ‘marketing’ activities are needed in developing and commercializing technological innovations. The technology-based service market as conceptualized in this study is ‘in the making’ (Kjellberg et al. 2012). Technology-based service markets are socially constructed by various market actors engaging in market activities (Storbacka & Nenonen 2011). Such

actors form smaller business nets (Möller & Rajala 2007) consisting of actors who develop, produce, and market specific technology-based services. The net evolves from the development or application phase into a viable business net. The net is considered strategic, with common objectives and intentions, and may involve different types of market actors (e.g., companies, investors, regulators, and research institutions).

Because the actors only have vague ideas of the future market, devices are needed to plan business for a novel technology. Business models are suggested to be used by market actors in the market and the business net (Chesbrough 2007, Doganova & Eyquem-Renault 2009, Mason & Spring 2011). This study suggests that business models have agency to shape the actions within the organization as well as the actions of others outside it (see Kjellberg et al. 2012). Business models can be put to work as frames for action in ways that shape markets (Mason & Palo 2012). The power of a business model is dependent on the ability to present compelling interpretations of the meaning of markets (Storbacka & Nenonen 2011).

Based on the theoretical understanding, business models are not only static descriptions but also dynamic and hence can be altered to change the actions of market actors. Business models are disassembled into different elements, which can be reassembled in different ways. Such elements are interrelated and influence each other. Because the elements are interwoven, business models are also narratives telling a story about how the elements fit together. Although business models are traditionally conceptualized to be focused on a single firm, they can also be networked, interlinked and shared by actors at multiple levels: the organizational level, the business net level and the market level.

## METHODOLOGY

The present study is qualitative and employs an ‘integrative’ multi-method approach that enables a holistic and longitudinal examination of the phenomenon (see Gilmore & Coviello 1999). The different methods employed in the study provide flexibility in examining different aspects of the phenomenon in its context. Being interested in the dynamic, processual, and interactive nature of business models, the study employs a research approach that allows the phenomenon be studied closely, longitudinally, and within its context (Das 1983, Gilmore & Coviello 1999). An abductive research strategy (see e.g., Dubois & Gadde 2002, Kovács & Spens 2005) guides the use and role of theory and empirical elaboration in answering the research problem of this study.

A key dimension in the research strategy of this study is temporality, and the research is therefore longitudinal. The emerging technology-based services that were examined at the time of conducting this study were not yet commercialized but had been developed and tested in UBI service pilot. Planning and preparing for the future is critical for the commercial success of services. Hence, understanding the moment at which the services were developed and tested was determined based on their history and future (Halinen & Törnroos 1995: 493). The notion of time has been acknowledged to be a key factor in understanding the interactions between market actors and the development of markets (Araujo & Easton 2012, Halinen & Törnroos 1995, Halinen et al. 2012, Medlin 2004, Peters et al. 2012). This study adopts a relational notion of time (Halinen & Törnroos 1995). Accordingly, time includes the past, present, and future and relates to specific cultural and contextual settings. Actors are at the intersection of the past, present, and future (Araujo & Easton 2012).

Medlin (2004: 187) conceptualizes future time as “*composed of many possibilities, each of which shapes the present to some degree and in turn the new possible futures. That is, future time is forever changing and unfolding as present time streams past*”. Because the future is still unknown, we need to examine the possible agency of the actors (Peters et al. 2012). The different actors attempt to bring about particular versions of the future to shape action and mobilize resources to make that future a reality (Araujo & Easton 2012). As this study argues, one device for achieving this goal is the business model.

To incorporate the notion of temporality in the research design, a longitudinal research approach is adopted. This approach allows for the understanding of the researcher to develop throughout the research process, building upon what has been learned during the process (Gilmore & Carson 1996). The researcher has been involved in the project in which the data have been collected for altogether two years, and has continued following the progress of further development work until today. The role of the researcher has been that of an observer instead of an active participant in developing and steering the work in the project.

Hence, the data were gathered using a variety of methods, which are summarized in Table 1. Data collection methods such as interviews, observation, and questionnaires (with open-ended questions) were used. In addition, a large amount of archival data were collected. The data were collected at two key stages of the research process and combine retrospective, follow-up, and future data. The data collection took place during the research project in which the researcher was involved in 2008-2009.

**Table 1. Multi-method approach of the study.**

	Stage 1	Stage 2
Method	Delphi method and scenario technique, observation	Interviews, observation
Purpose of using the methods	To gain market actors' perspectives on the business model concept based on their experiences in different service markets	To follow market actors' activities and gain their experiences and expectations in connecting the ubi services under development with a potential market
Focus of the analysis	Analysis of the perspectives (views and ideas) on the business model concept and its use in planning future scenarios	Analysis of the changes and activities in the service development net through the business model concept
Primary data	2 Delphi-questionnaire rounds	12 interviews with the representatives of the actors in the service development net
Secondary data	Notes and memos of project meetings, discussions with the project researchers	Notes and memos of project meetings, project reports, discussions with the project researchers  Web-pages and brochures of the actors in the net  Pre-interview with a start-up company from a similar project

The data collection started with a Delphi-study to obtain diversified views on the concept of business model, not only based on the literature review but also from managers working with business models in practice. The Delphi method is concerned with utilizing experts' opinions in a structured communication process, which effectively allows a group of individuals to address a complex problem (Linstone & Turoff 1975). Two online questionnaire rounds were conducted that consisted mainly of open-ended questions. The first questionnaire round involved two expert panels. Panel 1 consisted of representatives of the project partners, and panel 2 consisted of managers who were mainly from service industries (e.g., advertising, consulting, and e-business). These managers were used to acquire a more holistic understanding of the general practice of business models in service business. The preliminary



results of the first round were presented to the experts during the second round, which had been developed based on the data. The second questionnaire was sent only to Panel 1, as the focus had been narrowed to technology-based services. After the Delphi study, a scenario planning technique (Moutinho et al. 2002, Schoemaker 1991) was employed to form alternative business model scenarios for a specific ubiquitous service developed in the project.

During and after the UBI service pilot, 12 experts involved in developing, testing, and commercializing new technology-based services were interviewed. The interviewees represented eight different actors from both business and non-business organizations involved in the service development net (Table 2).

**Table 2. Interviewed actors in the service development net.**

Actor	Role	Interviewee	Date and duration
Device manufacturer	Manufacturer of mobile devices	Senior Technology Manager	30.6.2009 1 h, 05 min
Municipality	The city in which the infrastructure was built	Project Manager Information Management Expert	1.7.2009 1 h, 15 min 18.8.2009 40 min
Media broker	Supplier of electronic information channel services	CEO	21.10.2009 1 h
Research project (university)	Project leader in developing and testing the ubi services	Project Manager Account Manager	17.6.2009 55 min 14.10.2009 1 h, 5 min
Operator	Provider of telecommunications services	R&D Manager R&D Manager Business Development Manager	6.7.2009 1 h 7.7.2009 35 min 11.8.2009 1 h
Non-profit development organization	Development partner focusing on regional economic development in high technology	Project Manager	17.8.2009 1 h, 10 min
Development and testing network	Provider of a testing environment for mobile technologies and services	Manager	17.8.2009 1 h, 05 min
Media house	Publisher of a major newspaper	Manager, digital business	14.10.2009 55 min

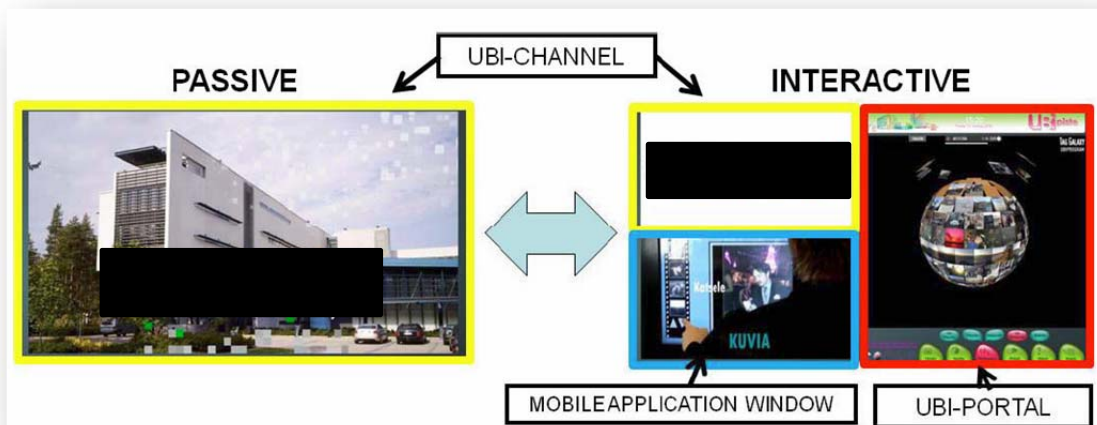
In addition to the interviews, observations were made throughout the project. The researcher attended monthly project meetings and seminars involving the net. Participant observation was conducted in business meetings in which the future commercialization of the ubi service infrastructure was discussed. An interview with a company in the field of mobile solutions and information management was performed to gain a pre-understanding of the use of business models in commercializing new technology-based services.

## UBI SERVICE PILOT

### Background on the service development project

The project group, also referred to as a service development net consisting of research organizations, companies, and non-business actors, deployed a new and ubiquitous service infrastructure and developed novel ubiquitous (UBI) service applications. Although not all actors in the service development net were from a technology-based industry, they had important roles in developing and producing the services (e.g., as content providers). In the project, a Living Lab approach was taken so that users could participate in the design of the proof of concept pilots, which were then empirically evaluated by conducting field trials in real-life settings and with real end users. Assorted services were integrated into large-scale pilots presented to the general public. The first UBI service pilot was organized during the summer of 2009 in a local city centre in Finland. In the pilot, the city centre represented a smart urban space where a new computing infrastructure was built.

The ubi infrastructure consisted of several ‘hotspots’ at the city centre, which were interactive displays. The service applications developed and tested in the pilot can be divided into three groups (see Figure 1). First, the *ubi-channel* represented a digital signage service including commercial as well as non-commercial communication on the hotspots (e.g. advertising of the city events). Second, the *ubi-portal* (a web-portal with touchscreen browsing on the hotspot) included various information and social networking applications. Third, *mobile applications* required the users to register and get an ubi-key, an RFID tag paired with a smart phone. This way they could manage the hotspot by showing the ubi-key to the reader in the hotspot and using their phone.



**Figure 1. UBI service categories.**

The ubiquitous service infrastructure and service applications developed and tested in the UBI service pilot represented emerging technology-based services, which were not yet available in the market, but their future potential and markets were to be explored. The users testing the services in the city centre did not have previous experience using such services, and there were no clear business models for the future, after the project’s end. Therefore, the pilot represented a unique empirical setting for following the use of business models in a net of actors that is aiming to connect emerging technology-based services with a future market.

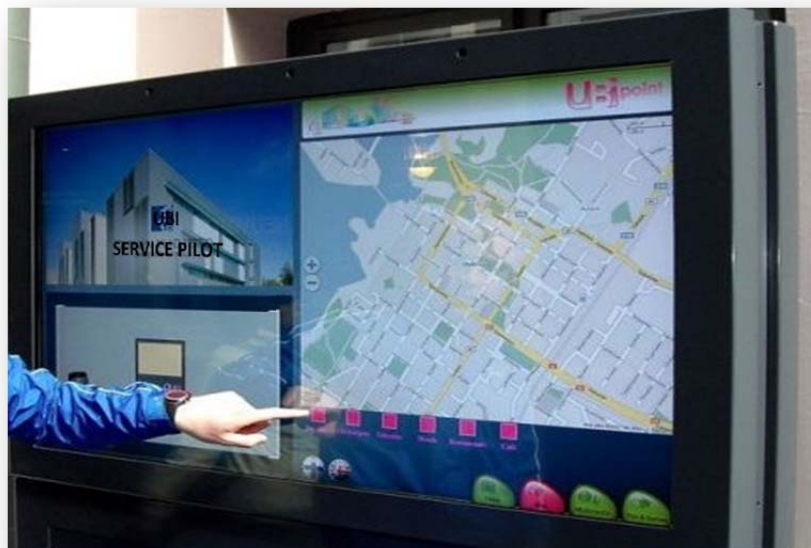
#### Implementation of the service development project and the pilot

The project was funded by the government which had a special funding program for developing and piloting embedded IT solutions. The project was led by the university-based project group, with a management group consisting of representatives from all project partners (research organisations, companies etc.). This way, all actors in the service development net were involved in steering the work.

The project started with an emphasis on the technology and application (demo) development. At this stage, all actors in the net were involved in brainstorming, ideating, and testing the first versions of the demos. Also end users (citizens, university students) were involved in brainstorming: two ideation workshops were held at the university (April 2008) for students to generate ideas for the service applications. In addition, mock-up displays were presented to citizens at the city centre (Sep 2008), which they had the possibility to comment. Citizens also had the possibility to take part in a contest, in which they wrote stories of a ubiquitous city in

year 2020, envisioning the use of the ubi infrastructure and services. Based on the ideas received from involving different groups of actors in the brainstorming phase, the university-based project group were responsible for developing and prototyping the service applications. The other actors in the service development net did give input on the design of the applications.

The university-based group was responsible setting up the infrastructure at the city centre. In planning the locations of the hotspots, the role of the municipal organisation became crucial. They needed to approve the locations, which was preceded by formal meetings with the city architectures and other city representatives. Altogether 11 UBI hotspots (see Figure 2) were installed inside the city buildings as well as outdoors (May-June 2009). The media broker took care of the ubi-channel by collecting and organizing the content (commercial and non-commercial content from local companies and the city). In the ubi-portal the content was provided by the media house (information service) in addition to the applications developed by the university-based research group.



**Figure 2. UBI hotspot.**

During the pilot (June-August 2009) end users (citizens, tourists, etc.) tested the service applications. They had the possibility to register and collect an ubi key and a smart phone provided by the device manufacturer from the field trial office to use the mobile applications. Other applications in the ubi-portal could be used without the registration. The built infrastructure triggered much attention among the citizens and the media. The project group organized walks around the city centre showing how to use the hotspots. There were altogether over 40 000 sessions at the ubi hotspots registered during the pilot. However, only 80 test users registered and picked up the ubi key and a phone from the field office. At the start of the pilot, there was some bad publicity in the local newspaper presenting criticism towards the pilot and whether the built infrastructure represented ubiquitous computing at all.

During and after the pilot, the infrastructure and the tested service applications were evaluated based on the feedback from the users and observation data. For example the scale and content of the service offering was seen too fragmented by many in the service development net without a clear service innovation. Also the use of the services was partly explained by the

curiosity of the citizens, but maintaining their interest towards the services would be a challenge after the pilot.

Discussion also continued during and after the pilot concerning the future of the infrastructure. The project group had applied further funding to be able to continue the research and development work. Also an account manager was recruited by the project group to sell the ubi-channel to companies once the pilot would be over to gain funding for the maintenance of the infrastructure. A key challenge recognised among the actors in the service development net was finding an actor, be it an entrepreneur, start-up, or an existing company to take responsibility for the maintenance of the infrastructure and selling of the 'space' in the hotspots for companies to provide their services and content.

Currently the ubi infrastructure is still working at the city centre, maintained by the university-based project group and the municipal organization. The hotspots have become part of the everyday cityscape. Commercial content as well as different kinds of announcement of city events are run on the displays. In addition, even digital art exhibitions are shown on the displays. Overall the service offering has been modified into specific categories including news and information services, services provided by the municipal organization, games and multimedia services, as well as commercial web services provided by 3<sup>rd</sup> parties.

## FINDINGS

### Essence of business models

In the UBI service pilot, the actors in the service development net looked for the right kind of a business model for the ubi infrastructure and applications. Hence, they tried to find the right business model elements: they had the technology, but they faced difficulties in building the network architecture and determining the market offering for the future market. As one of the managers told,

*“The roles and responsibilities need to be defined. Who is responsible for the infrastructure? In what roles or [by what] agreements can actors produce their own services?”*

Despite these difficulties, the university-based project group, in collaboration with the other actors, managed to tell a compelling story of the elements and their relations to the governmental financing body in applying for funding in the first place for the project, and also at the end of the pilot gaining further funding to continue the maintenance as well as the research and development work on the built infrastructure. Hence, the business model can be perceived as a structure and narrative. In addition to determining the elements of a business model - the structure - it is important to understand the relations of the different elements. By unpacking and reassembling business model elements in different ways, a business model can tell narratives of how a business works or should work and thus create a shared understanding among actors. Market actors, companies, research institutes or financing bodies, look for the 'right' business models in developing and marketing new technology-based services and describing the elements of business models, but at the same time they tell stories to different groups of actors about how these elements fit together (i.e., a business model can be a structure or a narrative of a desired future state of business to persuade other market actors to, e.g., invest in a business).

The perspective of the actors in talking about the business model was strongly future oriented. Still, the current business models of the actors influenced their ideas of the potential future. The potential opportunities of the infrastructure were viewed differently by different actors: a device manufacturer emphasized the potential uses of terminal devices, whereas the media house saw the infrastructure as a new communication channel, and the provider of the development and testing network the importance of research and testing possibilities. This way a business model in the present is used to learn from past experiences as well as plan for the future. This study shows that business models are temporal; they incorporate past, present, and future time perspectives. The temporal notion was incorporated e.g. in the network architecture element of the business model concerning the roles of the actors in the business model:

*“Sometimes when the [mobile] phone operations started, there was a clear division of the territories that each (operator) had. It has been a sacred thing to stay in one’s own land and not to go onto the neighbor’s territory. Now this kind of division will not be so clear in future, but the same actors can act at every level. One doesn’t need to think so carefully where the line is.”*

Business model as a structure can represent snapshots at different points in time, and as a narrative it can describe the evolution in time. In this case the actors tried to vision the future business model (snapshot of the structure) e.g. by discussing the need of a possible new actor as the operator of the infrastructure, or an existing actor taking the responsibility. However, they had difficulties in telling the story of how that future structure of the business model would be realized.

The actors envisioned a business model primarily for the service infrastructure instead for themselves although this incorporated the need for a focal actor. As one of the actors told,

*“The roles need to be determined, that is, who is responsible for the infrastructure, and on what principles the actors can continue the development work, and in what roles they can produce their own services.”*

However, the business model being built for the infrastructure is networked among various actors. This is another characteristic of business models. A business model is not merely internal to a company but external. Business models are networked by being interlinked with the business models of others as well as for being shared by market actors internally and externally. A networked business model is a device that creates a shared understanding among the market actors with a structure or a narrative, e.g., concerning their roles and activities in the net, the service offering, and their relations to each other and to the networked market.

#### Levels in which business models are used

Related to the networked characteristic of business models, market actors use business models at different levels of business in emerging technology-based service context. The emerging technology-based service and service infrastructure are the key elements in the business model – determining what kinds of actors are needed to develop, produce and market the service.

The actors did not only think of their own business, but they saw the importance of interaction and cooperation in developing business for the ubi infrastructure and service. The future business model was used to discuss problems and possibilities, circulate ideas and envision

business opportunities among the actors in project meetings and seminars. One of the interviewees summarized it as following,

*“It is good to have all these kinds of visions for which to reach, but if we know how to be sensible and exchange our views about things and change opinions, and turn to new directions, then we are strong.”*

Furthermore, the level of the market was relevant in the discussions of the actors. Business model is not only used at the level of the net, but further at the market level to understand and shape the market for the ubi infrastructure and service offerings. Hence, it was not only the actors of the service development net who were enrolled in the development and envisioning work, but also the end users including citizens, groups of students, and tourists, using and testing the service applications. In addition, the local companies were enrolled with the current business model to advertise their offerings whereas even local artists could use the infrastructure in the form of digital art exhibitions. One of the managers told,

*“I see the pilot providing the opportunity to test if the user wants to adopt something. It greatly supports the service development. And once a certain group has accepted it, it can be widely distributed.”*

Hence, business models were used during the service development and service pilot to enrol actors in and outside the service development net, and also to envision the potential future business net and market for the ubi infrastructure and service offerings. This was not unproblematic, e.g. when the local newspaper published negatively oriented articles on the pilot arising bad publicity and discussion among the local actors and citizens. However, the business model use has continued to shape the net and the market until today by receiving financial support by the municipal organisation and governmental financing institutions.

Hence, business models are also used at other levels besides that of the single firm. Business models are used at the business net and market levels where market actors form business nets and take actions to shape a market. A business model analyses the market actors, their roles in the net, the activities between the actors, and the technology-based services and their market. Thus, a business model is not only internal to a company but also embedded in the net and the market. The different levels are interrelated and need to be understood to facilitate the use of business models.

#### Activities in which business models are used

Market actors perform different kinds of activities with business models. Business models are used to develop and stabilize business. In the UBI service pilot, the emphasis was on developing future business of the ubi infrastructure and services for multiple actors. The pilot was an opportunity to do this, as one of the managers described:

*“Those actors who are looking for new business in that sector, have at least been provided with the possibility to go and try service provision in that kind of environment. To experiment what their business could be.”*

In addition, the business model development itself was emphasized:

*“Although there is the technology, there are the devices and even the infrastructure, inventing the business models atop this kind of a platform is hard, hard work, and then making them interesting to realize, and making the [value] chain work so that there could be various actors doing business.”*

During the project, business was also temporarily stabilized e.g. to get financial support from the funding institutions. In addition, the pilot itself was a form of a stabilizing space for the actors to see potential business and market opportunities, which could be developed further.

At the level of the net, business models are useful to form and coordinate actions of actors to develop, produce, and market an emerging technology-based service. In the UBI project the business model was used in envisioning the potential actors for the future business, as well as creating a shared understanding in the net of what needs to be done, e.g., in identifying and developing a business opportunity in the market. As put by one of the city representatives, the aim was to:

*“...support business life, so that based on new innovations that rise, that can be commercialized, we are able to create new entrepreneurs, entrepreneurship and then of course get new export products.”*

Moreover, business models are useful in markets. The actors saw the technological development in the project and the pilot itself as a step towards bridging the gap between the digital and physical worlds changing the end customers' behaviour and processes. Hence, the market would be shaped and even innovated through changes in people's activities, instead of radically new technological development:

*“Yeah, I see the added value in the changing world, it becomes more technology-oriented, but at the same time the new technologies need to be harnessed for them to stay alive, as a new way to live this life.”*

The pilot provided a space to experiment in the market with the business model: the actors saw innovation in the market (changing the way people act) instead of technological innovation. Hence business models are useful for market actors to experiment in a market and to shape a market for emerging technology-based services by creating a shared understanding of a future market.

## CONCLUSIONS

### Theoretical contributions

This study has examined the use of business models, and makes four key theoretical contributions. First, this study contributes to the business model literature by integrating the business model concept into the network approach and market studies literature in marketing, revealing novel perspectives on business models. This study shows there is synergy between business model research and the marketing discipline. Hence, business models and their use can be understood more thoroughly by drawing on the above-mentioned discussions in marketing. As has been noted in previous studies, the business model literature lacks an intellectual home (Teece 2010), and there have been limited attempts to integrate the concept into the marketing discipline (Coombes & Nicholson 2013, Nenonen & Storbacka 2010). This study is among the first to address these issues (see e.g., Mason & Spring 2011, Storbacka 2011), with the explicit aim of understanding the use of business models in marketing. The study shows that business models are useful analytical devices for understanding the formation of business nets and market dynamics. This way the study complements the limited understanding of business models as market and network devices (Doganova & Eyquem-Renault 2009, Mason & Spring 2011).

Second, the study contributes to the business model literature by explicating the concept of business model. Recently, the focus in business model research has shifted toward business model innovation and development (e.g., Chesbrough 2010, Johnson et al. 2008, Teece 2010). Despite these valuable insights on the dynamic and changing character of business models, scholars and practitioners still focus much on whether the development of a business model was successful or not when explaining failures or successes in commercializing new technology-based innovations. Only a very limited amount of research has been directed toward the practice and use of business models (Doganova & Eyquem-Renault 2009, Mason & Spring 2011) in explaining such failures or successes. This study enriches this understanding by revealing the flexibility of business models as structures and narratives, with temporal and networked characteristics. Business models can be used differently at different levels in different activities.

Third, this study contributes to the network approach by explicating the nature and formation of business nets by examining the use of business models in business nets. This study identifies a device that actors can use in coordinating and shaping the actions of others in the net. Previous studies have considered emerging business nets as dynamic, characterized by radical and discontinuous changes (Möller & Rajala 2007). Adopting the dynamic view of networks and nets, this study suggests that a business model can function as a device in creating a net and supporting its evolution toward becoming a viable business net. As a business model is developed and shared with others, e.g., customers, suppliers, and users, they can be enrolled and mobilized into coordinated actions. By reproducing the business model, a shared understanding of the future intentions may be created in the net to develop, produce, and market the emerging technology-based service.

Fourth, the study contributes to the market studies literature. The study adds to our understanding of market dynamics by incorporating the business model concept. Instead of viewing markets as existing, ready to be identified for new technology-based services, this study has adopted a more dynamic view, with an emphasis on the future: future markets need to be imagined and innovated. For future markets to be realized, the markets need to be shaped. Thus, this study complements the work of the market studies group (e.g., Araujo et al. 2010, Araujo 2007, Kjellberg & Helgesson 2007, Kjellberg et al. 2012) by showing, at least partially, that by employing a business model as an analytical device, we can better understand the ways in which markets are shaped. By sharing business models, actors can temporarily stabilize the relationships between them to enable them to imagine a future market and plan their future intentions.

### Managerial implications

This study offers managerial implications for companies and managers operating in dynamic and uncertain markets, such as in the field of technology. As has been noted, the business model concept is often used in everyday business to refer to a variety of issues such as business plans, business concepts, and revenue logics. Furthermore, business models have been widely acknowledged to be a key factor determining the success or failure of companies, especially in technology related fields because of the rapid technological developments. However, instead of giving managers formulas for building the 'right' type of business model for emerging technology-based services to turn the technological applications into growing profits, this study provides a more profound understanding of the possibility for companies and their business nets to use business models.



This study furthers managers' understanding of the concept of business models. It is not enough to have the 'right' type of business model or to transform or develop a 'successful' business model; managers must also understand the ways in which they can use business models in planning and conducting business in dynamic markets. A business model and its elements, however they are defined, provide one type of device for companies to manage their business. By analysing the business according to the different business model elements, managers can identify strengths and weaknesses in the business and the net. In addition, by disassembling and reassembling the business model elements in different ways, managers can experiment with different types of business scenarios. Examining the connections between the business model elements is another way of understanding the dynamics of business models: a company's business model is not a static model of the business or the net but is a device for the company to conduct business in the net and the market.

A business model is a valuable device for companies to use in the market. It can be used to communicate and interact with other market actors, e.g., companies that they wish to take part in the new venture and financing bodies or 'business angels', when considerable funding is needed, for example, in the development of an innovative new technology-based service. A business model and its elements need to tell a compelling narrative of how the business works or may work in the future. Managers need to understand the nature of markets 'in the making' rather than existing markets. Understanding this nature can be all the more important in technology-based service markets, where traditional market segmentation efforts often do not work. Managers need to focus on connecting with other market actors, including partners, research institutions, financiers, customers, and users. By using a business model, managers can translate, circulate, and transform the idea of a business into business development activities in the net, that is, share the idea of the potential market for the service offering and what needs to be done to actualize the market.

Developing future business is a challenging task for many companies. Managers face decisions about the future every day, and helpful tools are needed. Managers embarking on research and testing activities should first analyze their current business models and how they may constrain the opportunities that they can exploit. A business model can be used as a device to identify and open up business opportunities for new actors. Acquiring new actors and identifying opportunities can be critical when the services are under development and testing but the future business and markets remain to be explored.

#### Limitations and future research avenues

As in all research, there are certain limitations to this study from which we can derive future research suggestions. First, as has been noted throughout the study, research on the business model concept is fragmented, and the concept is complex, with a variety of types and levels of definitions. For a business model framework to be useful, it needs to be reasonably simple, logical, measurable, comprehensive, and operationally meaningful, and it must avoid oversimplifying a firm's model (Morris et al., 2005). This study has revealed the variation in the concept of business model and its use in business nets and markets. However, the marketing discipline also covers discussions other than networks and markets. Hence, it is acknowledged that the use of business models is limited to these aspects of marketing theory and practice. Another limitation concerns the specific context of the study: emerging technology-based service markets. The empirical setting of the study was strongly connected to a research project in which companies were engaged in developing new technology-based services. Hence, the results and conclusions mainly address the use of business models for

services developed in a research or R&D project. However, the findings of the study can be applicable in other emerging business fields featuring new innovations and rapid change. Finally, it must be acknowledged that factors other than a business model may explain the actions of the companies and their partners in their service development projects. Additionally, as the concept of business model is socially constructed as opposed to being a natural reality, it is thus a challenging object to be researched. However, business models provide a useful construct for understanding the complexities of phenomena.

The limitations of the study offer several future research avenues. The commercialization of emerging technology-based services is often problematic, and hence, future business development and market innovation are important areas for further research. Because empirical studies of business models are scarce, we should focus on the nature of the data to be collected. Follow-up studies on the formation and construction of a business net and a market provide additional insights into the development and use of business models. Temporality clearly needs to be incorporated into the empirical research on business models in future research. More in-depth examination of the narrative nature of business models is clearly needed, as it still being a rather under-researched topic within the business model research. This side of business models merits attention both theoretically and empirically. In addition, the performative power of business models, e.g., in shaping markets, is an important avenue for further research.

## REFERENCES

- Aarikka-Stenroos L & Sandberg B (2012) From new-product development to commercialization through networks. *Journal of Business Research* 65(2): 198-206.
- Alajoutsijärvi K, Möller K & Rosenbröijer C (1999) Relevance of focal nets in understanding the dynamics of business relationships. *Journal of Business-to-Business Marketing* 6(3): 3-35.
- Amit R & Zott C (2001) Value creation in e-business. *Strategic Management Journal* 22(6-7): 493-520.
- Araujo L (2007) Markets, market-making and marketing. *Marketing Theory* 7(3): 211-226.
- Araujo L, Finch J & Kjellberg H (2010) Reconnecting marketing to markets. Oxford, Oxford University Press.
- Araujo L & Easton G (2012) Temporality in business networks: The role of narratives and management technologies. *Industrial Marketing Management* 41(2): 312-318.
- Baden-Fuller C & Morgan MS (2010) Business models as models. *Long Range Planning* 43(2-3): 156-171.
- Bellman R, Clark CE, Malcolm DG, Craft CJ & Ricciardi FM (1957) On the construction of a multi-stage, multi-person business game. *Operations Research* 5(4): 469-503.
- Callon M & Muniesa F (2005) Peripheral vision: Economic markets as calculative collective devices. *Organization Studies* 26(8): 1229-1250.
- Chesbrough H & Rosenbloom RS (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.
- Chesbrough H (2007) Business model innovation: it's not just about technology anymore. *Strategy & Leadership* 35(6): 12-17.
- Chesbrough H & Schwartz K (2007) Innovating business models with co-development partnerships. *Research-Technology Management* 50(1): 55-59.
- Chesbrough H (2010) Business model innovation: Opportunities and barriers. *Long Range Planning* 43(2-3): 354-363.
- Coombes PH & Nicholson JD (2013) Business models and their relationship with marketing: A systematic literature review. *Industrial Marketing Management* 42(5): 656-664.
- Das TH (1983) Qualitative research in organizational behaviour. *Journal of Management Studies* 20(3): 301-314.
- Demil B & Lecocq X (2010) Business model evolution: In search of dynamic consistency. *Long Range Planning* 43(2-3): 227-246.
- Doganova L & Eyquem-Renault M (2009) What do business models do?: Innovation devices in technology entrepreneurship. *Research Policy* 38(10): 1559-1570.
- Dubois A & Gadde L (2002) Systematic combining: an abductive approach to case research. *Journal of Business Research* 55(7): 553-560.
- Gemünden HG, Ritter T & Heydebreck P (1996) Network configuration and innovation success: An empirical analysis in German high-tech industries. *International Journal of Research in Marketing* 13(5): 449-462.
- Gilmore A & Coviello N (1999) Methodologies for research at the marketing/entrepreneurship interface. *Journal of Research in Marketing and Entrepreneurship* 1(1): 41-53.
- Gilmore A & Carson D (1996) "Integrative" qualitative methods in a services context. *Marketing Intelligence & Planning* 14(6): 21-26.
- Håkansson H & Olsen P (2012) Innovation management in networked economies. *Journal of Business Market Management* 5(2): 79-105.

- Håkansson H & Lundgren A (1995) Industrial networks and technological innovation. In: Möller K & Wilson D (eds) *Business Marketing: An Interaction and Network Perspective*. Boston (MA), Kluwer: 291-320.
- Håkansson H & Snehota I (1989) No business is an island: The network concept of business strategy. *Scandinavian Journal of Management* 5(3): 187-200.
- Halinen A & Törnroos J (1995) The meaning of time in the study of industrial buyer-seller relationships. In: Möller K & Wilson D (eds) *Business marketing: An interaction and network perspective*. Boston (MA), Kluwer: 493-529.
- Halinen A, Medlin CJ & Törnroos J (2012) Time and process in business network research. *Industrial Marketing Management* 41(2): 215-223.
- Harrison D & Kjellberg H (2010) Segmenting a market in the making: Industrial market segmentation as construction. *Industrial Marketing Management* 39(5): 784-792.
- Hedman J & Kalling T (2003) The business model concept: theoretical underpinnings and empirical illustrations. *European Journal of Information Systems* 12(1): 49-59.
- Heikkinen MT, Mainela T, Still J & Tähtinen J (2007) Roles for managing in mobile service development nets. *Industrial Marketing Management* 36(7): 909-925.
- Johnson MW, Christensen CM & Kagermann H (2008) Reinventing your business model. *Harvard Business Review* 86(12): 50-59.
- Jones GM (1960) Educators, electrons, and business models: a problem in synthesis. *Accounting Review* 35(4): 619.
- Kjellberg H & Helgesson C (2006) Multiple versions of markets: Multiplicity and performativity in market practice. *Industrial Marketing Management* 35(7): 839-855.
- Kjellberg H & Helgesson C (2007) On the nature of markets and their practices. *Marketing Theory* 7(2): 137-162.
- Kjellberg H, Storbacka K, Akaka M, Chandler J, Finch J, Lindeman S, Löbler H, Mason K, McColl-Kennedy J & Nenonen S (2012) Market futures/future markets: Research directions in the study of markets. *Marketing Theory* 12(2): 219-223.
- Kovács G & Spens KM (2005) Abductive reasoning in logistics research. *International Journal of Physical Distribution & Logistics Management* 35(2): 132-144.
- Linstone HA & Turoff M (1975) *The Delphi method: techniques and applications*. Reading, Mass, Addison-Wesley.
- Lundgren A (1995) *Technological innovation and network evolution*. London, Routledge.
- Magretta J (2002) Why business models matter. *Harvard Business Review* 80(5): 86-93.
- Mason K (2012) Market sensing and situated dialogic action research (with a video camera). *Management Learning* 43(4): 405-425.
- Mason K & Palo T (2012) Innovating markets by putting business models to work. The proceedings of the 28th IMP Conference, Rome, Italy.
- Mason K & Spring M (2011) The sites and practices of business models. *Industrial Marketing Management* 40(6): 1032-1041.
- Medlin CJ (2004) Interaction in business relationships: A time perspective. *Industrial Marketing Management* 33(3): 185-193.
- Möller K & Rajala A (2007) Rise of strategic nets—New modes of value creation. *Industrial Marketing Management* 36(7): 895-908.
- Möller K, Rajala A & Svahn S (2005) Strategic business nets - their type and management. *Journal of Business Research* 58(9): 1274-1284.
- Möller K & Wilson DT (1995) Introduction: Interaction and networks in perspective. In: Möller K & Wilson D (eds) *Business Marketing: An Interaction and Network Perspective*. Boston (MA), Kluwer: 1-21.
- Möller K & Halinen A (1999) Business relationships and networks: Managerial challenge of network era. *Industrial Marketing Management* 28(5): 413-427.

- Morgan MS (2001) Models, stories and the economic world. *Journal of Economic Methodology* 8(3): 361-384.
- Morris M, Schindehutte M & Allen J (2005) The entrepreneur's business model: toward a unified perspective. *Journal of Business Research* 58(6): 726-735.
- Moutinho L, Davies F & Hutcheson G (2002) Exploring key neo-marketing directions through the use of an academic "think tank": A methodological framework. *European Journal of Marketing* 36(4): 417-432.
- Nenonen S & Storbacka K (2010) Business model design: conceptualizing networked value co-creation. *International Journal of Quality and Service Sciences* 2(1): 43-59.
- Osterwalder A, Pigneur Y & Tucci CL (2005) Clarifying business models: Origins, present, and future of the concept. *Communications of the association for Information Systems* 16(1): 1-25.
- Osterwalder A, Pigneur Y & Clark T (2010) *Business model generation: a handbook for visionaries, game changers, and challengers*. Hoboken, New Jersey, John Wiley & Sons.
- Partanen J & Möller K (2012) How to build a strategic network: A practitioner-oriented process model for the ICT sector. *Industrial Marketing Management* 41(3): 481-494.
- Peters LD, Vanharanta M, Pressey AD & Johnston WJ (2012) Taking time to understand theory. *Industrial Marketing Management* 41(5): 730-738.
- Piercy NF & Cravens DW (1995) The network paradigm and the marketing organization: Developing a new management agenda. *European Journal of Marketing* 29(3): 7-34.
- Ritter T, Wilkinson IF & Johnston WJ (2004) Managing in complex business networks. *Industrial Marketing Management* 33(3): 175-183.
- Schoemaker PJH (1991) When and how to use scenario planning: A heuristic approach with illustration. *Journal of Forecasting* 10(6): 549-564.
- Shafer SM, Smith HJ & Linder JC (2005) The power of business models. *Business Horizons* 48(3): 199-207.
- Srinivasan R (2008) Sources, characteristics and effects of emerging technologies: Research opportunities in innovation. *Industrial Marketing Management* 37(6): 633-640.
- Storbacka K (2011) A solution business model: Capabilities and management practices for integrated solutions. *Industrial Marketing Management* 40(5): 699-711.
- Storbacka K & Nenonen S (2011) Scripting markets: From value propositions to market propositions. *Industrial Marketing Management* 40(2): 255-266.
- Teece DJ (2010) Business models, business strategy and innovation. *Long Range Planning* 43(2-3): 172-194.
- Thomas R & Ford D (1995) Technology and networks. In: Möller K & Wilson D (eds) *Business Marketing: An Interaction and Network Perspective*. Boston (MA), Kluwer: 263-290.
- Tikkanen H, Lamberg J, Parvinen P & Kallunki J (2005) Managerial cognition, action and the business model of the firm. *Management Decision* 43(6): 789-809.
- Timmers P (1998) Business models for electronic markets. *Electronic markets* 8(2): 3-8.
- Weill P & Vitale MR (2001) *Place to space: Migrating to eBusiness models*. Boston, Harvard Business School Press.
- 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.