

Towards Systematic Business Model Innovation: Lessons from Product Innovation Management

Eva Bucherer, Uli Eisert and Oliver Gassmann

Although business model innovations are decisive for a company's long-term success or failure, they are still poorly understood compared to product innovations. Thus, their execution is imperfectly supported, and their organizational accountability is insufficiently regulated. In this paper, we systematically investigate similarities and differences between product and business model innovation to assess the potential of transferring insights and best practices. Therefore, we condense key findings of product innovation management into a framework as a basis for the analysis of 11 current cases of business model innovation. This paper intends to contribute to a better understanding of the options that exist for business model innovation. We derive implications for an improved management of business model innovation based on the cases analysed. For the innovation process and its organizational anchoring, we disclose potential benefits of a more structured and holistic approach.

Introduction

Business model innovations are becoming increasingly critical in practice, as mere product or process innovations are insufficient in current times (Chesbrough, 2007). In a study conducted by IBM (2008), 98 per cent of the CEOs interviewed stated that their company would undertake extensive (69 per cent) or moderate (29 per cent) business model innovation within the following three years. The reasons given included the increasing difficulty to differentiate based on services and products alone and the increased number of options. Business model innovation is a different type of innovation that is distinct from product and process innovation (Zott & Amit, 2002; OECD & Eurostat, 2005; Comes & Berniker, 2008). While products and services can often easily be copied, business model innovations allow companies to change the rules of the game (Kim & Mauborgne, 1999). New business models are difficult for competitors to follow, not only because they require considerable time and effort to simultaneously change various elements, but also because the business model has to fit a company's long-term strategy, corporate culture and core competencies.

Despite all of its benefits, explicit business model innovation does not appear to be a common approach in practice. As Chesbrough (2010) states, 'companies have many more processes, and a much stronger shared sense of how to innovate technology, than they do about how to innovate business models'. This can be traced back to the absence of recommendations in terms of management frameworks and methods to support business model innovation based on scientific findings (Venkatraman & Henderson, 2008).

In order to bring forward the establishment of an adequate management framework and methodology, in particular in regard to a better categorization of innovations, the process models used, implementation approaches and organizational anchoring, it seems to be promising to leverage the extensive body of knowledge in product innovation management. A systematic investigation of similarities and differences between business model and product innovation management can help to close the research gap described and to contribute to a systematic approach to business model innovation that is needed in theory and practice.

Therefore, in this paper, we elaborate on related work in the fields of business models and business model innovation. A framework

of analysis is developed based on constructs of product innovation management and an overview of the methodology is given. The framework is used to explore similarities and differences between business model and product innovation management through an analysis of 11 current cases of business model innovation. The findings of the analysis are discussed and implications are drawn in the conclusion. Finally, the limitations are outlined and recommendations for future research are presented.

Literature Review

The term 'business model' was predominantly coined in practice during the 1990s, but only gradually has it been adopted and researched by the scientific community (Morris et al., 2006). Its increasing popularity with the emergence of electronic commerce can be explained by the shortcomings in existing frameworks and theories to address all aspects of the novel possibilities that were defying conventional ways of doing business (Chesbrough & Rosenbloom, 2002). By linking different concepts and perspectives, the business model concept goes beyond existing approaches and traditional units of analysis. For a long time, research on firms focused on industry (Porter, 1980) and resources (Wernerfelt, 1984; Barney, Wright & Ketchen, 2001). The business model must be seen as the replacement or complement of the traditional units of analysis as a result of altered economic conditions (Amit & Zott, 2001).

Over time, the business model concept has evolved continuously from being simply a term that refers to 'the logic of the firm' (Linder & Cantrell, 2000) or a 'way of doing business' to a conceptual tool including different building blocks (e.g., Osterwalder, Pigneur & Tucci, 2005). These can be condensed into four main elements: value proposition, operational model, financial model and customer relations.

In this paper, we use the following definition that synthesizes different extant definitions (Afuah & Tucci, 2000; Linder & Cantrell, 2000; Morris, Schindehutte & Allen, 2005): The business model abstracts the complexity of a company by reducing it to its core elements and their interrelations and thus specifies the core business logic of the firm.

A business model is not static but must be managed and developed over time (Hedman & Kalling, 2003). Challenged by competition, market shifts and technological changes, firms have to adjust their business models to remain viable (Linder & Cantrell, 2000). Business

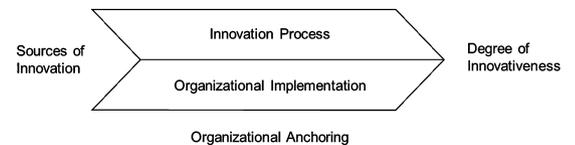


Figure 1. Framework of Analysis

models have to be seen as dynamic systems (Morris, Schindehutte & Allen, 2005). This constant process of change can be referred to as business model innovation. A series of different and partially contradictory definitions have been proposed (see, e.g., Hamel, 1998; Amit and Zott, 2001; Moore, 2004; Venkatraman & Henderson, 2008). For our work, we define business model innovation as a process that deliberately changes the core elements of a firm and its business logic.

Since the value proposition of a business model is heavily influenced by the products and services offered and its operational model by the processes used, product or process innovations can lead to business model innovations. However, as business model innovations can be equally based on changes of other core elements, they can occur independently from product and process innovations. Amit and Zott (2001) declare that the Schumpeterian types of innovation (including product and process innovations) fail to explain the novelty of companies such as eBay. Other authors argue that business model innovations are the only remaining option for companies to innovate as soon as products and processes are stable (Boutellier, Eurich & Hurschler, 2010). However, companies can innovate their business model independently from the existence of a dominant design or process.

Framework of Analysis

As stated above, product and business model innovations can be interlinked, but can also occur independently. Thus, we hypothesize that similarities as well as differences exist. In order to derive these, we condense key findings of product innovation management into a framework of analysis (Figure 1). It includes key aspects of product innovation management discussed in the literature (e.g., Hauschildt, 1997) that describe how an innovation is triggered, processed, implemented and anchored in a company. They answer the key questions: 'Wherefrom?', 'How?', and 'What?'.

Origins of Innovations

Product innovations are often distinguished as technology-push (or inside-out) and market-

pull (or outside-in) innovations (Baker, James & Rubenstein, 1967). Technology-push innovations are triggered by the usage of new technologies and are driven mainly by R&D. Market-pull innovations are triggered by new or previously unknown needs and are often driven by the sales or marketing departments. The idea that innovations are only triggered by one side is debatable. Regardless of what triggered the innovation, new technologies must be linked with new market needs, which is a crucial challenge for all innovation management activities (O'Connor & Rice, 2001).

Innovation Process

Several normative process models were developed including all phases from ideation over planning and development to commercialization and diffusion (e.g., Rogers, 1983; Sabisch & Zanger, 1991). These normative process models have been criticized for assuming the process to be linear as well as viewing it as a sequence of separable functional stages (Schroeder et al., 1986). Today, it is widely acknowledged that innovations are seldom strictly linear and sequential. Several feedback loops between technological alternatives and customer needs and interactions between the affected parties are necessary. Comprehensive longitudinal studies (Van de Ven et al., 1999) indicate that innovation processes are rather random or chaotic in the early phases and only towards the end do they become periodic or cyclic. This assessment is based partially on the observation that innovation processes often include proliferation of ideas into several paths and the occurrence of unpredictable setbacks and surprises (Schroeder et al., 1986). Nevertheless, Van de Ven et al. (1999) report patterns of commonality regarding process phases (initiation, development and implementation).

Even though innovations are much more complex and dynamic in reality, normative process models can help to reduce complexity by abstraction and to derive necessary activities and decision points. Thus, process models are well established in practice. One example is the stage-gate model developed by Cooper (1986), which is seen as suitable for 'market-pull' and incremental innovations (Gassmann & von Zedtwitz, 2003). For radical innovations, some specifics must be taken into account, particularly the uncertainty regarding new technology and markets and the additional time needed. This leads to changes in the innovation process, mainly with regard to additional iterations and the need for early customer feedback, labelled as 'probe and learn' (Lynn, Morone & Paulson, 1996), 'market learning'

(O'Connor, 1998) or 'market experiments' (Slater & Narver, 1998).

Organizational Implementation

As innovations might threaten the existing order, organizational restructuring often occurs in the course of the innovation (Schroeder et al., 1986). Christensen and Bower (1996) point out that established companies find it difficult to serve their original markets with existing products and emerging markets with new products concurrently, within one organization, and that most fail in this pursuit. They recommend creating independent organizational units dedicated to the new and upcoming markets. Christensen and Overdorf (2000) emphasize that such units can emerge both within and outside the existing organization. They suggest that the required degree of independence should depend on how well the innovation project suits the existing processes and values.

Organizational Anchoring

From an organization theory perspective, innovation processes constitute an exception because they belong neither to the directly value-adding primary processes nor to the secondary processes that ensure operational readiness (Porter, 1985). The spectrum of alternatives for the organizational anchoring of innovation activities is extremely broad and depends on the mix of internal, collaborative and external innovations. It can range from licensing of co-operative ventures to internal models and project-to-line organizations (Vahs & Burmester, 1999). The most established design is the classical R&D line organization, which is often further divided into project teams.

Regarding roles and responsibilities, the discipline of product innovation management focuses on individuals essential for a successful innovation process. Champions (Schön, 1963), sponsors (Roberts & Fusfeld, 1982) and promoters (Witte, 1973) were identified as important roles. Promoters are often divided into 'power promoters' (similar to sponsors), who overcome resistances due to a lack of willingness, and 'specialist promoters' (similar to champions), who overcome resistances due to a lack of knowledge. There are numerous empirical findings that indicate that promoters are essential for successful innovations (Hauschildt & Kirchmann, 1999; Lechler, 1999).

Degree of Innovativeness

The recent literature differentiates mostly between radical and incremental product

innovations (Song & Montoya-Weiss, 1998; Veryzer, 1998; Chandy & Tellis, 2000). Garcia and Calantone (2002) define radical product innovations as characterized by a discontinuity along the dimensions 'technology' and 'market' on a macro level (new to the industry/market). These innovations incorporate technology that is substantially different from existing products and fulfils customer needs either significantly better than existing products or addresses different types of needs that could not be fulfilled at all with existing products (Chandy & Tellis, 1998). Whereas radical innovations lead to a discontinuity, incremental innovations build on the existing.

Research Methodology

Given that business model innovation is a recent phenomenon and the lack of mature research into it, we applied a multiple-case study approach. Case studies are based on thorough investigations of individuals, groups or events and are aimed at understanding underlying principles of 'how' and 'why'. In particular, we followed a multiple-case design using a single unit of analysis (Yin, 1994), i.e., the event of business model innovation. This explorative approach allows an in-depth understanding of each case and its context as well as the identification of commonalities and differences across cases.

So far, the cases of business model innovation examined in the literature are usually limited to a few, well-known examples, mainly dating back to the dot.com era. Thus, our selection of cases was focused on recent examples and includes less well-known companies. To explore a wide variety of patterns, we selected a balanced mix of industries and company sizes.

Two main sources for data collection were used. Primary information was gathered through explorative interviews. The interviews were conducted with top managers or professionals directly involved with the company's business model innovation. A semi-structured interview guideline was used to ensure consistency across interviews. All interviews were recorded and transcribed. To augment the interview data and achieve triangulation, secondary information was collected by desk research from multiple sources, including company publications, annual reports, web pages and scientific publications. All information was integrated to achieve higher data validity and reliability (Yin, 1994; Gibbert, Ruigrok & Wicki, 2008; Gibbert & Ruigrok, 2010).

The analysis of the cases regarding differences and commonalities between product and business model innovation was based on the framework introduced above. Pattern-matching techniques were used to identify patterns throughout the different cases and relate them to constructs of product innovation management, using a cross-case analysis (Campbell, 1975). In particular, the elements of the framework were used for pattern-matching. However, we did not restrict our investigation to these elements but also looked for additional patterns. Eventually, a follow-up was conducted with the interview partners to guarantee the correctness and completeness of the analysis and interpretation.

Cases of Business Model Innovation

Although the literature offers a great number of examples of business model innovation, in-depth case studies based on recent cases and primary data are rare. As a consequence, 11 recent cases were selected for which primary data could be gathered via interviews with top managers or professionals directly involved. Both business model innovations generated by established (e.g., Allianz SE and Daimler) and new firms (e.g., CelsiusPro and e24) were included. The cases are described briefly in Table 1.

Analysis

In the following, we analyse the differences and similarities of product and business model innovation along the five aspects of our framework. As a starting point we consult the available literature on business model innovation for applicable findings. Then, we identify patterns throughout the 11 cases and match them to the respective constructs of product innovation management. Elaborating on our findings we formulate analytical statements, and illustrate them by the use of individual examples and data from the cases. Finally, we compare the results with the state of the art in product innovation management to leverage findings and best practices from this discipline.

Origins of Innovation

Business model innovations can be triggered in various ways and come from different sources. However, the literature only discriminates into external and internal factors (see, e.g., Comes & Berniker, 2008; IBM, 2008). A similar distinction into internal and external

Table 1. Cases of Business Model Innovation

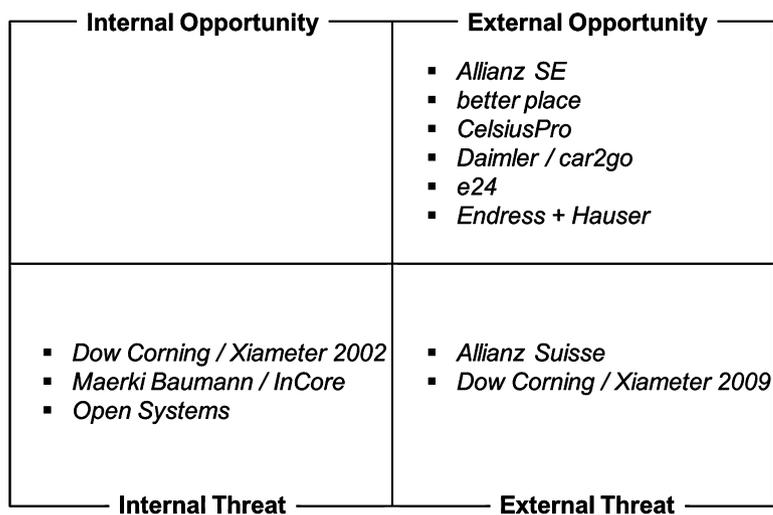
Company	Initial situation/trigger	Business model innovation	Supportive factors/challenging factors
Allianz SE	After the tsunami catastrophe in 2004, most companies donated money to help. Allianz SE thought about a way to not only supply capital but also employ and transfer their insurance know-how.	Allianz SE started to offer micro-insurances to population groups that previously had no access to insurance products. They realized that this was more than charity and that it was a new business opportunity opening a new market, often referred to as the bottom billion. The demand, which had already been documented through international development organizations, was now met by transferring the concept of micro-credits known for about ten years to the insurance area. Established sales channels from that area could be used.	The new business model was supported by the initially low profit expectations as it was regarded as a social innovation. The operative implementation was challenged by difficult access to the customers and the education required to understand the value of insurance products. High process efficiency is extremely important as premiums are low and the number of insured people is very high.
Allianz Suisse	The Swiss insurance market is characterized by increasing price pressure as well as predatory competition, particularly in the motor vehicle insurance sector. Instead of reducing prices to sustain customers, Allianz Suisse wanted to turn around the trend with a new business model.	Allianz Suisse recognized the potential of telematic technologies for the insurance business. So far, telematics had been applied for usage-based product design and pricing. As the first insurance company, they decided to systematically complement traditional fleet insurance for corporate customers with various fleet services including breakdown and emergency service, logbooks, and accident data recorders.	While the new offering was internally well-received, the time needed for the new offering to translate into additional revenue was underestimated as the benefits had to be explained to customers.
better place	With the ambition to reduce dependency on fossil fuels, better place offers a new way to make electric vehicles (EV) affordable and more convenient so that they become competitive or even superior to conventional cars with combustion engines.	The business model of better place consists of a new technological infrastructure and a new service offering. The infrastructure comprises a network of private and public charge spots, battery-switching stations, advanced battery packs, in-car software and telematics systems. The service offering allows the purchasing of driving distance via a subscription model. Customers do not have to purchase batteries and can get a fixed per-distance fee that includes the leasing of the battery packs, usage of the infrastructure, battery swaps, and the electrical energy.	better place benefits from the rapid development of EVs and batteries and the political willingness to reduce dependency on fossil fuels. It seems to be only a question of time until EVs will become essential for the automotive industry. The traditional way of thinking in the automotive industry and the resistance to fundamental changes in technology still constitute a challenge.
CelsiusPro	Insurances are offered for catastrophic weather events only. CelsiusPro recognized that weather derivatives could be used to insure minor losses through frequently-occurring weather events. Due to climate change, these events will affect more and more companies.	Providers of weather derivatives are large reinsurers that only serve huge industrial companies. CelsiusPro realized that smaller companies had no access to adequate risk protection and made a previously unknown financial product easily available and understandable to them. Customers buy weather certificates online, specifying the desired weather conditions (e.g. number of frost days) and the respective weather station. Costs are calculated automatically, the entire processing is based on an Internet platform. The payout is independent of any damage; it only depends on the occurrence of the specified weather event.	The success of CelsiusPro is based on the significant reduction of the complexity of the product. The as-yet low degree of familiarity of the company and the product constitute a challenge.
Daimler/car2go	Until recently, there have been two concepts for the temporary usage of cars: car rental agencies and car sharing concepts. These have been restricted by specific pick-up points and prior reservations.	Unlike other car-sharing programs, car2go is not station-based. A network of cars is located throughout the greater downtown area. The closest available car can be identified via the smart phone application, telephone hotline or the Internet. The chosen vehicle can be accessed 'on-demand' or reserved for up to 24 hours in advance. Members are allowed to use the vehicle for as long as they like, without committing to a specific return time or location. car2go charges customers only for the actual use of the vehicle, with rental periods as short as a minute. 'By-the-minute' rates include costs for fuel, insurance, parking, maintenance and mileage.	In contrast to the car manufacturing business, this is a purely service model and requires totally different structures. The customer demand exceeded Daimler's expectations. One challenging factor for its expansion is the necessary parking space, which requires negotiation of agreements with the respective cities.

Table 1. *continued*

Company	Initial situation/trigger	Business model innovation	Supportive factors/challenging factors
Dow Corning/ Xiameter 2002	Before 2002, the silicone industry was facing the challenge of over-capacity. Customer-specific solutions gained in importance for more sophisticated products. A discrepancy between the demand for affordable standard products and for specialized, innovative products occurred.	The traditional business model of Dow Corning was designed for high-margin silicone products and comprehensive technical support. After thorough customer segmentation, they implemented a dual strategy: Dow Corning for service-orientation and innovative products and XIAMETER for standardized products and offerings over the Internet with varying prices and sales conditions. From a customer's point of view, the XIAMETER brand was not clearly associated with Dow Corning. Customers accepted the new model very well and helped to utilize its capacities fully. Competitors did not try to copy the model.	Dow Corning had a globally harmonized IT infrastructure allowing resources and capacities to be shifted flexibly. Cannibalization did not occur; some product lines that were offered by XIAMETER could still be bought through Dow Corning. Because customers needed both innovative solutions and customized services in addition to standard silicones, some customers purchased both brands.
Dow Corning/ Xiameter 2009	Changing customer needs, changes in the competitive landscape (in particular, new Chinese competitors), and fully utilized capacities led to increased costs and innovation pressure and enforced another adjustment of Dow Corning's business model.	To overcome this new challenge, Dow Corning looked at a stricter customer segmentation. In addition to the large-volume price-sensitive customers, there were customers who needed the same products with delivery reliability but in much smaller volumes. As a result, the product segmentation was increased consequently. All standardized products were offered exclusively through the XIAMETER brand. The Dow Corning brand continued to offer more innovative products and customized solutions. Instead of a (perceived) dual-company strategy, they switched to a dual-brand strategy.	The dual-brand strategy was supported by the strong brand image. Customers started to bundle and centralize their purchases to receive higher volumes for lower prices and in a more efficient way through XIAMETER; they thus took advantage of the price/volume tiers that were transparent on the Internet.
e24	Coming from the area of software for ATMs, the founders of the mobile payment provider e24 could leverage their knowledge about electronic payment transactions and the related back-end processes for a new mobile payment solution.	e24 offers a comprehensive range of innovative mobile services in Switzerland, e.g. for mobile parking, mobile payment, and for mobile access and ticketing. Independent from financial institutions, e24 actuates its own mobile payment platform that supports popular debit and credit cards as well as additional means of payment. After registering, customers are able to pay via SMS, a toll-free number or a NFC (near-field communication) chip, which is integrated in some mobile phones. Revenue is generated on a transaction basis.	e24 has seen recent acceptance of mobile payments from consumers and merchants. They are still challenged to find a balance between their innovative technical solutions and the need to be profitable in the short term. Their business model cannibalizes parts of the common credit card processing system.
Endress + Hauser	Industrial machinery companies used to only sell products. Over time, the offering was often extended to complete solutions. Endress + Hauser offers the complete automation of filling systems instead of only selling the measuring devices.	Endress + Hauser recognized that customers were increasingly looking to buy services instead of goods in order to convert fixed costs into variable costs. Smarter products and technological advancements, such as Internet technologies, facilitated this move. Thus, Endress + Hauser started to sell inventory information instead of products, e.g. how much was produced, shipped, consumed, analysed, or purified. Therewith, the portfolio was extended and customers can now choose the most suitable solution.	The piloting of the new business model was supported by Endress + Hauser's corporate culture with autonomous, responsive units. However, the company-wide roll-out of the new business was challenged because new processes and techniques had to be defined for accounting and controlling, and contact persons on the customer side changed.
Maerki Baumann/ InCore	As a traditional Swiss private bank Maerki Baumann covered a series of different functions within the company and was a fully integrated bank. Years ago, Maerki Baumann anticipated a breakup of the value chain in the banking sector similar to that in the automotive industry.	Increasing costs and regulatory requirements leading to the erosion of margins, enforce small banks to focus on certain elements of the value chain. Thus, Maerki Baumann started a separate entity named InCore Bank, which was the first bank to exclusively focus on performing transaction-oriented tasks. InCore Bank offers banking services such as securities trading and payment services to Maerki Baumann and to other banks and security dealers. Higher volumes lead to specialization profits. Maerki Baumann is now concentrating on customer relationships and advising clients.	Although demand is increasing, there are almost no competitors in the transaction banking business. Difficulties arise because banks want to define outsourced processes individually, which contradicts the high level of process standardization required for outsourcing.

Table 1. *continued*

Company	Initial situation/trigger	Business model innovation	Supportive factors/challenging factors
Open Systems	As a system integrator, Open Systems offered projects and consulting services in the area of network security. After the end of the dot.com hype, they began to change their offering completely towards a pure service provision.	In line with the demanded security services and levels, Open Systems offers a comprehensive service and monitoring bundle including hardware and software, taking over all technological and operational risks. Customers can purchase a subscription allowing them to consume standardized services that are simple to budget. Since many customers use identical services leveraging a common IT infrastructure, software and specialists, Open Systems can exploit economies of scale and benefit from regular upfront payments. Thus, they can offer their services at a much lower cost than typical system integrators.	The new approach led to quality improvements due to the standardization of services and the specialization of staff. Customers hesitated to switch to the new offering because they had to overcome the hurdle of handing over ownership of hardware and software to a service provider. After the first customers started to realize the benefits of the new model, increasing numbers of customers decided to follow.

Figure 2. *Categorization of Business Model Innovations: Origins of Innovation*

stimuli called 'shocks' is reported for several types of innovation by Schroeder et al. (1986).

Based on the patterns detected and summarized in Figure 2, we suggest a distinction between a situation in which a company is forced to innovate its business model (called 'threat' in the following) and a situation where it innovates to capture an opportunity ('opportunity'). While it is obvious that new firms always act on opportunities, for established firms both origins of innovation are relevant. Daimler, for example, intended to make use of an opportunity when they came up with car2go. Conversely, Dow Corning/XIAMETER faced the threat of insufficient capacity usage.

In addition, a distinction between internal and external origins can be made. Resources that become too costly or unnecessary over

time and enforce a change in the business model (e.g., the outsourcing of certain activities or investments in new capabilities) represent internal threats. The example of Maerki Baumann illustrates that out-sourcing can also be achieved by splitting up a part of the business and offering its services not only to the company but also to third parties. When the resources are necessary and adequate but underutilized and could be leveraged for additional purposes, an innovation might be triggered (Comes & Berniker, 2008). This can be regarded as an internal opportunity.

External factors mentioned in the literature are: competitive threats, market shifts, and technology changes as well as commoditization of products, and legal or regulatory changes (Linder & Cantrell, 2000; Comes & Berniker, 2008; IBM, 2008). Both cases in our

study that were triggered by an external threat were based on competitive threats, more specifically price erosion (Allianz Suisse and Dow Corning/XIAMETER 2009). In our study we found many examples of companies recognizing an external opportunity, e.g., changes in key technologies, ahead of their competition. For instance, the broad availability of Internet technologies was essential for the innovation of Endress + Hauser. In other cases it was sufficient to transfer a business model pattern that proved to be successful in a different industry. The outsourcing of non-key processes was not invented by Maerki Baumann/InCore Bank; however, they were the first to use it successfully in the banking industry.

In summary, we suggest the following categorization for the origins of innovation: internal threat, internal opportunity, external threat and external opportunity. Thereby we leverage and extend the most common categorization for product innovations, the distinction between internal (referred to as technology-push or inside-out) and external (market-pull or outside-in) origins.

Innovation Process

So far, there has been only limited research on the process of business model innovation. However, some basic process descriptions exist (e.g., Mahadevan, 2004). Osterwalder and Pigneur (2010) propose five phases for the process of business model design: mobilize, understand, design, implement and manage.

In our study, the usually mentioned phases were: analysis, design, implementation and control. The analysis phase might last several years, e.g., when managers observe that their traditional business model gradually comes under pressure (e.g., Maerki Baumann/InCore Bank, Allianz Suisse, Open Systems). For opportunity-driven innovations, this phase tends to be shorter (e.g., Daimler/car2go, CelsiusPro). In the design phase, various solution alternatives have to be developed and the subsequent feasibility study is regarded as crucial. Especially for new companies, the funding has to be secured (e.g., e24). Overall, the design phase is an iterative process; however, it seems to be a more continuous and less time-consuming phase. The implementation phase tends to be shorter when the old business model is replaced (e.g., Dow Corning/XIAMETER 2009, Open Systems) because this has to happen quickly to avoid confusion in the market. It can take a long time for parallel implementations (e.g., Allianz Suisse, Endress + Hauser) due to the fact that the new model can be introduced step by step. Finally, the control phase, which includes both the

controlling of the success and the monitoring of all internal and external changes, is a continuous activity (e.g., e24).

A recurring central element of the innovation process is the piloting or prototyping phase. This can happen in a geographically limited test market (e.g., Daimler/car2go in the city of Ulm) or by a careful selection of pilot customers (e.g., Endress + Hauser). If the new model is successful, it can be rolled out gradually. The piloting phase allows companies to try out the new model while mitigating its inherent risks and learning in a very pragmatic way. Allianz SE could not oversee how the sales or claims settlement would work for various micro-insurances in different developing countries. Thus, they entered the marketplace in a gradual fashion. For the process of business model innovation, the analysis discloses a broad spectrum of management approaches. In larger companies, the approach ranges from formal processes (e.g., Dow Corning/XIAMETER) to mostly informal processes (e.g., Endress + Hauser); in smaller companies, the informal approach seems to be typical. In some cases, the idea-gathering and selection (e.g., in the case of Daimler through intranet-based idea-gathering and assessment, and in the case of e24 through regular meetings on different hierarchy levels) is more formalized than later phases of the process. In the future, some companies expect a change towards a more formal process (e.g., Maerki Baumann/InCore Bank, Allianz SE), while others expect that the informal process will continue, largely because they claim that business model innovation occurs very rarely (e.g., CelsiusPro, Open Systems). Notably, even companies that do not report on a formal process for business model innovations use a formal and continuous one for product innovations. This is true both for smaller (e.g., CelsiusPro, Open Systems) and larger firms (e.g., Endress + Hauser).

There seems to be a similarity between product and business model innovations in regard to the high-level process steps. The phases mentioned for business model innovation (analysis, design of the innovation, implementation and control of the success) are comparable to those in product innovation management. However, because business model innovations can be based on changes of different core elements (namely value proposition, operational model, financial model and customer relations), there are significant deviations for the concrete activities performed in these phases. For example, when the influencing factors for the desired innovation are analysed, business model innovations require a much broader approach. Like for

product innovations, also the business model innovation processes seem to be almost never strictly linear and sequential, but rather chaotic and iterative, especially when the innovation is disruptive.

Organizational Implementation

For the organizational implementation of business model innovations, a general difference can be observed between new business models that are completely replacing the previous one and those implemented in parallel. In the latter case, the company might want to mitigate the risk by test-driving the new business model only in one business unit or target market for a limited period of time with the intention of replacing the previous business model at a later stage. If the new model turns out to be unsuccessful, the firm still has the option of switching back to the old model. Endress + Hauser might be an example of this strategy, even though they regard the new model as an additional option for their customers for the time being.

In other cases, models are implemented in parallel in order to run more than one business model for a longer period of time, which is appropriate when different business units or target markets require tailored business models. A typical example is Allianz SE setting up the micro-insurances as a separate business with the intention to serve two different target markets with two different business models as a long-term strategy.

Parallel implementations require a certain kind of independent organizational unit. This can be a different business unit still leveraging various synergies with other business units or a completely independent entity, such as a spin-off. Examples of the first category are Allianz SE or Allianz Suisse; examples of the latter are Maerki Baumann/InCore Bank or Daimler/car2go. The degree of independence is rather a continuum than two extremes, and companies can leverage all types of organizational set-ups to find the right balance between required independence and the desired utilization of synergies.

Here, an analogy to product innovation management can be detected. As outlined earlier, many authors agree that some kind of independent organizational unit favours the successful implementation of innovations because they support companies in their efforts to serve their original markets and new or emerging markets concurrently.

Organizational Anchoring

Despite the reported importance (Chesbrough, 2007), there seems to be a general lack of guid-

ance for the organizational anchoring of business model innovation in the business model innovation literature.

A dedicated organizational unit exists in only one of the cases (Business Innovation at Daimler AG). In some cases, an organizational unit has a shared responsibility for business model innovation, such as 'market management' for Allianz Suisse, 'business development' for Maerki Baumann/InCore Bank, and 'portfolio management' for Open Systems. Yet, these departments are supportive rather than really responsible for the topic. There is a clear tendency for the CEO or the top management team to own business model innovations. In some cases, they are even exclusively responsible (e.g., CelsiusPro) but might use task forces for the implementation (e.g., Endress + Hauser).

In the future, some companies expect a change towards a more formal organizational anchoring (e.g., Allianz Suisse), at least if the company becomes larger (e.g., CelsiusPro). Other companies expect that the current set-up will continue, largely because they claim that business model innovations occur rarely (e.g., Endress + Hauser, Open Systems). While most companies have a dedicated organizational structure and ownership for product innovations (mainly separate R&D departments), an equivalent set-up for business model innovations is rare.

Finally, the case analysis made evident that business model innovations may face stiff resistance, both internally and externally. Resistances due to a lack of willingness and a lack of knowledge were reported. Potential reasons for the former include the following: additional effort or new processes for certain departments (e.g., Endress + Hauser), the need to shift resources and power within the organization (e.g., Dow Corning/XIAMETER), the need to change entire value chains (e.g., better place), a lack of understanding that the new business model might be superior (e.g., Endress + Hauser), the need to build up new competencies (e.g., Maerki Baumann/InCore Bank), and the effort to understand new concepts (e.g., Allianz SE). The following reasons for the latter were identified: unfamiliarity with new value propositions and their benefits (e.g., CelsiusPro), inability to give up old habits (e.g., Open Systems), and a misunderstanding of the specifics of totally new markets (e.g., Allianz SE). These barriers are documented in the product innovation discipline. As a consequence, many companies talked about the need for sponsors or 'power promoters' (e.g., Allianz Suisse) and champions or 'specialist promoters' (e.g., Daimler/car2go), concepts that are well known from product

Market Breakthrough	Radical Innovation
<ul style="list-style-type: none"> ▪ Allianz SE ▪ CelsiusPro 	<ul style="list-style-type: none"> ▪ Endress + Hauser ▪ Maerki Baumann / InCore
<ul style="list-style-type: none"> ▪ Allianz Suisse ▪ Daimler / car2go ▪ Dow Corning / Xiameter 2009 ▪ e24 	<ul style="list-style-type: none"> ▪ better place ▪ Dow Corning / Xiameter 2002 ▪ Open Systems
Incremental Innovation	Industry Breakthrough

Figure 3. Categorization of Business Model Innovations: Degree of Innovativeness

innovation management to overcome these barriers.

Degree of Innovativeness

Few authors discuss the degree of innovativeness of business model innovations. Some argue that business model innovations tend to be radical or disruptive in general (Markides, 2006; Comes & Berniker, 2008). Others consider both radical and incremental business model innovations (Zott & Amit, 2002; Mitchell & Coles, 2004). Nevertheless, a concise categorization is not provided.

In our study both incremental and radical changes occurred. They were either affecting primarily the industry or the market of the respective company or both. This seems to be very similar to the categories of innovation that are distinguished in the area of product innovation.

As a consequence, to categorize business model innovations regarding the degree of innovativeness, the concepts established for product innovations are useful. In particular, the proven definition of radical product innovations can be transferred to radical business model innovations. Hence, these can be defined as innovations characterized by a discontinuity along the two most important dimensions on a macro-level perspective. While these are 'technology' and 'market' for product innovations, they can be identified as 'industry' and 'market' for business model innovations. Industry represents the inside-out or firm view and is to be understood as the sum of firms within one industry; the market represents the outside-in or customer view and is to be understood as the sum of customers within the

respective industry. If the company enters a new industry or a new market with the new business model, the perspective of the new industry and/or market is determining. The macro-level perspective can be defined in line with the product innovation literature as 'new to the industry/market'. As a discontinuity can affect either only the industry or only the market, or both dimensions at the same time, business model innovations can be categorized in a matrix with four quadrants: incremental, industry breakthrough, market breakthrough and radical innovations (see Figure 3).

Incremental innovations are different from the previous business model; however, no discontinuities occur. For instance, the approach of Allianz Suisse to motor vehicle insurance is new for providers of these insurances and for their consumers. Nevertheless, it only comprises a tailoring of previous models that incorporates new technical capabilities and additional service offerings. Industry breakthroughs confront the firms of the affected industry with a discontinuity, while for the customers of the respective market, the changes are rather incremental. The dual-strategy approach in the new business model of Dow Corning/XIAMETER 2002 is an example of this sub-category and was a radical change for the silicone industry with tremendous implications for Dow Corning; nevertheless, for the customers, the offering was still relatively similar. Reciprocal market breakthroughs confront the customers of the affected market with a discontinuity, but for the firms of the respective industry, the changes are rather incremental. A good example is the micro-insurance business of Allianz SE, which for the first time offers risk

provisioning to customers who previously had no access to insurance. However, for the insurance industry, this offering is just an extension of their previous business model towards a new customer segment. Radical innovations result in a discontinuity for both the industry and its respective market. For example, the disruptive business model of Maerki Baumann/InCore Bank broke with all traditional business models of the banking industry. Also the customers experienced an offering that was totally different from anything they had seen before.

Discussion

Our study reveals a wide variety of options for companies to innovate their business models. First, the analysis confirmed that business models are not a one-time choice and static, but dynamic systems that require constant adjustments to internal and external changes. Hence, business model innovations are not restricted to start-ups; they are often created by established firms. An excellent example of the dynamic nature of business models and the need for their continuous evolution is Dow Corning/XIAMETER. XIAMETER's creation by Dow Corning in 2002 and the redefinition of the brand in 2009 document the necessity for established companies to innovate their business model when the market conditions change.

In addition, the position of some scholars that business model innovations have to be radical in general (Markides, 2006; Comes & Berniker, 2008) has also been identified as a common perception in practice; business model innovations are seen as events that happen so rarely that they do not require formal processes or the clear assignment of responsibilities. However, the analysis indicates that this perception is significantly misleading, as there seems to be a balanced mix of incremental and radical innovations.

Regarding the implementation, a parallel launch of new business models seems to be the dominant approach in practice, as it helps to mitigate the risks involved. While most customers accepted XIAMETER's move in 2009, Open Systems faced some issues in the beginning due to irrational customer reactions. However, as soon as some new customers picked up the new offering, understanding its superior value, the former customers followed gradually. This occurrence seems to be typical in innovation processes and has been described in the area of product innovation (Christensen & Bower, 1996; Paap & Katz, 2004).

Particularly for industry breakthroughs and radical innovations, a parallel implementation might not be feasible if it leads to contradictions. For Open Systems, it was obvious that selling standardized services does not go hand-in-hand with selling highly customized projects. Thus, a replacing implementation was inevitable. Competitors of Open Systems failed when trying to implement a similar model using a parallel implementation. An alternative approach to a replacing implementation is a new, independent organization, such as a spin-off. Maerki Baumann chose this path to allow the old and the new organization to focus on their tasks and to build up their respective competencies.

When disruptive changes are involved, the willingness to cannibalize becomes an important element to consider. The separation of InCore Bank from Maerki Baumann led to a situation where existing competencies on both sides were devalued while new ones were needed. Employees from the IT department suddenly had to deal with customers instead of focusing on internal process optimization. Dow Corning left parts of its marketplace to XIAMETER, particularly the most price-sensitive customers, hoping that their own brand (instead of competitors) would cannibalize parts of their established market. The significant influence of the willingness to cannibalize on the propensity of an established company to introduce radical innovations has been demonstrated in the field of product innovations (Chandy & Tellis, 1998; Herrmann, Gassmann & Eisert, 2007).

In addition, various companies reported that a corporate culture encouraging innovation was crucial. Elements promoting innovation included openness to new ideas (e.g., Endress + Hauser), fault tolerance (e.g., Allianz Suisse), agility and responsiveness (e.g., Endress + Hauser), internationally diverse teams (e.g., better place), managers with a broad background and perspective (e.g., Maerki Baumann/InCore Bank), technological innovation orientation (e.g., e24), responsibility of every employee to accomplish a common goal (e.g., better place), and consistency between proclaimed and actual values (e.g., Allianz Suisse).

Even though business model innovation is a distinct type of innovation, our cases indicate the importance to treat it not as an isolated activity but to align it with the company's innovation and long-term corporate strategy. Contingency theory supports a need for a holistic approach to innovation management. Central to contingency theory is the idea that organizations are facing multiple and often conflicting contingencies and that there is no

Table 2. Similarities and Differences between Product and Business Model Innovation

	Similarities	Differences
Origins of innovations	– Distinction between internal and external triggers	– Distinction between opportunities and threats for business model innovations
Innovation process	– Logical sequence of process steps – Rather chaotic process at least in early phases – Normative process models can be used for guidance	– Detailed process steps
Organizational implementation	– Difficulties for existing organizations to serve the old and the new concurrently – Independent organizational units can resolve this conflict	– New business models are affecting organizations usually in a broader manner and enforce organizational restructuring more often
Organizational anchoring	– Dedicated organizational units and responsibilities are required – Often internal and external resistance – Concept of sponsors or 'power promoters' and champions or 'specialist promoters' can be helpful	– Top management involvement more essential for business model innovations
Degree of innovativeness	– Distinction between incremental and radical innovations – Market breakthrough	– Technology (product innovations) vs. Industry (business model innovation) breakthrough

single organizational set-up that best fits a given contingency (Donaldson, 1996). The organizational performance is said to be dependent on the fit between organization and contingencies (Drazin & Van de Ven, 1985; Donaldson, 1999). In particular, the systems approach to contingency theory claims that the different contingencies and possible matching organizational alternatives have to be considered simultaneously and holistically. According to the idea of equifinality, fit can be accomplished by various sets of equally effective, internally consistent patterns of organizational context and structure (Miller, 1981; Drazin & Van de Ven, 1985). Applied to innovation management, Tidd (2001) proposes that the external contingencies affect the degree, type, organization and management of innovation, and that a better fit between these factors improves the companies' performance.

Conclusion

This paper determines similarities and differences between product and business model

innovations applying a framework of analysis to 11 current cases of business model innovation. For all aspects, similarities were identified that allow the transfer of findings from product innovation management. Also differences were found, indicating that adoptions and extensions of the approaches used in product innovation management are required in some of the aspects. Table 2 summarizes the similarities and differences between product and business model innovation that have been derived from the case analysis.

The comparison discloses that business model innovation research could greatly benefit from building on the extensive body of knowledge in product innovation management. Where strong similarities occur, existing constructs and findings could be leveraged to accelerate empirical research. Differences indicate the need for further explorative research.

Our study illustrates a wide variety of manifestations of business model innovation in practice. A greater awareness of the different options that exist contributes to a better under-

standing of the potential of business model innovation and the different choices for its successful implementation.

Business model innovations can be triggered by internal and external threats and opportunities. In general, a proactive approach allows companies to leverage opportunities rather than being forced to react to threats. In any case, timing is crucial because external factors might shift more quickly or slowly than expected. Expectation management is another critical aspect. It is important to understand that new offerings might need a lot of time to be accepted in the market. For established companies, this means that new business models should not be compared with well-established ones before they fully unlock their potential.

Regarding the innovation process and its organizational anchoring, the study indicates that a more structured and holistic approach could be expedient, extending the best practices already established for product innovation management. A more holistic management of innovation is needed, in which different types (e.g., product and business model innovation) and degrees of innovation (incremental and radical innovations) are considered and integrated. As the systems approach of contingency theory suggests, the applied structures and processes in the area of innovation management have to be internally consistent. So far, only few companies follow an end-to-end process to business model innovation, while their processes for product innovations are often based on proven process models. Also for business model innovations, normative process models could help to reduce complexity by abstraction and to derive necessary activities and decision points. Thus, a similar process model for business model innovation has been suggested recently by Bucherer (2011). However, such process models need to be applied, evaluated and adapted in practice to gain a similar maturity. Despite all of the benefits, the costs, time and difficulties required to implement such a process should not be underestimated.

In contrast to product innovation, where the process involves different hierarchical levels, business model innovation is mostly performed under a top-down approach. The current approaches of the companies analysed are highly dependent on the CEO and top management. Even though there is no doubt about the importance of their involvement, many tasks could be delegated so they could focus on management decisions. The organizational anchoring of the process is highly dependent on company size. Nevertheless, it is important to define a responsible person or

organizational unit. Business model innovation is not a one-time project; it should be anchored in the organizational structure. Due to its importance for the whole business, at least for larger companies it is useful to establish the function with a direct or dotted reporting line to the top management.

Our case analysis indicates that business model innovations are very powerful and offer a huge number of options compared to product and service innovations, since they allow for more comprehensive differentiation from the competition and broader effects on the company's top and bottom line.

Limitations and Future Research

Several limitations apply to the analysis of the cases. The sample of cases was composed with the objective of analysing a broad range of business model innovations and to select representative cases. However, the sample is not fully comprehensive or representative. It thus does not allow for 'statistical generalization'; nevertheless, the perceived 'logic of replication' allows for 'analytical generalization' (Yin, 1994). Further limitations might apply due to a single informant bias (Ernst & Teichert, 1998). The data analysis and categorization is subjective; even though the ratings were double checked with the respective company representatives, the assessment of the individual cases always leaves room for different interpretations, and the authors are solely responsible for the chosen assignments.

To achieve statistical generalization and a basis for normative statements regarding similarities and differences of business model and product innovations, quantitative empirical research based on large, representative samples with various informants for each company is required. To test and further explore the benefits of a more structured and holistic approach to innovation management, more research is needed focusing on an integrated management of business model and product innovation. This could include research on the process of business model innovation and possible normative process models.

As our paper illustrates, future research on business model innovation should pay greater attention to existing findings of product innovation management to further contribute to a systematic approach.

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Eva Bucherer (eva.bucherer@alumni.unisg.ch) recently finished her PhD on business model innovation at the Institute of Media and Communications Management at the University of St. Gallen in Switzerland in collaboration with SAP Research Switzerland. Her research focused on the process of business model innovation, its organizational anchoring and related responsibilities. It included numerous workshops with different companies.

Uli Eisert (uli.eisert@sap.com) is Research Manager at SAP Research in Switzerland. He has been working for SAP since 1995 in various positions in consulting, solution management and research. He earned a PhD in economics from the University St. Gallen with a thesis in the area of innovation management. He also holds a diploma in mechanical engineering from TU Darmstadt and in industrial engineering from FH Mainz.

Oliver Gassmann (oliver.gassmann@unisg.ch) is Professor of Technology Management at the University of St. Gallen, Switzerland and Director of the Institute of Technology Management. After completing his PhD in 1996, he was leading research and advanced development of Schindler Corporation. He has published in leading journals such as *Research Policy*, *R&D Management*, *International Journal of Technology Management*, *Journal of World Business*, *European Management Journal*, *IEEE Transactions on Engineering Management*, *Journal of Technology Transfer* and *Harvard Business Manager*. At the core of his research is the pervading question of how companies innovate and profit from innovation. Thus, he is dedicated to discovering new approaches to the management of technology and innovation that contribute to firms' competitive advantage.