

Chapter 3

Challenges and Visual Solutions for Strategic Business Model Innovation

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3.1 Introduction

The innovation of business models is one of today’s most challenging tasks for managers (Chesbrough 2006; Christensen and Raynor 2000) as both rapid technological and environmental changes proceed (Johnson et al. 2008). Nevertheless, anecdotal evidence suggests that business model innovation is not yet treated systematically, but often happens by chance or not at all. While innovation is on the strategic agenda of most firms today, which have extended their resources and strategic efforts to foster innovation by exploring new technologies and business services or processes (Dougherty 1992), many organizations have shown limited abilities to innovate their business models (Chesbrough 2010).

The risks and costs associated with changing the current business model places the task for innovation at top-management and strategic units (Peterovic et al. 2001). Aiming at changes to the core of a company’s value proposition, business model innovation affects and concerns various, if not all stakeholders inside as well

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as outside the firm. Among the challenges to be met by the development team are the needs to collect, process and distribute information, structure an inclusive and creative process to develop a new business model, while being under both time and economic pressure.

Furthermore, relatively little is known about how new business models are developed. The few existing studies on business model innovation were conducted ex post, as for example the study of Hilti's business model innovation (Johnson et al. 2008; Meehan and Baschera 2002). Considering the high risk that business model innovation poses to the survival of a firm, other researchers have suggested to develop scenarios in order to explore the feasibility of new business model options (Jonda 2007; Pateli and Giaglis 2005).

So far, no sufficient method for business model innovation has been developed. Nevertheless, first approaches are proposed. Chesbrough (2010) suggests that "experimentation" in existing firms with new business models is the key to gain sufficient data to decide upon the most successful option for a functional new business model, while Voelpel et al. (2005) see the need for "sensing" customer needs and business model requirements. Thus, a business model innovation development procedure needs to offer means to change the current business model, while at the same time minimize the risks of failure through testing new business model prototypes.

We believe that two issues are key for business model innovation as a management and communication process: first, the challenges a firm faces need to be identified and second, the challenges should be targeted with visual solutions in order to develop new business model ideas. This chapter identifies in a first step challenges for business model innovation and second, visual solutions from the existing literature, therewith combining two literature streams towards a systematic process of business model innovation. We suggest the development of visual solutions, as visualization facilitates knowledge creation and transfer, structures knowledge and team processes and thus can facilitate innovation.

In contrast to our approach in this chapter, extant research focuses only on establishing a common business model definition, evaluating business model components and identifying business model types and typologies. Disagreement exists among scholars on whether business models are to be understood mainly as method, process or strategy (Lambert 2006; Osterwalder and Pigneur 2002; Pateli and Giaglis 2004). We follow Magretta (2002), who argues that business models describe how the pieces of a business fit together by telling a story that explains how an enterprise works, and should not be confused with the above stated terms (Magretta 2002). A business model does not fix the strategy for achieving the business goals, nor does it explicitly provide how the model may be implemented. As a working definition, we follow the comprehensive definition provided by Osterwalder et al. (2005):

A Business Model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. In a description of the value a company offers [...] to customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate [...] revenue streams.

As business model innovation has not been defined in the literature, we refer to it based on our business model definition and in analogy to the highly recognized innovation definition by Baregheh et al. (2009) “Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace” (Baregheh et al. 2009).

Hence, *business model innovation is a multi-stage process whereby organizations transform new ideas into improved business models in order to advance, compete and differentiate themselves successfully in their marketplace.*

In the next section we outline is the difficulties firms encounter when aiming to change their business model.

3.2 Business Model Innovation Challenges

Every firm faces well-analyzed external environmental challenges relevant to its business model, as illustrated in Porter’s Five Forces framework (Porter 1985). While these challenges often initially induce the need to innovate the current business model of a firm, there are many important internal challenges to innovation that need to be considered as well. In the following, we develop an inventory of internal challenges firms face when attempting to find new business models.

Chesbrough (2010) focuses on two main challenges to business model innovation, which we continue to use for our analysis: confusion of what the right business model may be, which he refers to as cognitive challenges, and obstruction by the firms internal structures and processes, which we refer to as organizational challenges. These two main challenges to business model innovation may also be described as barriers to innovation, which are “conflicts with existing assets and business models, as well as cognition in understanding these barriers” (Chesbrough 2010).

For an initial list of business model challenges, we have analyzed the literature on business model innovation, on innovation processes in firms, as well as on knowledge creation and problem solving in groups. We have then matched the challenges with potential visual solutions, which we have identified in previous research as being essential to facilitate innovation in organizations. We continue by introducing three cognitive and three organizational challenges.

3.2.1 Cognitive Challenges

The cognitive challenges we have identified are based on the individual level and fall into three main themes: challenges based on the complexity of the task, the existing dominant logic, and the knowledge required.

The first challenge for business model innovation we address is its complexity (Damanpour 1996; Lundberg and Richards 1972). The complexity of the task of

mastering business model innovation is expressed by the uncertainty of the innovation process itself (Doganova and Eyquem-Renault 2009; Garud and Karnoe 2003), and is especially overwhelming when carefully assessing and understanding the firm's current business model (Eriksson and Penker 2000; Malhotra 2000; Osterwalder and Pigneur 2002; Pateli and Giaglis 2005), which is one of the prerequisites of business model innovation. Complexity usually arises when many elements, which are interrelated in an intransparent manner, need to be considered. This is given for business model innovation, as market forces and internal developments are not always inter-related in an easily discernable fashion.

For some researchers, the major obstacle to business model innovation is the *dominant logic of a firm* (Chesbrough and Rosenbloom 2002), which is "the way in which managers [in a firm] conceptualize the business and make critical resource allocations decisions" (Prahalad and Bettis 1986). The logic is stored via shared schemas, cognitive maps, mind sets as well as belief structures, and frames of reference; and is determined by the managers' previous experiences. Managers appear to focus on data relevant for the dominant logic; however, if the task is to change the dominant logic of doing business by developing a new business model, the dominant logic may pose a serious obstacle to innovation. Hence, the dominant logic filters out ideas that are not conform to the dominant logic. Chesbrough (2006) refers to the dominant logic in his work as "bias of the current business model". The dominant logic is also described as path-dependency (Coombs and Hull 1998) or the need to change a company's mindset (Wall et al. 2007). Furthermore, the dominant logic is understood as circular logic, as the logic influences actions, and the result of the actions shapes the dominant logic through feedback (von Krogh et al. 2000). Hence, the current business model can be understood as the dominant logic of the firm, which is questioned if substantial problems or a substantial crisis of the current dominant logic arise (von Krogh et al. 2000).

Research on the dominant logic is highly advanced, proposing distinct strategies to overcome the dominant logic of the firm. Christensen (1997, 2003), as well as Amit and Zott (2001) see the major requirement for business model innovation in a new way of strategic thinking towards a more integrative, dynamic, adaptive, and entrepreneurial strategies in order to overcome the firm's internal resistance, or *dominant logic*, in developing and adopting a new business model. As Chesbrough (2010) notes, those conflicts arise from the underlying configuration of assets that support the prevailing business model. Doz and Kosonen (2010) argue, that both *distancing* and *abstracting* are required for the generation of new perspectives and alternatives, by considering the possibility of applying different business models to the same business (Doz and Kosonen 2010). Also, *cognitive diversity* among executives is necessary to allow for the generation of genuinely different and independent alternatives (Peterovic et al. 2001). Furthermore, cognitive biases, as for example the role and interrelationship between search processes that are forward-looking, are based on the actors' cognitive map of action-outcome linkages, while those that are backward-looking, or experience-based (Gavetti and Levinthal 2000), relate to the dominant logic of the firm.

We argue that, while first potential solutions to handle the challenge posed by the dominant logic of the firm exist, the challenge is far from being met and remains among the major obstacles to business model innovation.

The third cognitive challenge concerns *knowledge* sharing and creation across epistemic boundaries (Carlile 2002, 2004; Dougherty 1992; Peterovic et al. 2001); essential to any kind of innovation and necessary if the new business model is elaborated in team work. The creation of knowledge occurs through the insights resulting from the information pooling process (Harris and Woolley 2009) and from interacting with other sources of knowledge outside the team, which may be internal or external to the company (Nonaka 1999). The management of group processes (in-group bias) and the group knowledge work in teams pose another related challenge to successful business model innovation. Groups often encounter challenges beyond their prior knowledge and experiences, and then having to learn how to materialize innovative ideas under pressure in a dynamic environment (Chao-Tung and Yi-Wen 2007). This type of knowledge integration is hence a fragile process that requires systematic and continuous support with corresponding tools. In the following section we will show that visual methods can be fruitfully used to meet this challenge.

3.2.2 *Organizational Challenges*

The organizational challenges we have found are as well threefold: challenges based on the *resources*, *values* and the *team*. (Christensen and Raynor 2000; Leonard-Barton 1992).

Resource fluidity is emphasized as core challenge for business model innovation by most scholars (Christensen and Raynor 2000; Doz and Kosonen 2010; Leonard-Barton 1992; Zott and Amit 2010). The resources available for business model innovation build the foundation for the whole idea generation and later implementation. Without sufficient resource allocation and support, business model innovation is doomed from the start. Hence, Doz and Kosonen (2010) argue, that resource handling is among the core capabilities for innovation, as they understand resources as “the internal capability to reconfigure capabilities and redeploy resources rapidly” (Doz and Kosonen 2010). Furthermore, the resources necessary in order to change a firm’s current business model need to be carefully assessed in order to identify core resources, which may continue to offer a competitive advantage based on their position in the new business model.

A firm’s *values* are important for business model innovation as values influence the firm’s culture, working methods, and habits; all of which are in movement when a new business model is developed. Changing working methods, habits, and culture requires involving employees and their creativity in the innovation process, thus, an overall change in a firm’s culture may become necessary (Bettis and Prahalad 1995; Christensen and Raynor 2000; Doz and Kosonen 2010). The most important issue concerning values is that values are for most part not stated

explicitly. Thus, it becomes a challenge to identify the values which may foster change and those which are preventing change.

Choosing the right *team* for business model innovation is another challenge, as multiple stakeholders are involved in business model innovation, which leads to conflicts between departments, such as operations, engineering, marketing, sales and finance (Bettis and Prahalad 1995; Chesbrough 2010). Once the team is established, it has to be enabled to work properly, which requires to identify values, motivations, expectations and hidden agendas. Furthermore, coordination challenges to organize teamwork may hinder the business model innovation process substantially (Bartel and Garud 2009; Doganova and Eyquem-Renault 2009).

To summarize this section, we have depicted the challenges and their relations in Fig. 3.1. We found that one major challenge effects all other challenges, namely the *dominant logic*, while all of the challenges influence and add to one challenge, namely *complexity*.

The challenge of the *dominant logic* effects all challenges that we have identified by setting the mindset, previous *knowledge*, *team* compositions and determines the firms' *values*. As Chesbrough and Rosenbloom (2002) argue, the dominant logic filters out ideas and behaviors that do not comport with the current dominant logic of the firm, thus doing anything in a new way becomes inherently difficult. The dominant logic also influences patterns of *resource allocation* due to its impact on executive's decision making criteria in the resource allocation process. Changes in resource allocation that are necessitated by a new business model thus have to overcome strong organizational inertia. Last, the dominant logic adds to the *complexity* of the task.

The team challenges are influenced by knowledge and influence both knowledge and value challenges. The *team* challenges impact on both the *values*, as corporate

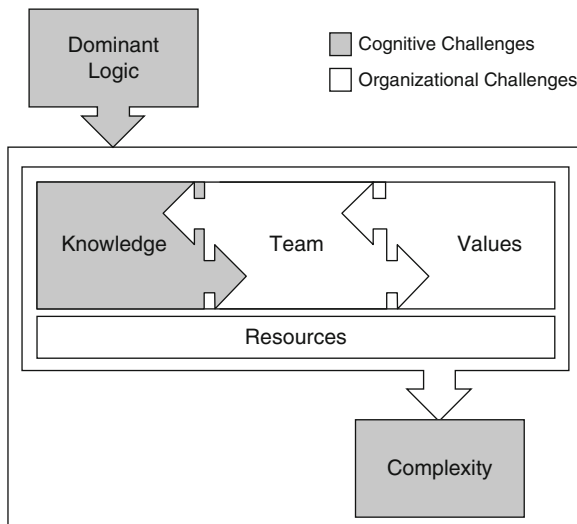


Fig. 3.1 Business model innovation challenges

values and individual values influence any team process and especially the unity among the team members (Chesbrough 2010), as well as on *knowledge* creation and sharing, while the *resources* and their flexible allocation build the foundation of business model innovation (Chesbrough 2010; Doz and Kosonen 2010; Zott and Amit 2010).

Finally, the challenge which is the result of the previously mentioned challenges is *complexity*. Complexity as a challenge itself is thus further enhanced by the specified interaction of business model innovation challenges.

3.3 Visual Solutions for Business Model Innovation Challenges

The challenges business model innovation poses to any organization are not only multiple, but are interlinked, as argued and visualized in the section above. In our research on visualization tools and techniques in management we found that visualization offers multiple opportunities to tackle the identified challenges, as it enables cooperation, clarifies complex issues and fosters creativity.

The opportunities offered by visual tools are supported by boundary object theory, with boundary objects being agents that socially organize distributed cognition. Furthermore, boundary objects allow members of different groups to read different meanings particular to their needs from the same material, while cognition is distributed by forms of nonverbal knowledge, for example through interactions with sketches and drawings (Henderson 1991; Star and Griesemer 1989). Recent findings on boundary objects theory suggest that boundary objects are involved in innovation activities. Examples in the literature are sketches and drawings (Carlile 2002; Henderson 1991; Doganova and Eyquem-Renault 2009).

Business model innovation requires the innovation team to consider and understand various and potentially conflicting positions of the stakeholder and units affected, complexity needs to be structured and mastered, which is considerably facilitated through the created artifacts. In addition, positions of stakeholders can be visualized and taken into consideration from the very beginning through visualizing brainstorming, position taking and rapid prototyping. Sketches, for example, can serve as boundary objects and assist communication to refine ideas further; serving to assist shared cognition and capture pertinent and implicit knowledge from different sources (Carlile 2002; Henderson 1991).

In a first step, we will match the identified challenges with visual solutions we have identified and experimented with.

Visualization helps to overcome the *dominant logic* of the firm by challenging self-imposed constraints (Mintzberg and Van der Heyden 1999; Platts and Kim Hua 2004), focusing attention (Fiol and Huff 1992; Platts and Kim Hua 2004) and by enabling playful exploration of other mindsets (Mintzberg et al. 2007). For business model innovation sessions, we specifically suggest to use scenario diagrams, which enable different views on the future (Fiol and Huff 1992); and sketching, which fosters big picture thinking and abstracting (Mayer 2008).

The dominant logic influences the challenges posed by knowledge, the team and corporate along with the individual team members values, as well as resource allocation. These add to the overall complexity of the issue. In order to ease the challenges posed for the *team*, research has shown that visualization generally fosters mutual learning in teams (Bresciani and Eppler 2009) and offers coordination benefits (Eppler and Platts 2009). We suggest to use strategy roadmaps, in order to create involvement and foster creativity in innovation teams (Blackwell et al. 2008), as well as using sketches and prototypes to help integrating different viewpoints (Schoen 1984). Following Schoen (Schoen 1984), visualization further elicits implicit values and triggers value-related dialogues, which facilitates to handle team members values just as dominant corporate values.

Knowledge creation and sharing is facilitated by visualization, as visualization generally stimulates thinking (Tufté 1990), fosters shared thinking (Fiol and Huff 1992), triggers memory (Craig 2000) and provides inspiration to innovation processes (Ewenstein and Whyte 2007). We suggest using collaborative visualization software to foster knowledge sharing in teams (Bresciani and Eppler 2009).

Without the necessary *resources*, business model innovation is seriously limited. Hence, we suggest mapping resources using for example core competence metaphors (Klein et al. 1998), which help to see their allocation potential and scope.

Finally, the *complexity* of the task may appear overwhelming at first. Here, visualization can help to map and clarify organizational complexity. We propose to use organigraphs (Mintzberg and Van der Heyden 1999) and graphic aggregation, such as portfolio diagrams to absorb complexity (Eppler and Platts 2009), and in a next step, to use the strategy canvas and profile charts to identify options (Kim and Mauborgne 2005). Especially interesting is the business model canvas elaborated by Osterwalder and Pigneur (Osterwalder and Pigneur 2009), who offer a powerful visual tool which visualizes the most important parts of a business model while at the same time, reducing the overall complexity.

Table 3.1 provides a preliminary overview on the state of the art of challenges identified in the literature, matched with potential visual solutions and brief explanations of what those tools offer in particular. Furthermore, Table 3.1 illustrates various forms of visualization that provide a wide variety of mostly cognitive and communicative benefits to business model innovation. Most of these benefits arise due to the *flexible and provisional, and yet accessible and persistent quality of visualizations*. Visual *tools*, however, need to be embedded in an organizational structure which supports business model innovation.

The visual tools and opportunities identified are often commonly known in many organizations, yet we found that they have not been *strategically* applied and used in order to foster business model innovation dialogues.¹

¹For readers interested in exploring the strategic use of visualization tools, we provide an interactive overview at: http://www.visual-literacy.org/periodic_table/periodic_table.html. We have also made available an interactive toolkit of interactive visual methods for business model innovation at lets-focus.com for downloading.

Table 3.1 Business model innovation challenges and visual solutions²

	Challenges	Visual solutions
Cognitive	Complexity	<ul style="list-style-type: none"> • Absorb complexity (Eppler and Platts 2009) • Organigraphs map and clarify organizational complexity (Mintzberg and Van der Heyden 1999) • Strategy canvas and profile charts (Kim and Mauborgne 2005) • Business model canvas (Osterwalder and Pigneur 2009)
	Dominant logic	<ul style="list-style-type: none"> • Scenario diagrams enable different views on the future (Fiol and Huff 1992) • Challenge self-imposed constraint (Mintzberg and Van der Heyden 1999; Platts and Kim Hua 2004) • Enable the playful exploration of mindsets (Mintzberg et al. 2007) • Sketching fosters big picture thinking and abstracting (Mayer 2008)
	Knowledge	<ul style="list-style-type: none"> • Foster shared thinking (Fiol and Huff 1992) • Stimulate thinking (Tufte 1990) • Trigger memory (Craig 2000) • Inspire (Ewenstein and Whyte 2007) • Sketches and prototypes integrate view points (Schoen 1984) • Collaborative visualization software fosters knowledge sharing (Bresciani and Eppler 2009)
Organizational	Resources	<ul style="list-style-type: none"> • Resource maps visualize allocation potential and scope (Klein et al. 1998)
	Values	<ul style="list-style-type: none"> • Elicit implicit values and trigger value-related dialogues (Schoen 1984)
	Team	<ul style="list-style-type: none"> • Foster mutual learning in teams (Bresciani and Eppler 2009) • Offers coordination (Eppler and Platts 2009) • Strategy roadmaps create involvement and foster creativity (Blackwell et al. 2008)

In this chapter, we have provided pointers to a wide range of existing visualization methods and their specific benefits for business model innovation. Visual tools are likely to help in overcoming many especially cognitive-based challenges firms face when innovating their current business model. Finally, visual tools foster strategic change by clarifying, organizing and uncovering relationships among business model elements and by pointing towards unexplored opportunities.

3.4 Conclusion

When business model innovation is on the agenda of top management teams, a variety of challenges emerge. In a first step, we have organized the challenges and grouped them into individual, cognitive challenges and collective, organizational challenges. For each category, we have identified three main challenges that are

²Interested readers can find an overview of the suggested visualizations at: <http://www.knowledge-communication.org/pdf/innovation-templates.pdf>.

likely to occur in the course of business model innovation and thus need to be addressed. In a final step, we have shown how these challenges are interlinked, therewith offering opportunities to address the challenges together.

We suggest approaching the challenges using visualizations, such as interactive graphic methods, which have proven to successfully address many of these issues. However, those have not been used systematically in order to arrive at a new business model idea yet, with the only exception being Osterwalder and Pigneur's canvas (Osterwalder and Pigneur 2009). Their business model canvas has not been systematically evaluated, which will eventually allow for a better assessment of its advantages. In this chapter, we have provided pointers to a wide range of existing visualization methods and their specific benefits for business model innovation, based on our research. Visual tools help to overcome the challenges firms face when innovating their current business model by fostering strategic change through clarifying, organizing and uncovering relationships, dependencies and pointing towards blue ocean strategies.

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