Nicole Pfeffermann · Tim Minshall Letizia Mortara *Editors*

Strategy and Communication for Innovation

Second Edition



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Editors Nicole Pfeffermann ISEIC Consulting UG Bremen Germany

Tim Minshall Letizia Mortara University of Cambridge Cambridge UK

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Foreword

The most effective way to cope with change is to help to create it. I. W. Lynett

The ability to innovate—i.e. successfully introduce new products and services to the market—is a key success factor that underpins the profitability and competitive advantage of firms. Innovation management thus needs to be considered as a core organisational capability for all growth oriented firms. In recent years, due to pressure for higher rates of innovation and the widespread diffusion of new technologies, innovation management has gained increasing importance for all firms. However, whereas in the past innovation was mostly driven through internal Research & Development (R&D) activities, today's firms need to rely on more cross-functional innovation teams and on the engagement with various external stakeholders to achieve the required level of innovation performance. External engagement is needed not only to allow firms to fuel their new product and service development pipelines, but also to commercialize their internally developed innovations in new ways. The ability to manage these 'open innovation' processes has become a necessity for firms today. Consequently, interest in open approaches to innovation among managers and researchers has risen sharply over the past 10 years. One output of this increased interest has been the recognition of the importance of communication for success in open innovation. From a strategic management perspective, communication represents a critical skill needed to explore and create the diverse routes for the commercialization of ideas across functions, organizations and industries. Communication facilitates information exchange through various channels for building trust between stakeholders, leading to corporate reputation-building in the long-run. Via appropriate communication firms can build and re-configure resources and capabilities for innovation, such as innovation communities.

This book presents an update on the state-of-the art theoretical and practical understanding of this field, building upon the initial steps developed in the first edition. This new volume bridges the gap between innovation management and communication management to reveal multiple perspectives on strategic innovation.

This book, organized around eight central themes, is a resource for managers and researchers alike that provides new insights, perspectives, examples and interesting case studies on the role of communication in an open innovation world.

Business Model Innovation and Strategic Open Innovation

How can companies overcome business model innovation challenges and design open innovation initiatives to achieve business growth?

The opening paper by Eppler and Hoffmann identifies internal business model innovation challenges and highlights visual solutions to overcome obstacles of managing and communicating the multi-stage process of organizational transformation. This chapter provides a literature review and a new perspective on business model innovation to illustrate its challenges and the potential of using visual solutions to overcome them. Visualization helps companies to overcome critical obstacles to the renewal of their business model such as the constraints of the dominant logic and the problems of creating new knowledge. Visualization approaches such as *sketching* used in combination with tools such as *scenario planning* allows the comparison and contrasting of different future views facilitating the analysis of the 'big picture' and challenging the dominant logic.

The chapter by Vanhaverbeke and Roijakkers advocates for the integration of open innovation initiatives into strategy, beyond the activities of product development, and the need for an investigation into management processes for such a purpose. This broader perspective on open innovation has implications for both academic theory (where open innovation is typically linked with the new product development funnel) and for open innovation management practice within a broad spectrum of firms, including those who do not carry out new product development themselves.

The chapter by Moeslein presents strategic options for open innovation and discusses core tensions in managing strategic open innovation initiatives. Three types of innovators in open innovations exist: core inside innovators, peripheral inside innovators, and outside innovators. These types can be integrated in open innovation through the use of five innovation tools for successfully designing open innovation initiatives. The tools allow for large numbers of innovators to contribute, to empower these innovators to collaborate in widely distributed settings, to foster high-speed interaction, and to provide a global memory for innovators to build on.

Breakthrough Innovation

How can companies deal with breakthrough innovation?

Breakthrough innovation can lead to corporate growth and new business opportunities. The chapter by Ford, Ferriani and Probert identifies two basic conditions for companies to engage in breakthrough innovation: (1) The creation of an environment conducive to idea generation and (2) the capability to accept risk. In this chapter, the mechanisms through which established firms can harness these fundamental enablers are explored, providing an overview of the main factors that cause established firms to oppose breakthrough innovation projects and conceptualizing the generation of breakthrough innovation as a two-stage search-selection process. Focusing on the selection phase, this chapter proposes three types of regime that established firms can adopt to overcome innovation barriers: (1) individual driven (2) lead user driven and (3) application domain driven. Examples from BAE Systems, Rolls-Royce and ARM are used to illustrate the effectiveness of these selection regimes.

Capabilities and Resources for Innovation

How can companies systemically create knowledge through co-creation, build strategic innovation networks, and drive organizational flexibility for innovation?

Open innovation does not only focus on product innovation; it also involves other activities such as service innovation and co-development on strategic corporate level with external parties. The chapter by Koch, Rapp and Kröger investigates how web-based co-creation platform design helps to develop a new political strategy by systematically attracting the knowledge of experts and individual members of the public. A new insight from this chapter is that open strategy should result in communication-oriented change projects rather than just software-focused web-based platform projects.

The chapter by Crispeels, Huculeci, Willems and Scheerlinck states that knowledge is a critical resource underpinning successful innovation acquired through inter-organizational networks. Empirical research in the Flanders' biotechnology industry provides new results and perspectives on how actors in industries interact in different networks, such as innovation networks and strategic networks. By using social network analysis methods, the researchers show that collaboration between two organizations on one network level might lead to various forms of interlocking of the organizations at other network levels.

The last chapter of this section by Hülsmann, Tilebein, Cordes and Stolarski provides a perspective on innovation capability from a strategic management perspective. The capability to imagine alternative strategic logics and management processes is a basic condition for organizational flexibility. The main conclusion of this chapter is that strategic management should be aware of cognitive diversity to unlock the full potential of organizations. The authors recommend applying an agent-based system to investigate conditions under which cognitive diversity contributes to innovation capability.

Multiple Perspectives on Communicating Innovation

How can companies communicate in innovation clusters? How can managers communicate innovation to address stakeholder's desires, interests, and emotional needs?

The chapter by Blasini, Dang, Minshall and Mortara focuses on the role of communicators in innovation clusters. This chapter reveals that an understanding of the role of key communicators in innovation clusters is essential in order to understand the dynamics of communication interrelations and the links to cluster development. One insight is that communicating inside and outside a cluster demands the creation of a common language for successful information exchange relating to complex innovations with a broader audience.

As the open innovation process becomes accessible to consumers and other external parties, new challenges in innovation communication emerge. The chapter by Bruhn and Ahlers describes an approach for integrated innovation communication that aims to ensure the systematic coordination of complex tasks and the interfaces used to communicate in an open innovation process. Based on an integrated marketing communication approach, this chapter covers a multi-level process of integrated innovation communication that spans from idea generation to stagnation, and highlights the communication elements that help ensure the integration of several components throughout an open innovation process.

What determines the success of innovation? Customer focus represents the key success factor for companies, and professional innovation marketing therefore results in the so-called competitive innovation advantage (CIA). This chapter by Steinhoff and Trommsdorff describes basics of innovation marketing as a field in marketing science to answer the question from a market-related perspective.

A critical success factor in the commercialization of an innovation is people and their word-of-mouth (WOM) communication. WOM communication can foster information transmission of new products and services throughout the market. The chapter by Mazzarol presents new perspectives on the nature of social capital, strategic networking (the *commercialization net*) and WOM communication in the commercialization of innovation. It shows that firms need to possess strong networks at the production, resource, and social layers in order to support the adoption of an innovation.

In the last chapter of this section, Mast presents an internal perspective on how communication strategy can be created for communicating innovations. Based on the results from a study conducted in Germany, Mast concludes that innovation communication programs can be planned, but there remains a lack of knowledge regarding stakeholder's desires, interests, and emotional needs.

Managing Communication for Innovation

How can companies efficiently manage internal and external communication activities for innovation?

The chapter by Pfeffermann provides a new perspective on visual and scent-based communication for innovation in the digital information age. Although the sense of smell is the oldest human sense, only in recent years scholars have studied scent and its psychological effects to tap into someone's emotional responses and memory. This chapter presents a theoretical approach of integrating innovation communication with concepts from psychology research, introducing a new management approach of innovation communication. The three-step model proposed encompasses re-/designing, implementing, and measuring innovation communication and points out specific analytical and visual-creative tools that could support planning innovation communication. The chapter suggests integrating scent-based communication in innovation management to emotionally reach to stakeholders and engage them in open innovation by addressing their desires and needs.

Innovation Communication and Collaborative Innovation

How can companies coordinate (open) communication activities for innovation and strengthen collaborative innovation?

The chapter by Belasen and Rufer identifies characteristics of adaptive culture and innovation communication that contribute to effective interfunctional collaboration. Based on the Competing Values Framework for Corporate Communication, roles, relationships, and communication patterns become apparent for successful commercialization of technology through open innovation. The new insight from this chapter is that lateral communication in organizations and an adaptive culture represent the most effective mechanisms to facilitate interfunctional coordination.

The chapter by Pfeffermann describes the cross-functional innovation communication capability. This capability is defined as the transmission of information between an organization and its stakeholders to increase corporate value. Three functions are needed for innovation communication: (1) *building* and *modifying function* (knowledge creation), (2) *improving function* (management of strategic assets) and (3) *intensifying function* (corporate innovation reputation). The chapter presents eight dimensions of the innovation communication capability and illustrates the direct and indirect effects of innovation communication on corporate value.

Features of a relational communication strategy for effective collaborative innovation include high communication quality, bi-directionality, and open communication climate. The chapter by O'Toole and Holden identifies nine features and four key mechanisms to increase communication in collaborative innovation. Illustrative examples are provided to support propositions about the features and mechanisms of a communication process in successful collaborative innovation.

Collaborative innovation also implies to focus on collaborative communication. This issue is discussed in the chapter by Viardot, which points to the emergence of a new category of manager (*network orchestrator*) who is capable of interacting and communicating clearly, simply, effectively and consistently with all innovation partners. This chapter presents results on how technology-driven companies have to redefine information flows and engage the whole company into collaborative innovation rather than only innovation teams.

Social Capital and the Social Enterprise

How can companies move from a 'learning' to a 'sharing' paradigm?

The chapter by Ferguson addresses the question 'What are the strategic considerations in using social media platforms and open source practices such as crowdsourcing as tools in innovating organizations?' Ferguson discusses this question from several perspectives, and explores seven characteristics of audiences that should be taken into account in planning for innovation and suggests theories that support a user orientation. The key words for success in the new digital world are identified as *trust*, *respect*, *transparency*, *openness*, *sharing*, *recognition*, and *timeliness*. This chapter emphasizes that strategic planning for communication of innovation demands building on the existing knowledge of audiences, social media, crowdsourcing, communication, and innovation theories.

The chapter by Rodríguez-Montemayor provides a literature review from a multi-disciplinary perspective that explores the impact of social media on the innovation process. Organizations are *networks of conversations* and innovation activities are taking place via a sense-making process across teams and business networks. Social media can support making sense of knowledge in the context of the firm's overall strategy; i.e. social media supports innovation narratives resulting in the unlocking of the full potential of novel ideas through a common and clear innovation strategy.

Innovation and Communication Strategy in Practice

How can companies design integrative innovation and communication strategy?

The chapter by Andersen presents the case of Danske Bank, one of the Nordic region's leading banks, using the structure provided by the *Innovation Radar Framework*. It provides an in-depth analysis of the reasons why a communication

strategy should be an integral part of a company's overall corporate innovation strategy.

The final six chapters present specific case examples, illustrating different aspects of innovation communication in practice. Eberl describes how communicating for innovation has been managed by Siemens on a holistic basis, with particular focus on the firm's environmental technologies.

Steinhoff and Breuer describe the approach taken by Telekom Innovation Laboratories to develop a user-centered innovation approach to identify and specify options for radical innovation. The case study focuses on the initiation phase of the approach, with emphasis on the use of *Futures Workshops*.

The operation of SAP's Global Co-Innovation Lab Network is discussed by Patsch and Zerfass. This chapter uses a social structural perspective on innovation and communication to describe how structures are created to enable co-innovation actions in organizational practice.

Kröper, Bilgram, and Wehlig describe how Vorwerk Thermomix Research Community uses online research communities to gain consumer insights and create new products. They describe how a strongly committed group of people helps to establish in-depth dialog in which people not only perform a particular task assigned to them, but also exchange, share and develop ideas.

Kastelle and Ohr present the two contrasting cases of Lorna Jane and TravelOrg to discuss how social media can influence all phases of an innovation process, and the links between use of social media and innovation capability.

The final chapter focuses on innovating and communicating in networks through orchestration. Cartwright and Smith illustrate how this is exemplified by emerging artists who independently promote and sell their music.

Ellen Enkel

Acknowledgments

The collection of works, published in this edition, aims to make a valuable contribution to the area of strategic innovation management and communication, covering recent and future developments in open innovation, innovation communication and management practice on managing and communicating innovation online and offline in the innovation economy.

A number of people have contributed to making the second edition of this book possible. First of all, we would like to thank Prof. Dr. Hülsmann, Jacobs University Bremen, and Thomas Lehnert, Senior Editor Engineering at Springer-Verlag, who saw the potential of this project and gave their early commitment to the concept of this book as well as the support that brought the book's first edition to fruition. Special thanks also go to Jan-Philip Schmidt, current Editor, Physical Sciences and Engineering, and his Book Coordination Manager Ms. Heather King, for their support and advice in preparing the book manuscript and market launch.

Writing book chapters is especially challenging when submission deadlines compete directly with other academic, professional, and social tasks. We would like to express our strong gratitude to all authors for taking the time to contribute a chapter.

Finally, our thanks go to the readers and reviewers of the first edition, who have supported us preparing this second volume. Last but not least, we sincerely hope that researchers, students, colleagues, business managers, and innovators/visionaries will enjoy reading this book and be inspired by multiple perspectives and theoretical and managerial implications provided by the thoughtful book chapters.

Bremen, April 9, 2013

Nicole Pfeffermann Tim Minshall Letizia Mortara

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Part I Strategic Perspectives on Innovation

Chapter 1 Strategies for Business Model Innovation: Challenges and Visual Solutions for Strategic Business Model Innovation

Martin J. Eppler and Friederike Hoffmann

Abstract Business model innovation is a key task of an organization's senior management team. Little is known, however, about business model innovation challenges that need to be addressed and how managers can structure the task of developing novel and commercially viable business models. This chapter analyzes the challenges an organization faces when changing the current business model and proposes visual solutions to overcome these challenges and develop new business models in existing firms. The argument supporting this proposition is developed in three stages: First, based on the existing management literature on business models, this chapter derives a set of challenges for business model innovation. Second, leveraging current visualization research, the chapter discusses several visual solutions to these specific challenges. Finally, we discuss how the characteristics of visual tools can practically support senior management teams in meeting the challenges of business model innovation.

1.1 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).

M. J. Eppler (🖂) · F. Hoffmann

University of St. Gallen, St. Gallen, Switzerland e-mail: martin.eppler@unisg.ch

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 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 (Johna 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 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 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 only focuses 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 Sect. 1.2 we outline is the difficulties firms encounter when aiming to change their business model.

1.2 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.

1.2.1 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 especially overwhelming when carefully assessing and understanding the firms current business model (Erikkson 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. The dominant logic filters out ideas that are not conform to the dominant logic. Chesbrough (2006) refers to the dominant logic earlier 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, with already certain strategies suggested to overcome the dominant logic of the firm. Christensen (1997), Christensen and Raynor (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.

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

The third cognitive challenge is concerned with *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.

1.2.2 Organizational Challenges

The organizational challenges we have found are threefold as well: 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 firms current business model need to be carefully assessed in order to identify core resources, which may continue to offer an competitive advantage based on their position in the new business model.

A firm's *values* are important for business model innovation as they are expressed by 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 require 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 they 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 team work 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. 1.1. 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* affects 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* through 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.

Furthermore, the team challenges are influenced by and influence knowledge and value challenges. The *team* challenge impact on both the *values*, as corporate 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*. The complexity as a challenge itself is thus further enhanced by the specified interaction of business model innovation challenges.



1.3 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 emphasized 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 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 enabling playful exploration of other mindsets (Mintzberg et al. 2007). For business model innovation sessions, we suggest to use scenario diagrams, which enable different views on the future (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 (Schön 1984). Following Schön (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 (Tufte 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 (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 1.1 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 1.1 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.

	Challenges	Visual solutions
Cognitive	Complexity	 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	 Scenario diagrams enable different views on the future (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	 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 (Schön 1984) Collaborative visualization software fosters knowledge sharing (Bresciani and Eppler 2009)
Organizational	Resources	• Resource maps visualize allocation potential and scope (Klein et al. 1998)
	Values	• Elicit implicit values and trigger value-related dialogues (Schön 1984)
	Team	 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)

Table 1.1 Business model innovation challenges and visual solutions

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

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 the many (especially cognitive)-based challenges firms face when innovating their current business model. Visual tools foster strategic change by clarifying, organizing and uncovering relationships among business model elements and by pointing towards unexplored opportunities.

¹ For 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.

1.4 Conclusion

When business model innovation is the goal of top management teams, a variety of challenges are faced. 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 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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Chapter 2 Enriching Open Innovation Theory and Practice by Strengthening the Relationship with Strategic Thinking

Wim Vanhaverbeke and Nadine Roijakkers

Abstract In this chapter, we first argue that open innovation can be applied to situations where companies do not themselves develop new products or services. As a consequence, open innovation becomes relevant for a much larger group of organisations than hitherto. Second, we argue that open innovation scholars have failed to sufficiently differentiate open innovation initiatives in terms of their impact on companies' growth: Some open innovation initiatives lead to incremental innovations in existing businesses while others are used to establish completely new businesses. Both arguments illustrate the need to integrate open innovation initiatives into the strategy of the firm.

2.1 Introduction

We believe there is a pressing need to rethink open innovation. The development of open innovation has been tightly linked to the concept of the (open) innovation funnel. In this chapter, we argue that open innovation should be sundered from the 'innovation funnel' concept for it to perform even greater service in the future.

We make two arguments why the connection to the 'innovation funnel' should be loosened to enable new research paths to be found in the open innovation field. First, we argue that organisations in different kinds of industries can benefit from open innovation even when they do not develop new products or services themselves. This change in perspective makes open innovation relevant to a much broader range of organisations than before. Second, open innovation, with its main focus on the innovation funnel, has implicitly concentrated on R&D projects that, if successful, would boost growth in existing businesses. To date, innovation

W. Vanhaverbeke $(\boxtimes) \cdot N$. Roijakkers

Hasselt University, Diepenbeek, Belgium

e-mail: wim.vanhaverbeke@uhasselt.be

scholars have made few attempts to make comparisons between open innovation initiatives as: (1) ways to speed the growth of existing businesses; (2) ways to set up new businesses. Both arguments illustrate the need to integrate open innovation initiatives into the strategy of the firm. Scholars need to: (1) analyse how managers follow a stepwise process for linking firms' strategy with open innovation practices; (2) take the integration of open innovation into strategy seriously.

We explore these two themes in more detail in the following two sections. In the conclusions, we focus on the consequences of this attempt to broaden the scope of open innovation for both practitioners and scholars.

2.2 Open Innovation beyond New Product Development

Open innovation scholars have always (implicitly) focused on open innovation practices in the context of new product development. This is illustrated by the central place occupied by the open innovation funnel in Chesbrough's seminal book (2003). Open innovation has been defined in terms of inside-out or outside-in innovation. These two terms implicitly refer to the open innovation funnel where external knowledge is acquired to strengthen internal competencies and to speed up the innovation process within the company, and in which unused, internal knowledge is monetised through external paths to market. External knowledge is in-sourced to develop new products or businesses, or internal knowledge is sold to other firms, which deploy it for their own new product development.

However, Vanhaverbeke and Chesbrough (2013) show that open innovation can be applied to many more situations than just new product development. They claim that new product development is only one of many business activities where open innovation is applicable and valuable. New product development is not an option in many industries such as services where firms typically focus on creating solutions for customers rather than producing and selling products based on new technologies. Moreover, in many manufacturing industries, companies produce and sell commodities. In such cases, new product development is simply not an option. Vanhaverbeke and Chesbrough (2013) argue that in such industries, a company (the focal firm) should first determine which strategic drivers should be leveraged to gain competitive advantage. Next, technological innovations in other companies may be useful for leveraging the strategic drivers identified. Therefore, the focal firm has to set up a network (or an innovation ecosystem) including these companies: Technological innovations in the latter will lead to a competitive advantage for the former. In short, we should not automatically link open innovation to new product development but rather look for specific strategic drivers in certain situations.

A good example can be found in the crude oil business within a large oil company. The product sold by the business unit is clearly a commodity and hence new product development is automatically excluded (at least at the business-unit level). However, as in any business, competitive advantage in the crude oil