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Collaborative Business Modeling:
Design of an IT-Environment that enables the co-creation of a company's business model

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Initial Situation and Purpose

Due to the digitalization of their economic environment, companies will face an increasing competition within their existing markets as well as significant impairment of their existing business models (Dawson 2013; KPMG 2013). Consequently, many companies change their product and service portfolio, away from standardized service offerings to situational satisfaction of user needs (Leimeister 2012). Customers and other stakeholders of a company are no longer seen as sole consumers but as active co-designer of the solutions that they want to use (Vargo and Lusch 2004; Leimeister 2012). In this regard, the design and management of business models plays a pivotal role. The business model concept serves as an overarching framework to provide orientation for strategically structuring, analyzing and designing novel solutions in the digital era (Zott, Amit et al. 2011).

As a consequence, the business model concept gained significant attention within practice as well as in academic literature (Zott, Amit et al. 2011). Especially within the field of management literature there is an increasing interest in understanding the foundations of the business model concept. While this stream of literature has increased our understanding of the significance of business models (Chesbrough and Rosenbloom 2002; Johnson, Christensen et al. 2008; Teece 2010) and their impact on firms performance (Zott and Amit 2008), too little attention has been given to the process of designing business models (Osterwalder and Pigneur 2013). Especially the role of IT-tools, supporting the process of designing a company's business model has been largely neglected. This is surprising, since such business model development tools (BMDT) are expected to facilitate the process of developing new business models together with a company's stakeholders (Del Giudice and Straub 2011) by reducing transaction costs and improving organizational routines when coordinating different development activities (Malone, Yates et al. 1987; Timmers 1998; Skinner 2008). In addition to that, such co-creation of a company's business model would not only support the integration of customer needs into a company's business development process, but might also enhance the quality of the developed business models (Nemiro 2001; Franke and Shah 2003; Gasco-Hernandez and Torres-Coronas 2004; Sawhney, Verona et al. 2005). As a consequence, this thesis addresses the question how to support co-design and collaborative elaboration of a company's business models together with its customers and stakeholders via a BMDT.

Research Question and Methodology

To fulfill its desired objective, the thesis is based on three research questions:

RQ1: What are the requirements for a BMDT that allows firms to co-create new business models together with its customers?
RQ2: What is a possible design for a BMDT that allows firms to co-create new business models together with its customers?
RQ3: What are the effects of deploying the developed BMDT in a business model development project?

Methodology

In order to reach the mentioned research goals, this thesis adapts the design science approach (Hevner, March et al. 2004). First the relevance of the problem at hand has to be elaborated and the efforts to design the new functionalities have to be justified. In addition to that, within this first cycle (relevance cycle), the requirements for the proposed artifact have to be identified. In a second step (design cycle) the design of the proposed artifact will take place. Third, the results of our design efforts as well their consequences to the existing knowledge have to be discussed (rigor cycle).

The DSR relevance cycle will be initiated by drawing on the literature within the knowledge base of business modeling to identify the several phases that are necessary to conduct a business model development project. In addition to that, the requirements for a BMDT that follows the identified phases are derived. In order to solve the design challenge, i.e. to develop a BMDT that enables collaborative business modeling, a corresponding BMDT will be developed, piloted and evaluated. In the course of this design process, two separate design cycles will be conducted. In the rigor cycle, the effects of deploying the developed BMDT will be examined in order to enhance the existing knowledge base in regard to the benefits of co-creating a company's business model via an IT-environment.

Findings so far

RQ1: What are the requirements for a BMDT that allows firms to co-create new business models together with its customers?

Within this section the requirements for a BMDT, which allows firms to come up with entirely new and viable business models, are derived. In order to gain an overview of the current scientific knowledge within the field of business modeling, an integrative literature review according to Torraco (2005) was conducted. As it turned out in the course of the literature review, there are several different approaches for developing and managing new business models. Consolidating these different approaches made it possible to identify five distinct activities that are necessary to conduct a business model development project. The identified publications provided also a first indication of the requirements for conducting the particular activities. However, existing literature also implies several shortcomings. First, the main body of research has focused on the design activity of a business model development project. Second, there is only fragmented knowledge regarding the activities that are necessary for developing and managing new business models. Third, there is only sparse knowledge concerning the requirements that have to be fulfilled in order to successfully execute the different activities within a business model development project.

In order to complement existing literature in regards to these three aspects, an interview study with experts in the domain of business model development was conducted. In addition to that, completion of the literature-based business model development process not only according to the identified process phases but also to the requirements within the different phases was intended. In sum 26 experts within the field of business modeling were interviewed. After analyzing the interviews the results were consolidated in a unified framework. In order to improve the framework and confirm its utility in the application field an exploratory focus group was conducted (Hevner and Chatterjee 2010). The focus group was staffed with six expert developers of virtual collaboration platforms. The final framework is depicted in Appendix 1.

RQ2: What is a possible design for a BMDT that allows firms to co-create new business models together with its customers?

In order to come up with a possible design for a BMDT, two separate design cycles were conducted. The first cycle comprised the development of an alpha-version of the BMDT as well its first test within a limited organizational setting. In this regard the evaluation primarily served as a test of the artefact's usability (Sein, Henfridsson et al. 2011). When building the IT-artifact, the design guidelines identified in RQ1 were translated into functional requirements and finally into tangible functionalities. These functionalities have been integrated into the SAPiens ideas community and evaluated with the help of 27 test users, which evaluated the usability of the platform in the course of designing new business models. Within this evaluation, the testers were asked to develop a fictional business model in groups of up to 5 individuals. After the task was successfully complemented, the testers were asked to answer the QUIS usability questionnaire, in order to determine their satisfaction with the system, when working on their business models. When analyzing the results of the QUIS we conducted an independent-samples t-test ($M>5$). The results of this evaluation step are summarized in Appendix 2.

Evaluation during the second design cycle focused on assessing the BMDT's efficacy, namely, its ability to do what it was designed to do. Therefore a BMDT for the German Software Provider SAP was implemented. In a next step, six project teams were formed and commissioned with the task to develop new business models for SAP's in- memory computing division. After the development time that lasted six weeks had expired, the results were forwarded to an expert jury, which was responsible for evaluating the developed business models. In order to ensure an objective assessment, we adapted an evaluation scale, which was developed by Bretschneider et al. (2012) for measuring the creativity of user generated content in an open innovation study. When comparing the developed business models with business models that have been developed in previous projects, the initiator was very satisfied with the submissions quality. Of the six developed business models, two were completely new to the initiator and considered as being 'high quality business models.' This is even above average compared to current research on stakeholder integration, in which about 10 to 20% of stakeholder generated content is labelled as new and valuable (Bartl, Ernst et al. 2004; Kristensson, Gustafsson et al. 2004; Walcher 2007).

RQ3: What are the effects of deploying the developed BMDT in a business model development project?

In order to examine the effects of deploying the developed BMDT the reduction of coordination efforts as well as the increase of the business models quality will be evaluated in a quasi-experimental setting. In the course of this evaluation, it is planned to randomly staff up to ten project groups, which will be commissioned with the task to develop a new business model to a predefined topic autonomously. In a next step the business model will be transferred into SAPiens and further elaborated. After the completion of the elaboration phase, the reduction of coordination efforts will be measured with the help of an expert assessment of the supposed reductions when developing new business model with the help of a BMDT. In addition to that, the increase of the business models quality will be measured using pre and post expert evaluation.

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