ACIS 2013 Proceedings   Australasian (ACIS)

2013

Business Modeling Needs Process-Orientation - Framework Development and Testing

Matthias Voigt
University of Muenster, matthias.voigt@ercis.uni-muenster.de

Markus Fordey
Durable, markus.fordey@durable.de

Andrea Malsbender
University of Muenster, andrea.malsbender@ercis.uni-muenster.de

Kevin Ortbach
University of Muenster, kevin.ortbach@ercis.uni-muenster.de

Ralf Plattfaut
University of Muenster, ralf.plattfaut@ercis.uni-muenster.de

See next page for additional authors

Follow this and additional works at: https://aisel.aisnet.org/acis2013

Authors

Matthias Voigt, Markus Fordey, Andrea Malsbender, Kevin Ortbach, Ralf Plattfaut, and Bjoern Niehaves

Information Systems: Transforming the Future

24th Australasian Conference on Information Systems, 4-6 December 2013, Melbourne

Proudly sponsored by

ACIS 2013 Principal Sponsor

RMIT UNIVERSITY

CITRIX®

GS1 Australia

acs AUSTRALIAN COMPUTER SOCIETY

ACS Foundation
Advancing ICT through Education and Research

ACPHIS

AAIS
Australasian Association for Information Systems

Business Modeling Needs Process-Orientation – Framework Development and Testing

Matthias Voigt[1], Markus Fordey[2], Andrea Malsbender[1], Kevin Ortbach[1], Ralf Plattfaut[1], Bjoern Niehaves[3]

[1]University of Muenster - ERCIS
Muenster, Germany
Email: matthias.voigt|andrea.malsbender|kevin.ortbach|ralf.plattfaut@ercis.uni-muenster.de

[2]Durable Hunke & Jochheim Gmbh & Co. KG
Iserlohn, Germany
Email: markus.fordey@durable.de

[3]Hertie School of Governance
Berlin, Germany
Email: niehaves@hertie-school.org

Abstract

Organizations have to continuously align their value propositions with changing market requirements. Business modeling is an established approach for capturing new business ideas that deliver value to customers. Business model frameworks are an instrument for structuring business models. However, existent frameworks disregard the process as central element of business models. Process-orientation in business modeling is potentially useful, since information from the business model may be seamlessly transformed to business operations. Furthermore, views of different organizational stakeholders may be naturally integrated in the process perspective. Hence, we propose the process-oriented business model framework Octoproz. We present its iterative development and apply Octoproz to a real-life scenario to exemplify and discuss its advantages and disadvantages. Results suggest that the application of Octoproz leads to a better understanding of the expected business process, more efficient project coordination, and improved alignment of stakeholder expectations.

Keywords

Business model, business model framework, process-orientation, service development

INTRODUCTION

Business innovation in contemporary organizations often means service innovation. In 2010, the creation of new services was among the top five global business strategies (McDonald & Aron 2010). Many companies start to change their business from production of goods to delivery of services (Berry et al. 2006). Another driver for the introduction of new services is rooted in technological changes. A high share of new services is enabled by IT. In this article, we concentrate on the introduction of new IT-supported services into existing businesses. Our focus is on business modeling frameworks, helping organizations in creating conceptualizations of the way business is or should be done (Osterwalder 2004). As service delivery can be understood as a process (Katzan 2008), service innovation requires process-aware business model frameworks.

The innovation of business is a project that covers multiple phases. Typically, the organization creates ideas or recognizes problems, starts to develop solutions, refines these solutions, and finally implements them in the organization (Pöppelbuß et al. 2011). However, methods to support these steps differ. Organizations use brainstorming tools in early phases and proceed with business modeling frameworks, process modeling techniques, and project management approaches for business transformation. To assure project success, information gathered in early phases have to be reused in later phases. Later phases of (IT-enabled) business innovation projects require business process models to ease organizational transformation. We argue that a process-oriented business modeling provides the "glue" between early and late innovation phases.

Integration of different stakeholder perspectives, support for organizational transformation, and service orientation are three central arguments for the necessity of process-orientation in business modeling. In service development, this necessity had been articulated early by Shostack (1984) stating that "the first step in creating [a service blueprint] is mapping the processes that constitute the service". However, contemporary business

models disregard the notion of *new service processes* or include only key activities without relationships between them (Osterwalder & Pigneur 2010). Some authors even state that business modeling is not process modeling (Gordijn et al. 2000). This differentiation opens a gap in current business model frameworks when it comes to implementing the service in the organization. We address this gap and our assumption on the merits of process-orientation in business modeling with the following research question:

RQ: Can a process-oriented business modeling framework contribute to successful service innovation?

We present a process-oriented framework for creating business models and apply the framework in a case of an IT-enabled product-service provider. The framework results from an iterative development process with ongoing evaluation. In a first step, we analyze and integrate existing business model frameworks. In the course of multiple build and evaluate cycles, our preliminary integrated framework is refined based on empirical findings. We present a stable version of the framework and contribute to design-oriented research in IS, proposing our business modeling framework and reporting on first evaluations (Hevner et al. 2004). Our contribution to practice is to provide organizations with a framework that helps them to make informed decisions on whether to implement new service ideas.

The remainder of the paper is structured as follows: In the next section we present both the theoretical background for business modeling and existing business model frameworks. Next, we briefly discuss our research design and methodology. In section four, we present the stable business model framework. Then, this framework is applied to a real-life service innovation in retrospective. Last, we present a short conclusion, limitations, and outlook.

BACKGROUND

Theoretical underpinning of business modeling

While business models are referred to quite regularly in literature, definitions vary significantly among different authors and research lacks a consensus regarding its general underpinnings (Al-Debei & Avison 2010). Porter states that "the definition of a business model is murky at best" (Porter 2001). Looking at different publications on the subject, two major conceptions of the term can be identified (Osterwalder et al. 2005):

On the one hand, the term is used to describe the way a company is doing its business (Galper 2001; Gebauer & Ginsburg 2003). More specifically, it includes key elements and concepts of a business with regard to how it creates value (Hedman & Kalling 2003). In this context, value can be understood as benefits for the customer (e.g. Timmers 1998) or economic value for the enterprise (Betz 2002). In this general perception, a business model refers to "the way an organization organizes its inputs, converts these into valuable outputs, and gets customers to pay for them" (McGrath & MacMillan 2000). Very similar to this conceptualization of a business model is the business idea concept which includes both internal (e.g. knowledge, resources, and capabilities) and external (e.g. environmental values and needs) aspects that determine business success (Normann 2001).

On the other hand, authors have stressed the modeling aspect in their definition of business models (e.g. Osterwalder 2004). Here, business models are understood as "a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm" (Osterwalder et al. 2005). Thus, not the key objectives of the company itself are in the core of the definition but the method to describe and structure them. We follow the latter definition, thus referring to business modeling as a structuring device for new business ideas. For reasons of clarity, we will use the terms business model framework for the meta-model that allows the creation of business models. Business models then are conceptualizations of business ideas.

The diversity in meaning, when talking about business models, has led to a variety of discussions about the (dis)similarity with regard to related concepts. For instance, Al-Debei & Avison (2010) found that the business model concept "has sometimes been misperceived as a substitute of corporate strategy, business process, or business case". They see the youthfulness of the concept as well as its interdisciplinary origin and the newness of sectors in which it is investigated as possible reasons. With regard to its relationship to process models Gordijn et al. (2000) state that business models "are centered around the notion of *value*, while in process modeling concepts focus on *how* a process should be carried out". Thus, process models are usually created after the more general aspects (e.g. value propositions). While this distinction seems comprehensible, the aforementioned confusion regarding the two terms may result from the expression "business modeling" which has often been used as synonym for business process modeling (Osterwalder et al. 2005). With regard to corporate strategy, Magretta (2002) states that business models and strategy are clearly two separate constructs. She suggests that business models do not factor in competition as one critical dimension of performance, but that "competitive strategy explains how you will do better than your rivals" (Magretta 2002).

At last, business cases are focused on giving managerial recommendations about the implementation of a project, considering especially benefits, costs, and risks (Gambles 2009). In this context, van Putten and Schief (2012) mention that this orientation towards (e.g. financial) risks as well as other common business case criteria, such as strategic alignment and flexibility, cannot be found within business models. Thus, the creation of business cases, similar to process modeling, is conducted after the development of the (more general) business model and can be considered a later step in the development of a new business idea.

Numerous contributions propose components which should be included within the description of a business model (Chesbrough & Rosenbloom 2002; Gordijn et al. 2000; Hedman & Kalling 2003; Mahadevan 2000) and thus within the business model framework. These include e.g. value propositions, targeted market (segments), revenue model, and customer relationships. In a meta-review, Morris, Schindehutte, & Allen (2005) identified 24 different items that were mentioned in literature as possible components. They state that "progress in this field has been hindered by lack of consensus over the key components of a [business] model". While some of these aspects have already been proposed in early definitions of business models (Fielt 2011), a variety of business modeling frameworks and methods has been proposed that describe them in more detail. Some of these frameworks will be discussed in the following chapter.

Existent business model frameworks and methods

There are many different approaches to business modeling and related work can also be found in the context of e.g. Enterprise Architecture (EA). However, within this paper, we focus on techniques that explicitly support business innovation, i.e. business modeling frameworks and tools. One of the most popular tools for creating business models is the Business Model Canvas (BMC) (Osterwalder & Pigneur 2010) which, in its core, consists of nine business model components. It proposes that each business serves one or more *customer segments* and has different *value propositions* for these segments which are delivered through (communication and distribution) *channels*. *Customer relationships* describe "the types of relationships a company established with specific customer segments" (Osterwalder & Pigneur 2010). The value propositions lead to *revenue streams* but require both presence of *key resources* and execution of *key activities* within the company. Some of the activities may be outsourced using *key partnerships* while all business model elements determine the *cost structure* of a particular business. The tool itself is a table (referred to as canvas) where the information on these different aspects can be entered in a rather unstructured way.

Many authors have proposed similar frameworks addressing different aspects of business models in more or less detail. For instance, Bouwman et al. (2008) develop the STOF framework which identifies four domains (service, technology, organization and finance), each with a set of sub-elements and their relations among each other. More recently, Johnson (2010) propose the four-box business model including the four major aspects *customer value proposition*, *profit formula*, *key resources* and *key processes*. Similar to the STOF approach, the author describes various elements that need to be considered and explicated when building the model along these dimensions.

A common theme among existent business modeling frameworks is that processes are rarely addressed which prevents reuse of information in later steps of business innovation. While Osterwalder & Pigneur (2010) define their concept of key activities as "the most important actions a company must take to operate successfully", these activities are only collected in a "laundry list" and not put into order by means of defining a key process. Similarly, the STOF model speaks of value activities but again only focuses on their description and not on combining them to a complete process. However, it is stated by the authors that the activity description may be illustrated by a 'walk-through' which resembles a process perspective (Bouwman et al. 2008). Johnson (2010), while introducing key processes as one element in his model, just understands them as "critical tasks that must be delivered in a consistent way". Thus, his model is focused only on the identification of these processes and does not offer a process view on the value creation. One step towards a more process-oriented perspective is taken by Morris et al. (2005) incorporating the rules level into their model. This level "links the higher levels to the implementation and operation of the business model" (Fielt 2011) and, thus, to the actual processes of the company. While all these approaches only marginally address a process perspective and focus mostly on describing values and their antecedents, the e³-value approach (Gordijn & Akkermans 2001) is a notable exception. Its value models can be mapped to business process models i.e. use case maps, thus, offering a tight integration of values and processes. However, the method only focuses on mapping values to process steps and does not include necessary resources or cash flows. The most advanced recognition of processes in business modeling is introduced within the UML based approach of Eriksson & Penker (2000). Here, the processes are in the core of the modeling convention and resources or goals are assigned to the different process steps. Nevertheless, since it can be considered a modeling grammar rather than a framework, it does not provide structure. Modelers have a high degree of freedom when using the different constructs. Thus, models become

complex rather quickly and are difficult to use in managerial environments, especially in the early phases of developing a new business idea.

Within this paper, we take up the basic idea of process orientation from this UML-based method and develop a process-oriented business model framework that is easy to use and provides a structured overview over resources, financials, and values that are associated with the business idea.

RESEARCH DESIGN AND METHOD

The proposed process-oriented business modeling framework Octoproz is developed in an iterative research process of method design and method evaluation (Hevner 2007). Our research process consists of three build (method creation and modification) and evaluate phases. The process is depicted in Figure 1. The evaluations were formative, in that they contributed to the refinement of the framework. Our attention to the importance of process-orientation was first called when we were discussing a real-life business case with an entrepreneur who conceptualized a new healthcare service. In the case, he consistently aligned cost and revenue calculations with the new, to-be service process. Inspired by this approach and drawing from our knowledge on traditional business model framework components, we created a first draft version of the process-oriented variant Octoproz (Figure 1, Step 1).
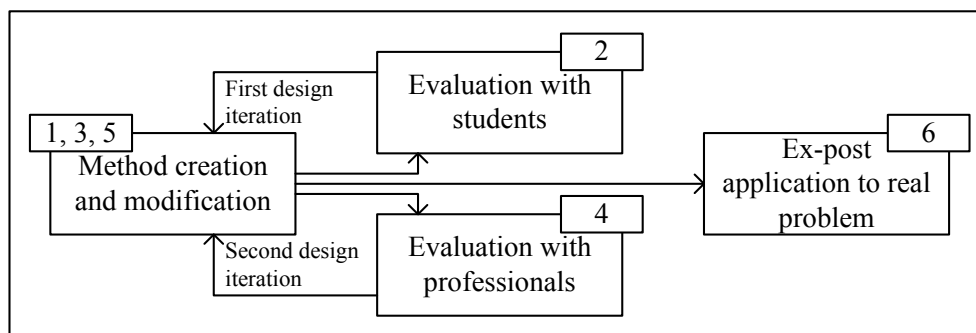

Figure 1: Research Process

To gain insight on the appropriateness of the new framework, we conducted a classroom experiment with nine graduate IS students (Figure 1, Step 2). The students were split in three groups, each applying different methods for business models. The corresponding methods were BMC (Osterwalder & Pigneur 2010), open modeling without method support, and the newly designed Octoproz framework. The students' task was to create a business model on the basis of a real-life teaching case. The students' feedback on their satisfaction with the created business models and with the applied business model frameworks were in support of the process-orientation of Octoproz for business modeling. However, some drawbacks of the current method design were discovered. The application of the method caused a high cognitive load for the students. In that line, it was stated that the consistent process-orientation of Octoproz could be a hindrance for creative new service brainstorming.

These considerations led us to a modification of Octoproz in terms of a second design iteration (Figure 1, Step 3). Most importantly we could refine our understanding of the "positioning" of Octoproz in the overall process of business innovation. The method is appropriate for systematic refinements of first new service ideas, rather than of green-field brainstorms.

After this first learning for positioning and applying our method, our next development step was to complement the student experiment evaluation with evaluations with professionals (Figure 1, Step 4). Thus, we conducted three workshop sessions with three distinct service-oriented companies, operating in the field of IT-consulting, office supplies, and logistics. There were two to three participants from middle and senior management in each session. In two sessions the professionals developed a business model for an identical, fictitious new service idea in order to allow for comparison of the generated business models and the experiences in applying the method. In the third session (logistics), the management could choose a new service idea which they had developed in prior strategic management workshops. The task was to concretize this idea in a process-oriented business model applying Octoproz. The tenor of all three workshop sessions was positive. The practitioners' were in favor of the consistent process-orientation. They especially welcomed the guidance of Octoproz in the business model development and the level of detail of the models. However, we could identify several aspects for method improvement, both from observing and documenting the groups' work in the sessions, and from direct professionals' feedback. Two aspects were of major importance: First the guidance for the calculation of potential profitability of the new service idea was too weak. Second, the method did not cater for overhead

created through support processes required for performing the new service process. This led to potentially unrealistic profitability calculations.

We thus conducted a third build iteration (Figure 1, Step 5). We allowed for modeling "business functions", such as marketing or human resource management. In that way, support processes (Harmon 2007) can be included in the business model. Moreover, we advanced our calculation support in providing systematic guidance in the definition of cost and revenue streams. This second design modification represents the current and first stable development stage of the Octoproz method, which is described in detail in the next section.

In section 5, we present an ex-post application in a real-life case as evaluation after the third build phase (Figure 1, Step 6). The application allows for insights which help to answer our research question. The case refers to the introduction of a new IT-enabled service (web shop) at an office supplies manufacturer, including mass-customization functionality. The effects of this hypothetical application are estimated by the second author, who is employed by this organization and involved in the service innovation project. Insights are complemented by project information, provided by the corresponding project manager.

THE OCTOPROZ FRAMEWORK

Octoproz is a business modeling framework to conceptualize new service business models. The framework contains four components (Figure 2): value propositions, process, resources, and financials. The process component is the focal point of the framework. Value propositions, resources, and financials are related to process steps. We chose these four components for two reasons: First, the fundamental underpinning of process-orientation is the question which solutions actually create value for the customer (Harmon 2007). Only then, business processes are defined that "produce" those solutions. Accordingly, a value proposition component is indispensable in process-oriented business modeling. Second, financial assessment of business ideas is still the prevailing approach for making investment decisions (Amit & Zott 2001; Lee 2008). Thus, business models need reliably information on the potential profitability, including costs and revenues (financials). Yet, these estimations can only be reliable if the resources required in the process which cause the costs are known. Thus a resource component is required. Existent business models refer to a couple of other components, which we integrate within the four components (Morris et al. 2005): information on the partner network is reflected in the required external resources. Customer relationships are reflected in the communication channels to the customer, modeled in the process component. Finally customer segments need no separate component in Octoproz, since one business model addresses exactly one customer segment.
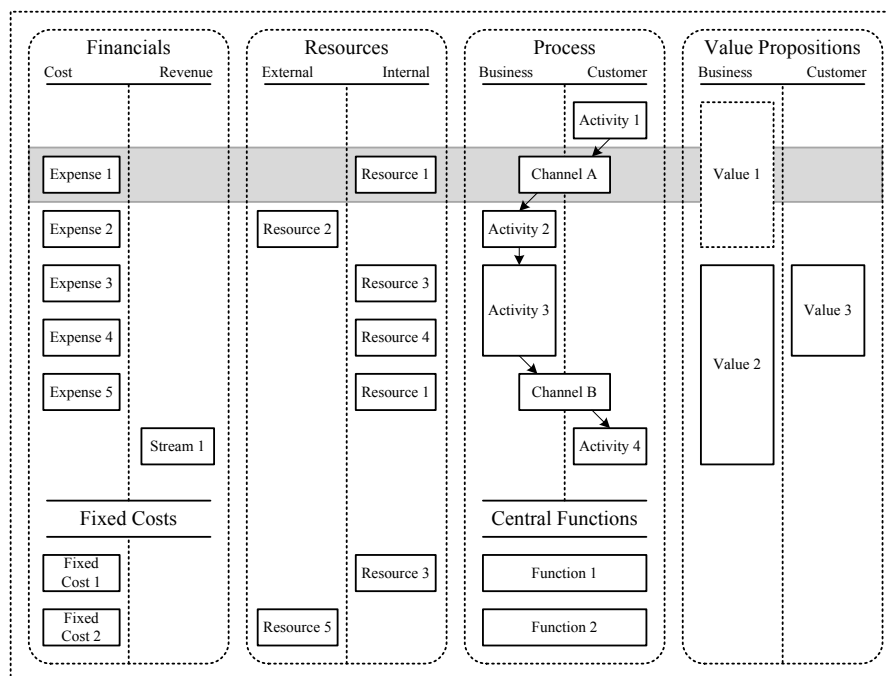

Figure 2: The process-oriented business modeling framework

In the process component, the new (service delivery) process is described as interaction of service customer and service provider. In that way, the method ensures consistent customer-orientation, comparable to other service engineering approaches used later in the business innovation process (e.g. service blueprinting (Bitner et al. 2008)). The framework differentiates between consumer activities, business activities, and channels, which

facilitate the interaction between them. Channels may refer to technical communication (e.g. Telephone, E-Mail, EDI) or personal communication. For an early assessment of the business model, the process should be modeled in a straight forward manner, reducing the service process to the most fundamental activities while avoiding complex process branching. The resulting coarse-grained processes can be refined in later stages of the new service development process. In the value proposition component, both customer values (Timmers 1998) and business values (Betz 2002) are defined separately and related to process activities and channels. Thus, process activities without reference to customer value may be identified easily and be questioned for contribution to the overall process. One value may be related to more than one activity (e.g. value 1 in Figure 2) and vice versa (e.g. activity 3 in Figure 2). In the resource component, both internal and external resources are defined for all process activities and channels. Internal resources are those owned by the business while external resources are goods and services provided by external partners. A resource can be used in more than one activity (e.g. resource 1 in Figure 2) and an activity can make use of more than one resource (e.g. activity 3 in Figure 2). In the financial component, all costs and revenues of one single (average) service delivery (i.e. one service run) are modeled. The goal of the component is to provide for basic but consistent information on the expected overall profit or loss of the new service. Costs are defined for each of the defined resources. Revenues relate to the process activities which deliver value to the customer. By this, revenues will also relate to the corresponding value propositions. In the central functions are, which is part of the process component, business functions are modeled that are independent of a single service delivery process, but nevertheless indispensable. They allow to model support processes (Harmon 2007) such as IT services and HR management, and thus for realistic cost estimations. The business functions are also related to specific resources and revenues. However, as they are independent of a single service provision, the corresponding costs are fixed. For visualization, related tuples of activities, values, resources, costs, and revenues are positioned in one row (highlighted for row 2 in Figure 2). Thus, the relationships of the elements of all four components can be easily captured (Figure 2).

All information gathered with the help of Octoproz can be reused in later phases of the new service development process. The coarse-grained process is refined in process models or service blueprints. The financial information is reused for further analysis of the profitability of the new service, e.g. in terms of business casing. In the next section one real-life case of a service innovation will be modeled ex post.

THE CASE OF AN IT-ENABLED PRODUCT-SERVICE PROVIDER

The case organization and its service innovation idea

BUREAU[1] is a manufacturer of office organization and presentation systems. Since customers increasingly perceive office products as interchangeable, BUREAU began to develop and offer product-related services in 2009. The first attempt in this direction was the introduction of a web shop incorporating features for mass customization: Business customers select and label nameplates and signs for events such as conferences and training courses online. In this self-service, customers design and purchase a complete solution in one step. The products are delivered with personalized customer information, e.g. a set of nametags and conference folders prepared for a conference. In the following the Octoproz framework is applied to this service innovation idea in retrospective.

The service innovation idea in the Octoproz framework

With the introduction of the web shop BUREAU wanted to achieve two business values and deliver three customer values (Figure 3, value propositions): For BUREAU, the main value propositions are to increase customer loyalty and to position itself as a modern service-oriented company. For the customer, the design, assembly, and procurement may be performed in one single step, leading to cost reduction. Moreover, with a preview of the products in a what-you-see-is-what-you-get (WYSIWYG) manner, customers have better control over the product specifics.

Based on the expected value propositions, the process steps in the service delivery process can be critically reflected (Figure 3, process). In the first step of the process, customers design the product according to their needs and place the order.
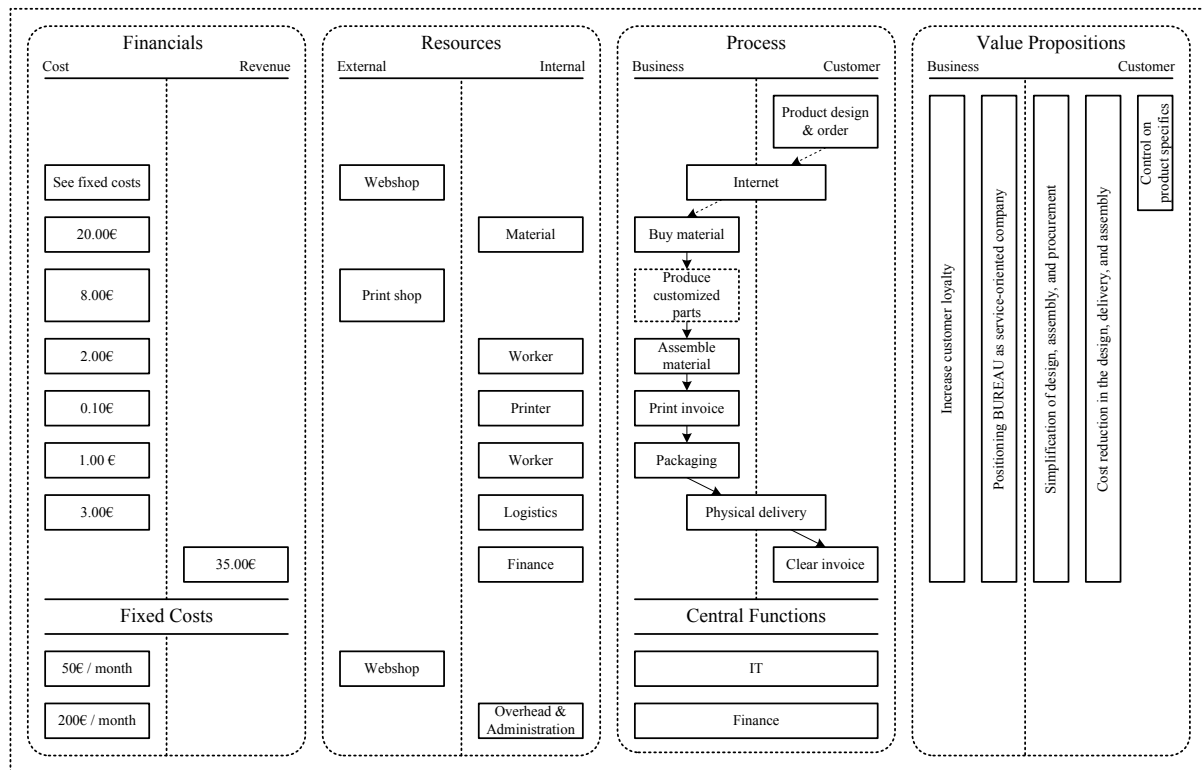
---

[1]   Anonymized.

Figure 3: Octoproz applied to a Service Innovation

BUREAU receives the order and procures and produces the needed material and customized parts, which is then assembled to a comprehensive product. The logistics department prints the invoice and delivers the finished product. The finance department will eventually receive clearance of the invoice.

With respect to the necessary resources (Figure 3, resources), large parts of the process activities can be covered by existent departments at BUREAU. Only for the creation and support of the web shop and for printing external partners are needed.

Costs can be allocated to the resources employed (Figure 3, financials). They refer to one (average) process run. Especially material and printing costs vary depending on the order. As there is only one revenue stream total revenue is at 35€ per order. Total variable costs of the order are at 34.10€. Thus, the contribution margin is 0.90€ per process run. Overhead and administration costs for the web shop account for 200€ per month (total fixed costs). BUREAU assumed an average of 1,000 orders per month (process runs) in the first year which leads to a profit of 700€ per month. One-time investments are not necessary for setup of the web shop.

Challenges in implementing and running the web shop

In retrospective to the web shop project, the following difficulties in the implementation of the web shop occurred. First, the business model of the new service innovation was only modeled in an unstructured way. Especially the identification of all relevant process steps of the new service process was incomplete. In consequence, during development and implementation of the service concept often new issues and activities came up unpredictably, and further detailing of existing activities was necessary. Second, the coordination and consultation between the stakeholders, especially controlling, sales, marketing, and IT was time consuming. Third, the value propositions, especially for BUREAU, were assumed as self-explanatory in the project. In consequence, the project's stakeholders had different ostensible expectations towards the web shop. Fourth, it became clear that the organization overestimated the potential profit.

With respect to the current success of the web shop, some challenges remain: The recognition and use by the customer is below the expected level. Considering the given, small contribution margin, process runs, i.e. number of order placements have to be increased. The coordination of changes and improvements of the web shop are still time and resource intensive.

Contribution of the Octoproz framework

The ex-post analysis of the web shop development case with Octoproz showed four issues where Octoproz would have been of help. First, the process perspective of Octoproz would have helped in identifying all

necessary service process steps upfront. Although the process is not specified in detail, basic process requirements would have provided orientation for the web shop implementation. Second, the visualization of Octoproz would have been an appropriate documentation during the project, in order to keep all project stakeholders on the same level of knowledge. The multiple business model perspectives would have allowed for alignment of interest for all stakeholders, satisfying the need for coordination between all parties involved. Third, the necessity to explicate value propositions in Octoproz, common project expectations could have been defined for all stakeholders. Fourth, integration of process, resource, cost and revenue considerations in Octoproz would have allowed for realistic expectation estimations. For instance, early comparison with the existing sales structures would have revealed potential cost reduction of web shop order processing. Last, the link between process steps and value proposition would have led to a much more precise alignment of the entire business model according to the value proposition.

To conclude, with Octoproz the project participants are forced to deal with detailed issues that have a direct effect on the usefulness and efficiency of the business model at an early project stage. In future, BUREAU will use Octoproz for the development of service innovations. However, some problems of Octoproz were identified. First, the allocation of costs to resources was difficult, especially as customers buy non-customized products within the web shop, too. Moreover, costs and revenue vary largely between different service iterations. Here, IT support in creating the business model could help to a great extent as costs and revenues could be simulated in order to achieve realistic figures.

CONCLUSION, OUTLOOK, AND LIMITATIONS

Gordijn et al. proposed that "business modeling is not process modeling" (Gordijn et al. 2000). In this article, we provided the argument that business innovation will suffer from this standpoint, in that integration of different stakeholder perspectives, organizational transformation, and service orientation are hampered. We thus motivated the necessity for process-oriented business modeling. On the basis of theoretical contributions on business modeling and existing business modeling frameworks, we illustrated our iterative research process of framework design and evaluation that eventually led to a stable version of Octoproz. Presentation of the method covered the description of its components (value proposition, resource, finance, central functions) and their integration with the central process component. To illustrate and evaluate Octoproz we then presented an ex-post application to a real-life case, based on information from one of the authors: the development of a web shop of a manufacturer of office organization and presentation systems. With reference to our research question, the results show that the application of Octoproz would have led to a better understanding of the expected service process, more efficient project coordination, and improved alignment of expectations of all stakeholders towards the web shop. Thus, we assume that the application of a process-oriented business modeling framework contributes to successful service innovation.

A future step in the development of Octoproz is a rigorous evaluation to prove superior appropriateness of Octoproz in comparison to existing approaches, and allow for further method improvements. As to the evaluation design, the dependent variables in the evaluation can either relate to the application *process* of the method, or the *outcome* generated using Octoproz. The subjects' satisfaction with the application process will be of central interest, and could be captured in terms of perceived process efficiency, fairness and comprehensibility, the degree to which it was a coordinated process, and the overall satisfaction with the process (Ocker et al. 1998). With regard to the outcome, evaluation of the overall "goodness" of a business model will be challenging. The quality of business models could be captured e.g. in terms of the creativity dimensions novelty, feasibility, relevance and specificity (Dean et al. 2006). Business models will rarely be the "brain child" of individuals, but rather be developed in group settings. We thus deem group experiments as appropriate future settings for the evaluation of Octoproz and comparable approaches.

We are convinced that Octoproz will fill an important gap in business innovation. It will be complementary to existent methods. Octoproz is tailored to provide decision makers with differentiated and consistent information on whether to pursue a new service idea. Up-stream activities in the innovation process, such as developing first ideas will still rely on methods like brainstorming or BMC (Osterwalder & Pigneur 2010), while down-stream service implementation and organizational transformation will still require appropriate supporting methods, such as for business casing and project management.

REFERENCES

Al-Debei, M.M. and Avison, D. (2010). Developing a unified framework of the business model concept. European Journal of Information Systems, 19 (3), 359–376.

Amit, R. and Zott, C. (2001). Value creation in E-business. Strategic Management Journal, 22 (6-7), 493–520.

Berry, L.L., Shankar, V. and Parish, J.T. (2006). Creating New Markets Through Service Innovation. MIT Sloan Management Review, 47 (2), 56–63.

Betz, F. (2002). Strategic business models. Engineering Management Journal, 14 (1), 21–27.

Bitner, M.J., Ostrom, A.L. and Morgan, F.N. (2008). Service Blueprinting: A Practical Technique for Service Innovation. California Management Review, 50 (3), 66–95.

Bouwman, H. et al. (2008). Conceptualizing the STOF Model H. Bowman, H. de Vos, & T. Haaker, eds. Mobile Service Innovation and Business Models, 31–70.

Chesbrough, H.W. and Rosenbloom, R.S. (2002). The role of the business model in capturing value from innovation : evidence from Xerox Corporation ' s technology spin-off companies. Industrial and Corporate Change, 11 (3), 529–555.

Dean, D.L. et al. (2006). Identifying quality, novel, and creative Ideas: Constructs and scales for idea evaluation. Journal of the Association for Information Systems, 7 (1), 646–699.

Eriksson, H. and Penker, M. (2000). Business modeling with UML: Business Patterns at Work John Wiley & Sons.

Fielt, E. (2011). Understanding business models. , 3 (March).

Galper, J. (2001). Three Business Models for the Stock Exchange Industry. Journal of Investing, 10 (1), 70–78.

Gambles, I. (2009). Making the business case: proposals that succeed for projects that work Farnham, UK, Gower.

Gebauer, J. and Ginsburg, M. (2003). The US wine industry and the internet: an analysis of success factors for online business models. Electronic Markets, 13 (1).

Gordijn, J. and Akkermans, H. (2001). Designing and Evaluating E-Business Models. IEEE Intelligent Systems, (August), 11–17.

Gordijn, J., Akkermans, H. and Vliet, H. Van (2000). Business Modelling is not Process Modelling. In Proceedings of the Proceedings of the Workshops on Conceptual Modeling Approaches for E-Business and The World Wide Web and Conceptual Modeling. 40–51, London, UK.

Harmon, P. (2007). Business Process Change. 2nd Edition. Burlington, MA, USA, Morgan Kaufmann.

Hedman, J. and Kalling, T. (2003). The business model concept: theoretical underpinnings and empirical illustrations. European Journal of Information Systems, 12 (1), 49–59.

Hevner, A.R. (2007). A Three Cycle View of Design Science Research. Scandinavian Journal of Information Systems, 19 (2), 87–92.

Hevner, A.R. et al. (2004). Design Science in Information Systems Research. Management Information Systems, 28 (1), 75–105.

Johnson, M.W. (2010). Seizing the White Space - Business Model Innovation for Transformative Growth and Renewal Cambridge, MA, Harvard Business Press.

Katzan, H. (2008). Service Science: Concepts, Technology, Management New York, Bloomington, iUniverse.

Lee, C.-S. (2008). An analytical framework for evaluating e-commerce business models and strategies. Aslib Proceedings, 63 (2), 168–187.

Magretta, J. (2002). Why Business Models Matter. Harvard Business Review, 80 (5), 86–92.

Mahadevan, B. (2000). Business models for Internet-based e-commerce. California management review.

McDonald, M. and Aron, D. (2010). Leading in times of transition: The 2010 CIO agenda

McGrath, R.G. and MacMillan, I. (2000). The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty Cambridge, MA, Harvard Business School Press.

Morris, M., Schindehutte, M. and Allen, J. (2005). The entrepreneur's business model: toward a unified perspective. Journal of Business Research, 58 (6), 726–735.

Normann, R. (2001). Reframing Business. When the Map Changes the Landscape.

Ocker, R. et al. (1998). Effects of four modes of group communication on the outcomes of software requirements determination. Journal of Management Information Systems, 15 (1), 99–118.

Osterwalder, A. (2004). The Business Model Ontology - A Proposition in a Design Science Approach. Universite de Lausanne.

Osterwalder, A. and Pigneur, Y. (2010). Business Model Generation New Jersey, John Wiley & Sons.

Osterwalder, A., Pigneur, Y. and Tucci, C.L. (2005). Clarifying business models: Origins, present, and future of the concept. Communications of the AIS, 16 (1), 1–25.

Pöppelbuß, J. et al. (2011). Service Innovation Capability: Proposing a New Framework. In Proceedings of the Proceedings of the 3rd International Symposium on Services Science (ISSS 2011) in conjunction with the Federated Conference on Computer Science and Information Systems (FedCSIS 2011). Szczecin, PL.

Porter, M.E. (2001). Strategy and the Internet. Harvard business review, 79 (3), 62–78, 164.

Putten, B.-J. van and Schief, M. (2012). The Relationship Between Dynamic Business Models and Business Cases. The Electronic Journal Information Systems Evaluation Volume, 15 (1), 138–148.

Shostack, G.L. (1984). Designing services that deliver. Harvard Business Review, 62 (1), 133–139.

Timmers, P. (1998). Business Models for Electronic Markets. Electronic Markets, 8 (2), 3–8.

ACKNOWLEDGEMENTS

COPYRIGHT