

Customer integration in service business models

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Abstract

Business models are a widely used concept to analyze existing and design new offerings. Applied in service environments, however, existing business model approaches are reaching their limits. Service specific aspects, like co-creation, are not taken into account. Based on the Business Model Ontology by Osterwalder, this paper discusses the impact of co-creation on business models and suggests requirements for the representation of service. For the development of these requirements, we take service-dominant logic as a theoretical vantage point. In particular, we use the reasoning of service-dominant logic on value and value co-creation to develop a representation for the extensive integration of the customer into the value creation process.

1. Introduction

With more and more enterprises relying on service as a critical source of revenue and profitability, service business models have become a focus of research and an area of industry application [1-3]. This is mirrored by a shift of thinking about value creation towards a service-dominant view.

The service-dominant logic (SDL) emphasizes a shift from a goods-centered to a service-centered economy. This shift comprises i.e. a shift from product to service/process, production to utilization, transaction to relationship and supply chain to value networks [4, 5]. Further, SDL focuses on value and value creation [6].

Information and Communications Technology (ICT) is a key driver for the emergence of service business models. ICT provide a powerful platform for fostering the integration of customers and providers as active participants in value creation [7], thus enabling novel business models that leverage value co-creation.

Given such a fundamental shift in thinking about value creation, research is called to examine critically the ways we reason about novel routes to value

creation, such as business models. Business models evolved as a concept in practice as well as research during the rise of the Internet in the mid 1990s [8-11]. The concept of business models has been transformed into representations that support the analysis and development of a specific logic for value creation and value capture.

Research on business model representation can be divided in two main streams. One stream offers a flow logic that considers value flows and activities. A prominent example for this is the e3-Value method. The second stream offers a system-level holistic view on the business logic of an economic entity or offering [11]. The most widely cited method in this stream is the business model ontology or the business model canvas [2] Given the widespread reception in research and broad adoption in practice, this paper focuses on the holistic research stream in general and the business model ontology in particular.

Nevertheless, extant holistic business model approaches lack service specific aspects [12]. A review of holistic business model ontologies and business model representation forms shows that the representation of important service characteristics, like the co-creation of value, is not implemented properly [13, 14].

This paper contributes to service research as well as business model research by analyzing the impact of co-creation, as one of the key concepts in SDL, on business models. Based on this discussion, we propose requirements to extensions to the business model ontology of Osterwalder and Pigneur [1, 2] that reflect current key aspects of the reasoning on SDL. Hence, the discussed research questions are: *“What impact has co-creation on a holistic business model like the Business Model Ontology? What is required to support better the analysis and development of service business models?”*.

This paper begins with a brief introduction of business models and the co-creation concept. After elaborating the theoretical foundations, the impact of co-creation on the dimensions of the business model is analyzed and discussed and the results are illustrated with an example of an ICT enabled remote

service from the manufacturing industry. Finally, the paper ends with a brief summary of the results and implications for further research.

2. Theoretical foundations

2.1. Business models

Business models can be used to analyze, design and compare different value creation and value capturing approaches. They are very popular [15] and offer a manifold applicability. Nevertheless, a variety of literature reviews show, that there is still no unanimity about the definition in the business model research community [1, 12, 16]. Different definitions and conceptualizations of the business model concept can be found i.e. at [8-10, 16-19]. Beside the different definitions, different ontologies exist for representing business models. The most common ones are the e3-value Ontology (e3-value) [20], the Business Model Ontology (BMO) [1] and the Resource-Event-Agent Ontology [21].

In general, the business model research can be divided into two main research streams. The first research stream comprises a flow view of the business model and thus the process of value exchange in a business will be covered. This stream is represented i.e. by [17, 20, 21]. The second stream focuses on constitutive characteristics of business models. The authors force the search for essential components of the business model and therewith a holistic overview on the business logic, like in [1, 16, 18].

As existing literature shows, co-creation can be represented with concepts and methods of the flow research stream, e.g. using e3 value and proposed service-specific extensions [22]. By contrast, holistic approaches currently have limitation with regard to co-creation and no service-related adaptations have been proposed so far [14]. Given the widespread use of the holistic approaches, particularly the BMO, in research and practice, such a critical review and extension is still an open research issue [23].

For the purpose of this contribution, the authors follow a holistic view on the business model. According to this perspective, a business model is a abstract representation that depicts a set of elements and their relationships in order to explain how a company creates and captures value [1, 16, 24]. One popular representative of the holistic perspective is the Business Model Ontology [1], which is derived of a literature overview and which represents a formalization of the elements, relationships, vocabulary and semantics of a business model. Based

on this, the Business Model Canvas was developed. The Business Model Canvas [2] is a visualization of the key elements of a business model and their relationships. The Model was especially evolved for use in practice.

The Business Model Canvas (BMC) was developed in association with a large number of practitioners and is a slight development of the origin BMO. Both consist of nine dimensions that are clustered into four so called pillars. A further investigation of the nine dimensions and their relations is given in section 3.1.

In sum, the business model concept offers a system-level holistic view on the business logic. This view focuses on activities that are needed for a successful execution of the business and the value that is offered to the customer, by explaining value creation and value capturing [11]. Hence, the value, and in a narrow view the value proposition, is the central element of a business model [1, 12, 16]. Nevertheless, despite of the holistic view and a focus on value, when using the business model concept, it is necessary to define the level of abstraction. This is, because a business model can illustrate the business logic of a whole firm as well as of a specific offering.

This paper is following the business model definition of the BMO and with the BMC its further development. The main reason for its use is its basis of a literature review and the analysis of the main business model literature of its time. Furthermore, the BMC is widely used in practice and was already used for analysis and development of different products and services. At last, this approach follows the authors view on the purpose of business models.

After the brief introduction into the business model research, SDL and especially the co-creation will be considered.

2.2. SDL and the integration of the customer

“Evolving to a New Dominant Logic for Marketing” was published in 2004 by [6] and presents a new perspective on the exchange in economics, which is called the service-dominant logic. The focus on service was necessary because of the rising importance of the exchange of intangibles, skills, and knowledge as well as processes instead of tangible goods [6]. Therewith, Vargo and Lusch created an unifying framework for a more comprehensive view on marketing [25, 26].

The main focus of the service-dominant level is value and value creation and thus value for the stakeholder as well as the way the value is created. Service is the main basis for value exchange and will be created in cooperation of different actors [6, 27].

In contrast to the classic goods-dominant logic, service is not defined by the IHIP criteria. Even more, Vargo and Morgan describe these criteria as four service antitheses [6]. In conclusion, service is defined as “the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself” [6].

In order to characterize this new dominant logic, Vargo and Lusch [6] propose foundational premises. The most recent publications of Vargo [28] as well as Lusch [29] show a hierarchy between these foundational premises and hence emphasize four so called core premises (CP). These are summarized in table 1 [28, 29].

Table 1. The core premises of SDL

<i>Core premise (CP)</i>	<i>Description</i>
1	Service is the basis of any exchange
2	Value is always co-created with the customer
3	All actors are resource integrators
4	Value is uniquely and phenomenologically determine by the beneficiary

The first core premise underlines the importance of service in economics and claims that service is exchanged for service. Even more, service is treated as a singular term. The change from the term “services” away to “service” underlines the process oriented characteristic as well as the definition of service, which emphasizes the use of one’s resources for the benefit of another actor. The next core premise highlights a broad involvement of the customer in the value creation process [6, 30] and thus the understanding of the customer as part of the entire service [31, 32], which results in an enhanced value for all actors [33]. An important message of this premise is that resources and activities of a service do not create value by themselves. Rather, the value is created by co-creation between the provider and the customer. Simultaneous, co-creation illustrates an important change in the logic of value provision. It describes a shift from value-in-exchange (transactional) to value-in-use (relational) or value-in-context [6, 31, 34]. Co-creation can be seen in strong relationship to the next premise. In the third core premise, Vargo and Lusch [4] argue that all actors, e.g. firms and customers, are resource integrators. Resources, like knowledge and skills, have to be integrated in the service process by any actors. The integration of these resources facilitates the co-creation of value and helps to fulfill the needs and demands of the customer. The last core premise defines the nature of value. The description of value

as uniquely and phenomenological [4] means that value is idiosyncratic, experiential, contextual and meaning laden [35]. Thus, value is subjective and has a unique character that is shaped by the individual context of every actor.

Summarized, SDL highlights the importance of co-creation and customer integration in many different ways. This is necessary, because the nature of value is uniquely and phenomenologically determined by the beneficiary (CP4) [4, 6]. Furthermore, analogous to core premise 3, the integration of resources as well as operation on available resources is necessary to receive the desired value from a service [4, 26].

Both premises highlight the importance of the customer in the service provision process. This is reflected by the manifold influence of the customer on a service. As Gummesson [36] states, a provider needs the participation of the customer to create value. A good example for this is the value-in-use concept of SDL. It describes the importance of the customer in the value creation process and the need of its skills and knowledge [6]. The integration of the customer’s resources can have different goals. A provider integrates resources to serve the customer better or to co-create greater value. Analogous to this, a customer integrates resources to enable the provider to serve him better or to create greater value co-creation [37].

Value-in-use is only one example for co-creation. SDL emphasizes the integration of human resources, like skills and knowledge (operant resources) [4, 6] and operand resources (like e.g. physical resources) in the value creation. Furthermore, beside of the provision of these resources, customers have influence on decision-making concerning service provision activities [38, 39].

But co-creation is more than this simple and ongoing resource integration and decision-making in a service process. During the whole lifecycle of a service, different possibilities for customer integration occur. This issue will be displayed by the three stages of the FTU Framework of Moeller [38]. The stages, Facilities, Transformation and Usage, divide the service lifecycle in three different segments. Analogous to these three stages, Grönroos and Ravald [40] differentiate between Value Facilitation, Value Co-Creation and Sole Value Creation. The three stages of the FTU framework are depicted in table 2.

In sum, SDL introduces with the core premises aspects that characterize the nature of service. Thus, it is possible to consider service more focused and in more theoretically grounded way. According to this, service-oriented business models should be able to illustrate these core premises.

Table 2. Description of the FTU Framework [38]

<i>Stage</i>	<i>Description</i>
Facilities	<ul style="list-style-type: none"> - Free of customer's influence - Providing resources and offering - Anticipating customer's value and interfaces to the customer
Transformation	<ul style="list-style-type: none"> - Transformation induced by firm or customer - Resource integration by firm and customer for joint value co-creation activities - Joint decisions
Usage	<ul style="list-style-type: none"> - Customer as prime resource integrators during usage - Value creation in use

2.3. Research methodology

For a better illustration of the results of this research, a case from a remote service in the manufacturing industry was selected. The data collection was conducted during 13 expert interviews in the context of a research project on business opportunities with e-services, each lasting 60-120 minutes. Our interviewees comprise 5 industry experts and 8 company experts with broad knowledge of the application of remote services or in-depth knowledge of the use of remote services in a particular manufacturing company. All interviews were divided into two parts. The first part contained closed questions regarding basic information on the company. The second part consisted of open questions that focus on the status quo and future of e-services and remote services..

During the analysis of the data, all interviews were summarized and the results clustered. By doing this, five examples were identified that provided deep insight into remote service offerings in different industries. For this research one of these examples was selected and employed.

The considered manufacturing company offers systems for continuous production processes and employed more than 10.000 employees in 2009. In this time period this company had a turnover more than 1 bn. Euros. The remote service technology is used to automated collection and analysis of customer data, therewith to enhance customer knowledge and to develop (new) products and services tailored exactly at the customer's needs. Furthermore, remote services improve maintenance services and decrease time requirements on the provider side and maintenance costs on the customer side.

To reduce the complexity of this case, we are focusing on the ICT enabled maintenance service of the company. This service comprises an automated monitoring of the customer's machines and processes and predefined response times in case of an emergency. The anonymized name of the company is "RemServ". In the following, the impact of the customer on the service business model is investigated.

3. Representing customer impact in service business models

3.1. Foundational business model ontology

As already mentioned, the authors understand a business model as a system-level holistic view on the business logic with a focus on value and its creation. Because of the corresponding understanding of Osterwalder [1], the authors chose this ontology for further investigation. Due to the development of the BMO to the BMC, and the high popularity of the BMC, the authors decided to employ the newer version. In the following, based on [1, 2] an overview of the nine dimensions is given.

The *customer segment* illustrates the target customer with its characteristics. By defining characteristics, it is possible to define customer needs in a more detailed way. The *value proposition* represents the potential value that the customer can receive by the offering. Therefore, the provider has to consider the customer and its problems, needs and wants. *Key resources* are the main resources needed for the development and provision of a service. Possible resources contain physical, intellectual, human and financial resources. Equivalent to the resources, the *key activities* dimension covers the main value-creating activities for the development and provision of a service. Activities contain i.e. production, problem-solving and network activities. The *customer relationship* defines the relationship between the provider and its customer. It is dealing with the way of how to establish and maintain the relationship to the customer and how to integrate it in the business model. The *channel* illustrates the way of how the provider gets in touch with its customer and focuses on the interaction and delivery of the potential value. The *revenue stream* comprises the logic of how to gain profit with the business model. This comprises the revenue as well as the pricing model for each customer segment and thereby attempts to find an equitable balance for the exchange. Thus, this dimension explains how a value has to be priced. The *key partnership* illustrates the

need for a partnership in the development and provision of a service. Osterwalder and Pigneur [2] differentiate between four types of partnerships (strategic alliances, cooptation, joint-ventures and buyer-supplier relationships). Thus, partners get implemented to the business model to enable or improve activities by integrating resources.

After a detailed investigation of the dimensions, now the relationships are considered. Nevertheless, the BMC does not provide information about the relationships between the proposed elements. For this reason, the authors mix up the BMC with the underlying information from the BMO. The results of this task are illustrated in figure 1 and show the missing impact of the customer on the other business model elements. Equivalent to this, former contributions identify the same issue. A comparison between different business model ontologies shows that there is no ontology, which follows a holistic view that displays service in a comprehensive way [14]. Furthermore, a comparison between diverse business model canvas illustrations shows first approaches to solve this research gap, but no overall convincing solution [13].

However, in the existing BMO, the customer is just a consumer that receives a value proposition over a distribution channel and is maintained over the customer relationship. No further relationship between the customer and the other business model dimensions exists.

Only for the business model development the BMC offers the possibility to choose a customer-driven perspective. This is a starting point that requires a customer needs based adaption of all other dimensions. Nevertheless, this change does not help to understand co-creation of value, because value is created during interactions of resources and activities between customer and provider.

After the brief introduction of the object, the customer's impact is described. Therefore, we start with the two most important dimensions customer and value proposition. After that, we continue with

the remaining dimensions from left to right (see figure 1).

Based on our data from the expert interviews, the influence of the customer on the business model dimensions will be illustrated in the following. Therefore, each dimension will be considered separately and the influence during the three stages (FTU) analyzed. Thereafter, on basis of our selected case, table 3 gives examples for customer integration.

3.2. Influence of the customer

Customer

Firstly, the customer dimension is considered. As already stated, this dimension is one of the main elements in SDL and comprises the target customer segment. Providers depend on their customers, because value is being co-created [36].

As introduced by Vargo and Lusch [26], SDL is a customer oriented and market driven perspective on the economy, in which value is created to satisfy needs and desires of a customer or a whole customer network. To fulfill this target, the provider has to learn from and collaborate with the customer. The collaboration comprises co-creation, respectively customer integration, with all its resource integration and decision-making. This is necessary for the realization of the value proposition and thus to deliver the customer the desired value. Furthermore, co-creation is important to create value-in-use during the consumption of the service. Value-in-use is created in real-time and aims to serve the customer in a better way, satisfy his needs or to improve its performance. Vargo and Lusch define a service as a process of resource application for the benefit of another entity [4, 6, 26]. Hence, value is created through co-creation (CP2) and integration of resources from providers and customers (CP3) [4].

Following Moeller [38], during the *Facilities* stage the customer has mostly no influence on the service and thus the business model. Within this stage, the company defines the target customer and

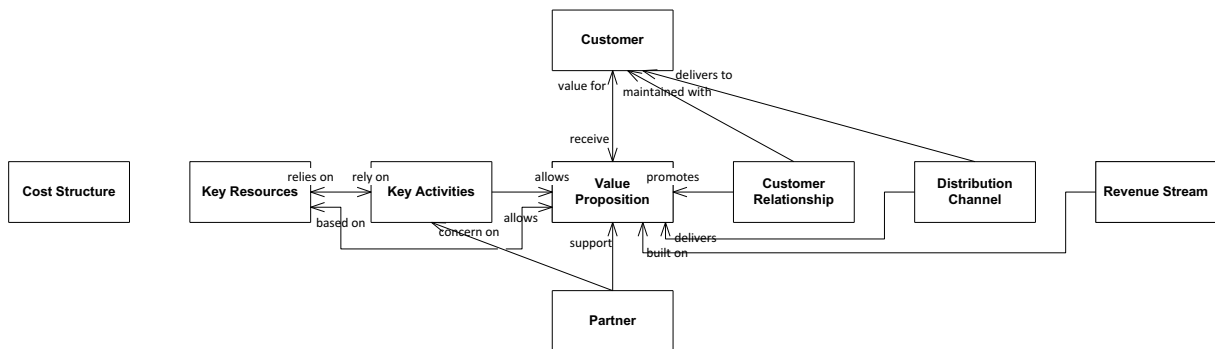


Figure 1. Elements and internal relationships of the BMO (Based on [1, 2])

must investigate the customer's context and processes (see also table 3). Nevertheless, in some cases it might be possible that provider and customer design a new service in collaboration. In this case, the customer has already an influence like in the transformation stage.

In the customer-induced *Transformation* stage, the customer has to articulate his specific needs and wishes, to illustrate his possible integration and to cooperate in decision-making. Nevertheless, the provider has the coordination role in the service provision [38].

During the *Usage* stage, the customer is defined as main resource integrator and decision-maker. At that stage the customer benefits from the activities during the Transformation process.

Value Proposition

Second, we consider the value proposition. It is the central element of any business model approach and an important part of the SDL.

In contrast to the transaction logic of GDL, in SDL value creation is a process which aims at serving customer, satisfy its needs and improve the performance [4]. Hence, a service is a process driven approach (CP1), which has to be co-created with the customer (CP2). During the co-creation, the customers as well as other actors have to integrate resources (CP3) and helps in decision-making [4, 6].

In the *Facilities* stage, a provider designs and offers a value proposition for the customer. In some cases it is also possible that an offering is designed in cooperation with a customer and thus the customer has to integrate his resources into the offering and to participate at the decision-making processes [38].

During a customer-induced *Transformation*, the value proposition can be already part of the value creation process and thus provides the desired value for the customer [38]. In this stage, the prerequisites and targets for the actual service provision are defined (see also table 3). To achieve optimal value in the specific context of the customer, it is necessary to negotiate about the customer's resource integration and decision-making power. Context is thereby more than only the target, needs and wishes of the customer; rather, the social context is important for the determination of value [41].

The *Usage* stage describes the use of the value proposition and therewith the actual value that is gained by the customer. The customer decides on his own to use a service and to integrate resources or not.

Cost Structure

This dimension represents the main cost elements that are employed in a business model and thus answer the question which costs occur and are most

expensive [2]. Surprisingly, the cost structure has no relation to any other dimension in the BMO.

Correspondingly to the GDL, also SDL recommends to consider the financial situation. This is, because financial data can help to learn from and improve an offering and its performance with the aim to better satisfy the needs and desires of the customer [26]. Due to the SDL, the customer is co-creator and resource integrator in a service process. Hence, he has direct influence on the cost structure of the business model.

In the *Facilities* stage, there is mostly no relationship between provider and customer. Only in case, when an offering is designed in cooperation, the actors have to negotiate which costs occur and how to share them.

The *Transformation* stage offers more interactions between provider and customer. By integrating resources and decision-making, the customer has influence on the cost structure of a service. By integrating own resources, the price of the service provision can be reduced or occurring costs can be shared. Furthermore, the customer can demand more or less value proposition, which has also influence on the whole price (see example in table 3).

For the duration of the *Usage* stage, the customer has to take the consequences and either shares the costs with the provider or just pays for the occurring costs.

Key Resources and Key Activities

As proposed by Vargo and Lusch, SDL is based on the resource advantage theory (i.e. [42]) and the core competency theory (i.e. [43]). Hence, resources are the main elements to gain competitive advantage. To emphasize the importance and human resources, like skills and knowledge, Vargo and Lusch introduce the concept of operant and operand resources [6]. Operant resources are the main element in co-creating value.

During the *Facilities* stage, there is mostly no relationship between these two dimensions and the customer. But, if necessary, the provider has to design possible interfaces to the activities and resources of the customer. In case of a cooperative design of an offer, resources and activities have to be shared.

The *Transformation* stage comprises a negotiation phase between provider and customer, to define possible resource integration and decision-making power. Furthermore, the customer can co-determine resources that have to be used or activities that have to be done by the provider, to get the best possible result (see example in table 3).

In the *Usage* stage, the situation is analogous to the cost structure. All decisions made have to be taken with all its consequences.

Customer Relationship

Due to the relational character of SDL, the relationship has a very important role in a service business model. It underlines the interactivity and collaboration of the service provision and thus the co-creation of value (CP2) [6]. But more than the monetary profit for the provider, value will be created on both sides of the cooperation. Co-creation helps to build-up information and knowledge that can be used to develop and create additional value for the customer. Furthermore, the relationship is characterized by the brand of the firm or the service [4].

During the *Facilities* stage, the provider has to define how to acquire and maintain the customer and what possible interfaces are. The customer himself has no influence in this phase.

In contrast, the *Transformation* stage allows a number of possible interactions. In this dimension, the customer has to decide from the offered alternatives, if there are some, how he would like to be treated and what intensity of co-creation he needs (see table 3).

In the *Usage* stage, the relationship for the co-creation is already defined. So the customer has to be maintained over the previously co-determined relationship.

Distribution Channel

A distribution channel is used for the distribution of applied skills, processes and knowledge; in other words, the channel is the dimension where the co-

creation happens and value-in-use occurs (CP2) [4].

In the *Facilities* stage, the provider has to define the channels he wants to use and offer in his business model. The customer has no influence in this phase.

During the *Transformation* stage, the customer has to decide from the offered alternatives, which channel he prefers. Thus, the partners have to decide, about the channel the co-creation occurs and the value is created (see example in table 3).

Like in the customer relationship dimension, the channel is in the *Usage stage* already defined. Thus, the co-creation can happen in the channel. Only if there are alternative channels, the customer has to decide which channel he wants to use. Furthermore, the customer has to integrate his resources for the solution of his issue if needed.

Revenue Stream

In the classic GDL, this dimension is very important for the business logic. This is, because of the dominance of the value-in-exchange concept.

In contrast, SDL focuses on value-in-use and thus on the relation between the provider and the customer. This means, that a long-term relationship is more important than a single transaction with the customer.

In the *Facilities* stage, the provider has to define the revenue as well as the pricing model. This is a prerequisite for the delivery of the service. The customer has no direct influence in this stage.

During the *Transformation* stage, the customer can decide between alternative pricing models (see table 3). Depending on the decision, the customer has to pay for the service. Furthermore, if revenues get generated in a service ecosystem on both sites, the

Table 3. Influence of the customer in RemServ's business model

Dimensions	Customer integration
Customer	- - RemServ investigates the specific context and business processes of the customer o Customer articulates his needs and wishes
Value Proposition	- Specific offering by RemServ – based on needs and wishes of the customer – comprises o Maintenance of the machines and the support of customer processes o Service level agreement for aspects like reaction time, service quality, responsibility
Cost Structure	- Cost share by an employment of the customer's internal process experts - Additional costs through remote service technology integration in legacy machines
Key Resources and Key Activities	- Customer has to integrate remote service technology to his machines - Customer overtakes activities by employing own process experts
Customer Relationship	- Permanent collection and analysis of customer data - RemServ build up unique knowledge about the customer and offers unique value propositions
Distribution Channel	- The customer choses 24/7 remote service over the internet - In case of an emergency, the customer calls RemServ and orders technicians
Revenue Stream	- The customer decides during the negotiation phase its revenue model - He shares his costs savings with RemServ
Partner	- RemServ needs supplementary partners for the integration of legacy machines

actors could decide to share their revenues.

The *Usage* stage comprises the execution of the decisions. Thus there is no impact of the customer necessary.

Partner

SDL argue that a shift from a focus on supply and movement to partnerships, relationships, networks, value creation and value constellations is ongoing. Business models comprise not only two actors (provider and customer), in SDL business models are embedded in ecosystems on the provider as well as on the customer side [5].

In the *Facilities* stage, the provider has to decide, if he needs partners for value creation or not. If a partner can enable or improve an activity, the provider could decide to implement this partner to the business model. If this prerequisite is not necessary, the provider does not need to integrate any partner. In this phase, the customer has no influence.

In the *Transformation* stage, there is only indirect influence of the customer on possible partners. By articulating specific wishes that are not realizable by the provider, the provider has to decide if he wants to integrate a partner into the value creation process or not (see example in table 3).

If the provider decides to integrate a partner, the customer gets in contact with him in the *Usage* stage. Thus, a physical connection exists, but no direct business connection. The connection is maintained by the provider and the value proposition [5].

4. Requirements

This contribution discusses the value creation through service from the perspective of SDL on the business model ontology by Osterwalder and Pigneur. By proposing specific requirements for extensions related to co-creation, we enhance the ability of this widely used method to represent and support the analysis of service business models.

As shown in section 3.2., customers have

manifold influence on a business model of a firm. In order to illustrate this, table 3 comprises the impact of the customer on the business model dimensions of our case study RemServ. Furthermore, as seen in figure 2, customer integration and co-creation has an overarching impact the BMO. This impact is visualized by red lines that show, according to our discussion, missing relationships between the customer and the other business model dimensions. Together with the discussion in section 3.2., we suggest to enhance the BMO by relationships that illustrate the impact of the customer of the other dimensions. As noticed, the influence of customer integration varies significantly between the three stages Facilities, Transformation and Usage. During the Facilities stage, the influence of the customer on the business model is relatively low. In line with [38, 40], the authors observed that the most extensive influence can be found during the Transformation stage. In this stage, the customer can influence nearly every dimension of the business model, by integrating resources or decision-making. The co-creation in the Usage stage is characterized by the consequences of the decisions taken. So, mostly decisions are made and resources get integrated to use a service.

Hence, we suggest that existing business model approaches should be able to specify the influence of a customer and thus the relationship between a customer and the other business model dimensions. This is also the main limitation of existing holistic business model approaches, which have limitations to represent relationships between different dimensions of a business model. Thus we propose the first and overarching requirement:

R1. Service requires the representation of relationships between the customer dimension and the other dimension of a business model.

Based on our discussion and this first requirement, we propose more detailed requirements for customer integration:

R2. A service business model needs to represent

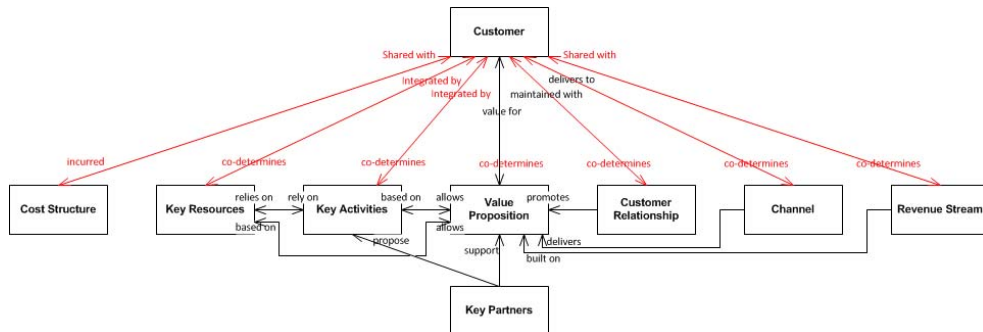


Figure 2: Integration of the customer in the transformation stage

to what extend a customer co-determines the cost structure and revenue model. Moreover, a representation of revenue sharing and cost incurred by customers is required.

- R3. A service business model needs to represent to what extend a customer co-determines the key resources and processes deployed by the provider to document the influence on resource selection and process adaptation. In addition, a service business model should represent how resources and processes are integrated into a customer's resources and processes.
- R4. A service business models must show to what extend a customer co-determines the value proposition of the provider by integrating his specific situation, needs and wishes. Simultaneous, it has to illustrate the co-created value of the customer.
- R5. A service business model has to represent to what extend a customer co-determines his relationship to the provider by influencing the way how he gets maintained and what channel the provider has to use.

5. Conclusion

The shift away from a transactional relationship (GDL) to a relational relationship (SDL) with the customer makes it also necessary to reconsider existing business model approaches. Co-creation and resource integration extend the interactions beyond a value-chain logic with the customer on the receiving end of this chain. Customers provide subjective needs and goals as well as a context that has to be managed. Thus a service has potentially to be adjusted to the customer and its specific context. This is represented by the high degree of interaction between the customer and the other business model dimensions. For this purpose we aim at the most prominent and widely cited approach Business Model Ontology.

A potential limitation of this paper is the strict focus on SDL, because there is still discussion on the foundational premises, as for example the consideration of value, as subjective element, in contrast to a separation between objective and subjective value. Furthermore, our findings are based on a single case study that gave us deep insight into remote services in manufacturing, but not into other industries.

By extending this concept according to our requirements, the BMO could increase its value for representing service business models. This could help managers to analyze and understand co-creation and

thus the integration of the customer's resources into their own business logic. Furthermore, this paper contributes to the practice by showing direct links between the customer and the other business model dimensions. This enables managers, during the development of a new service business model, to think of how to leverage or accommodate the involvement of a specific customer.

Furthermore, this contribution helps scholars to analyze co-creation in practice in a more comprehensive way and thus to add to new knowledge to service research. In addition to this, this work contributes to the business model research in general, by illustrating and introducing co-creation on business models.

This contribution is one more step in the exploration of service and their business models. Right now, we have taken a widespread and popular business model approach to investigate and extend it on their capability to illustrate service according to SDL. In further development, value and value networks, as other key aspects of SDL, has to be taken into account.

6. References

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