

Service Business Model Canvas: A Boundary Object Operating as a Business Development Tool

Taru Hakanen, Mervi Murtonen

Abstract—This study aims to increase understanding of the transition of business models in servitization. The significance of service in all business has increased dramatically during the past decades. Service-dominant logic (SDL) describes this change in the economy and questions the goods-dominant logic on which business has primarily been based in the past. A business model canvas is one of the most cited and used tools in defining and developing business models.

The starting point of this paper lies in the notion that the traditional business model canvas is inherently goods-oriented and best suits for product-based business. However, the basic differences between goods and services necessitate changes in business model representations when proceeding in servitization. Therefore, new knowledge is needed on how the conception of business model and the business model canvas as its representation should be altered in servitized firms in order to better serve business developers and inter-firm co-creation. That is to say, compared to products, services are intangible and they are co-produced between the supplier and the customer. Value is always co-created in interaction between a supplier and a customer, and customer experience primarily depends on how well the interaction succeeds between the actors. The role of service experience is even stronger in service business compared to product business, as services are co-produced with the customer.

This paper provides business model developers with a service business model canvas, which takes into account the intangible, interactive, and relational nature of service. The study employs a design science approach that contributes to theory development via design artifacts. This study utilizes qualitative data gathered in workshops with ten companies from various industries. In particular, key differences between Goods-dominant logic (GDL) and SDL-based business models are identified when an industrial firm proceeds in servitization.

As the result of the study, an updated version of the business model canvas is provided based on service-dominant logic. The service business model canvas ensures a stronger customer focus and includes aspects salient for services, such as interaction between companies, service co-production, and customer experience. It can be used for the analysis and development of a current service business model of a company or for designing a new business model. It facilitates customer-focused new service design and service development. It aids in the identification of development needs, and facilitates the creation of a common view of the business model. Therefore, the service business model canvas can be regarded as a boundary object, which facilitates the creation of a common understanding of the business model between several actors involved. The study contributes to the business model and service business development disciplines by providing a managerial tool for practitioners in service development. It also provides research insight into how servitization challenges companies' business models.

T. Hakanen is with the Technical Research Centre of Finland, Tekniikankatu 1, FI-33101, Tampere, Finland (Corresponding author, Phone: +358-40-8392751, e-mail: taru.hakanen@vtt.fi).

M. Murtonen is with the Technical Research Centre of Finland, Tekniikankatu 1, FI-33101, Tampere, Finland (e-mail: mervi.murtonen@vtt.fi).

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I. INTRODUCTION

THIS study aims to increase understanding of the transition of business models in servitization. In particular, it discusses how the conception of the business model and the business model canvas as its representation should be altered in servitized firms in order to better serve business developers and inter-firm co-creation. Servitization means the transition of product- and technology-oriented companies to a more customer- and service-focused company [1]-[3]. The motives behind servitization are in changing customer needs, aiming for higher profit margins, and the creation of inimitable offerings. Servitization challenges companies' business models when they undertake changes concerning the shift of the offering and customer interaction.

As the business models change, their representation also needs to change. This paper focuses on this transition, and more particularly, proposes a service-dominant logic (SDL)-oriented [4] business model canvas for service business development in B2B companies. The new canvas will take into account the salient aspects of service that is intangible, interactive, and relational in nature [5]-[7]. It facilitates transformation of knowledge between different interest groups, and helps in creating common understanding of the service business model in cooperation between service providers and their stakeholders. Thus, this paper argues that the service business model canvas serves as a boundary object [8] across two central boundaries: 1) between servitized firms and stakeholders, and 2) between disciplines of goods-dominant logic and service-dominant logic. The theoretical background of this paper builds on the discussions of business models, servitization, and boundary objects. The theory section is followed by methodology, results, and conclusions.

II. THEORETICAL BACKGROUND

A. Business Models

The concept of the business model has been widely addressed within the strategic management domain [9]-[12]. It depicts the rationale for how an organization creates, delivers, and captures value. Business model is a mediating construct between the firm's goods and economic value [13]. In spite of a certain level of ambiguity attached to the concept [14], several attempts have been made to define business models. In general terms, a business model depicts and describes how a company makes money. It describes how a company provides

value for its customers and how (through which activities) it captures value for itself [9]-[12], [15]-[17]. Shafer et al. [17] have defined a business model as “a representation of a firm’s underlying core logic and strategic choices for creating and capturing value within a value network”. Thus, in addition to a single company view, the network of stakeholders is included in certain authors’ definitions of business models [12], [17]. A business model thus provides the rationale for business and describes a company’s strategic choices.

In addition to the established position in research, a business model canvas [15] is commonly used by practitioners in defining and developing business models. It depicts key partners, key activities, and key resources in a visual way. In addition, value proposition, customer relationships, channels, and customer segments are included in the canvas as well as the cost structure and revenue streams. This paper utilizes Osterwalder’s business model canvas as a starting point when studying its utilization in servitization.

B. Servitization in Industry

The increasing importance of service is a prevalent trend in business and economy. Service-dominant logic (SDL) [4], [18] describes the ongoing change concerning the purpose of economic activity. The main proposition of SDL is that exchange of service is the fundamental purpose of organizations, markets and society. SDL challenges the previous goods-dominant logic, according to which the purpose of economic activity is to make and distribute goods. The goods are embedded with benefits and value during production and distribution. SDL emphasizes the interactive and relational nature of value creation and always regards the customers as a co-creator of value [4].

By definition, a service is a “time-perishable, intangible experience performed for a customer acting in the role of co-producer” [7]. Grönroos has defined services as “an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems” [6]. In other words, services are regarded as intangible processes that emphasize interaction between actors and value accruing for the customer [5], [6].

Servitization is a common trend of product- and technology-based companies in their transition towards augmenting their product offering with various services [1]. This phenomenon also challenges the companies in their business model development. Although a business model canvas is a widely used managerial tool, it does not explicitly take into account service characteristics as they are intangible, relational and interactive in nature [5], [7].

C. Boundary Object

The concept of boundary object refers to objects that are shared and agreed across the boundaries of professional communities or disciplines, and satisfy the information needs of each of them [19]. Boundary object supports and facilitates

collaboration and information exchange between specialized groups. It establishes a shared language for different communities to represent their knowledge, and provides them with the concrete means to learn about their differences and dependencies [8]. A boundary object can be any artefact of practice, either physical (a sketch, model, prototype or document) or more abstract object such as a process, method, metaphor or narrative [20]. They are flexible in nature, because they can have different meanings and use in the various communities, but at the same time, they must be standardized enough to be recognizable in different groups and to be able to serve as a means of translation [20].

Boundary objects have proved their effectiveness especially in pragmatic knowledge boundaries that are characterised by a high level of novelty and conflicting interests. Consequently, in pragmatic boundaries, actors’ ability to share and assess knowledge at the boundary becomes difficult. Here, different kinds of tools, models and graphs (i.e. boundary objects) provide the concrete means to propose, negotiate and transfer knowledge and interests across the boundary. This helps actors to understand what consequences their actions have on the knowledge on the other side of the boundary, and how they could themselves get all the knowledge they need.

Boundary objects have three distinctive characteristics that make them useful in problem solving and knowledge sharing at boundaries [8]. First, they can establish a *common language* for different groups to represent their knowledge at a boundary. Second, they provide the *concrete means* for different groups to specify and learn about their differences and dependencies across a boundary and also present their views to others. Third, boundary objects *facilitate a process* where different groups can transform their knowledge into joint understanding across a given boundary.

D. Theory Synthesis

Servitization of industry challenges companies and their business models through the intangible, interactive, and relational nature of service [5]-[7] and through the changing role of the customer participating in value co-creation [4]. Previous research has acknowledged business models as boundary objects [21], [22], identifying them as relational tools enabling encounters and mutual adjustments across boundaries. Furthermore, service perspective has been applied to business models, for instance in the contexts of digital [23] and media service [24]. However, practical and theoretical insights into the model canvas and its application as a boundary object in industrial companies’ servitization remain limited.

III. METHODOLOGY

The study employs a design science approach [25] and utilizes qualitative data that were collected in two company workshops. The Osterwalder’s business model canvas was used as the basis of the first workshop. After that, an SDL-based canvas was developed and validated and refined in the second workshop. Altogether, ten industrial companies attended the workshops. The companies studied represent both

manufacturing companies and service firms offering various B2B services (ICT, technical trade, employment services, repair and maintenance services). In that way, both companies pursuing servitization and companies that were already service firms were included in the study in order to gather versatile views on the important aspects in service business model. In both the workshops, both manufacturing and 'pure' service firms were present.

In the company workshops, the company representatives defined their challenges and solutions in servitization and addressed the issues that are central in service business models. The researchers documented the discussions and drew conclusions on how the service aspect challenges current business model canvas – what are the key issues and differences between GDL and SDL-based business models? Finally, a SDL-based business model canvas was outlined with the relevant aspects included.

The key issues that the company representatives identified in servitization were categorized in terms of the elements of Osterwalder's business model canvas, that is: key actors, key resources, key activities, value proposition, customer relationships, channels, and customer segments as well as the cost structure and revenue streams. Next, the key differences between GDL- and SDL-based business models are reported according to the elements of the business model canvas.

IV. RESULTS AND CONCLUSIONS

A. Differences between GDL- and SDL-Based Business Models

Key actors: When a company proceeds in servitization, it may offer the planned services by itself or via a network of service providers. It has to establish its own service organization or, in the case of a network, all the service providers need to agree on the suitable business model and plan it together. It is then possible to establish possible new roles, such as service integrators. In the case of a service network, a key issue for a servitizing company is to find proper partners, capable of selling and providing their services. In addition, the customer plays a key role in the co-production of services. Therefore, services providers need to recognize the more active role of customers in value creation consider new approaches to customer relationship management.

Key resources: Production machinery, tools and end-products are the salient resources in manufacturing business. Servitization increases the role of intangible resources such as knowledge, skills and competences. The role of human resources increases. The services themselves, and the service offering, become more intangible and, therefore, occasionally hard to concretize and describe to the customers. The key issue for a servitizing company then, is to acquire the needed resources either by outsourcing or by developing its own capabilities in service offering and service co-production. In addition, the use of customer resources also needs to be planned and negotiated, as services always require at least some level of interaction and the use of customer resources as

well. The role of technology in services is another issue that a company needs to resolve, as many services can be supported by various technologies, such as IT-tools or, for instance, sensors used in remote monitoring.

Key activities: The manufacturing process is the core process of manufacturing companies. However, in servitization, service processes become important as well. Then, a key issue is to plan how service sales are organized – will a separate sales organization be established, or are they capable of selling services, too. The key issue in terms of the activities is that the focus moves from manufacturing and product sales to the customer interface and interaction with customers. Process mapping is a good way to ensure that the customer interface operations and customers' role in service process are properly planned.

In the case of a service network, a key issue is to agree on the roles and task division between the partners: which company is the service integrator, which orchestrates the network and manages customer relationships, for instance, and how the sales and service co-production are executed? Some activities in sales and service provision may be performed by a sole service provider, and some phases can be executed in cooperation by several service providers and the customer. Some operations may take place in the 'back-office' and some operations on the customer interface, the 'front-office'.

Value proposition: A product-oriented company bases its value proposition on the product features and the value the products offer. Product specifications and benefits are often clear and easy to present and easy for the customer to comprehend. A customer may also quite easily compare competing products on the market. Customers may even test machines, for example, in demos arranged by the provider. When proceeding in servitization, customers need to be convinced of the value of services and ease the comparison of competing services by concretizing service offering contents and benefits. Services are sold more with benefits instead of product specification. Another key issue in servitization is, therefore, to develop the sales and marketing capabilities.

In the case of a service network, providers need to convince the customers of the value that the total service solution offers. A comprehensive solution with a unique combination of services or, for example, coordination done by one of the suppliers may accrue value for the customer. So called 'one-stop' shopping eases and clarifies cooperation for the customers. These are all key issues in terms of the value proposition presented to the customer.

Customer relationships: A product-oriented company mainly interacts with its customers on sales and, for example, machine installation phases. After the product delivery, the customer is too often 'forgotten'. The delivery is one-way – *from* the manufacturer *to* the customer whilst in service business service is *co-produced* in interaction *with* the customer. Cooperation is more intense in terms of its continuity and depth. A key issue in servitization is to acknowledge the local aspect of service that is that services are always produced locally close to the customer. This issue is of particular importance in global service business. As

interaction is more intense in service business, as the customer experience is emphasized. It is an issue that requires special attention in a business model, too, as it can also be designed in multiple ways and customized for different customers. Different markets and cultures may naturally expect a different customer experience. In the case of several service providers, they must also create a common understanding of what kind of a customer experience is desirable and commit to a seamless, coherent customer experience.

Channels: Osterwalder's business model canvas addresses channels via which the products are delivered *for* customers. However, in service business, it is not only about delivering products via distribution channels, but interacting *with* the customer representatives from various organization levels and units and in many phases of the service process. A key issue, then, is to plan the channels of interaction and how interaction takes place in those channels. Interaction may occur face-to-face alongside the service process and, for instance, via internet and emails. The customer experience may vary significantly in terms of the channels and means of interaction. Instead of distribution channels, service process touch points and channels of interaction could be more appropriate terms used in service business.

Customer segments: Common ways of defining customers segments are geographically or in terms of customers' business fields or their products. However, understanding the wider context in which the customer operates and in which services are co-produced with the customer becomes more important in servitization. Companies need to create greater understanding of their customers if they wish to proceed in servitization: what is the customers' business environment like, how do they purchase services, and what direction are they heading in business? Undoubtedly, customers may purchase services differently and by different organization units compared to purchasing products. They may also lack service purchasing competence. However, the key issue regarding customers is to identify the customer's problems and expectations of value and customer experience. In terms of a business model, it is crucial to identify the link between the services and customers' business and processes. In a service network case, common customer understanding can be achieved through customer knowledge sharing. The suppliers may analyze customers and identify new business possibilities together.

Cost structure and revenue streams: Service business may radically change the earning logics of companies. Pricing models may be based, for example, on a certain level of service performance or value instead of pricing on the base of manufacturing costs and adding a profit. Then, a common view and agreement between the suppliers and a customer needs to be achieved in terms of the earning logic in servitization.

B. Service Business Model Canvas

As the result of the identified key issues, an outline of the service business model canvas is presented (Fig. 1). Service business model canvas ensures stronger customer focus and

includes aspects salient for services that is for example interaction between companies in service co-production and customer experience. The service business model pays a special attention to customer value and understanding of the customers' business, business environment, and purchasing behaviour – in what kind of a context the service is co-produced and how a specific customer purchases services. Business developers may use the canvas for the analysis and development of a current service business model or designing a new business model. In practice, for example, the development needs in all the 'boxes' of the canvas can be identified in cooperation of the involved actors followed with a concrete development plan for servitization.

C. Conclusions and Future Research Needs

This study extends the current knowledge of business model representations into new field of servitization. The New Service Business Model Canvas is presented as a refinement to the original business model canvas [15]. Nine new key elements in servitization are identified and discussed. They provide new interconnections between and insights into traditional product-centred business models and those with more service-oriented focus.

Servitization and its implications on business models typically involves a high level of novelty and at least occasionally conflicting interests both inside a company and between the supplier(s) and a customer. In order to succeed in servitization, companies need capabilities of sharing and assessing knowledge across the organizational boundaries. This paper states that the Service Business Model Canvas can be used as a boundary object, which provides a concrete means to negotiate and transfer knowledge and interests across the boundaries both 1) between servitized firms and stakeholders, and 2) between disciplines of goods-dominant logic and service-dominant logic. The Service Business Model Canvas can be used in the identification of the development needs of the servitizing business and in creating a common view between the different groups involved. The development of a business model thus proceeds as an iterative process in the course of which the needs, perspectives, and views of several actors are utilized and combined. These kinds of boundary objects are of particular importance in service business because of the intangible, interactive and relational nature of the services. Boundary objects can serve as a means of making tacit knowledge explicit between organization units and companies, and facilitating the process of gaining a common understanding of the salient elements of a business model.

More specifically, the Service Business Model Canvas can facilitate the role adoption process of the actors involved. It provides a common language to service providers, customers and other stakeholders to discuss value proposition, possible earning logics, and their interests and intentions with regard to a given service and value creation processes. It can facilitate the process of combining the intangible resources (i.e. services, knowledge, skills etc.) of the actors and agreeing on the suitable role and task division between the actors. As services are co-produced between a supplier or suppliers and

customers, companies need to create a common understanding of how interaction with the customer is organized, through which platforms and means, and what kind of a customer experience is desirable. The new service business model canvas facilitates this process of knowledge transformation, as well. Furthermore, the Service Business Model Canvas may facilitate customer knowledge sharing between supplier representatives and the creation of a common understanding of customers' business environment, needs, and purchasing behavior. The process in which the canvas is used as a boundary object may even facilitate the creation of new business opportunities between several suppliers when they analyze and share customer knowledge.

In summary, this paper views the service business model canvas as a boundary object which facilitates the creation of a

common language and *understanding* of the required changes in business models in servitization and the practical means of *co-producing a service* between suppliers and customers. After all, in comparison with product-based business, services require more mutual adjustment and knowledge sharing. The more customized the service is, the more important is the creation of common understanding of the service contents, outcome and value [26]. In other words, instead of only transferring knowledge concerning service or a business model to partners and customers, knowledge *transformation* is needed when a service business model is co-created. With regard to all the elements of the business model, a boundary object concretizes them and provides explicit representations of knowledge that is primarily in a tacit form.

Service suppliers	Resources and activities	Sales and marketing	Service co-production	Business customers
<p>Key suppliers</p> <ul style="list-style-type: none"> Key service suppliers Complementing suppliers, e.g. technology suppliers Possible new partners, e.g. service integrators 	<p>Key resources</p> <ul style="list-style-type: none"> Service offering Knowledge <ul style="list-style-type: none"> Skills Technology, etc. <p>Key activities</p> <ul style="list-style-type: none"> Role division between the service providers (integrating actor versus supplier to an integrating actor) Task division between the service suppliers (sales, service co-production, network coordination, technology provider, etc.) Offering integration Network coordination 	<p>Value proposition</p> <p>Outline of the service concept based on the business model items defined on the left and right hand-side boxes:</p> <ul style="list-style-type: none"> Core solution (what, to whom?) Service operations and processes (who, how?) Customer experience Customer value 	<p>Interaction with customer</p> <ul style="list-style-type: none"> Service process (back-office and front-office) Touch points with the customer on the course of the service process Customer's activities in the service process Channels of interaction (face-to-face, internet etc.) Density and depth of cooperation Customer perceived service experience 	<p>Customer understanding</p> <ul style="list-style-type: none"> Customer's business field and business environment Customer segments Customer's problem and needs Customer's purchasing organization, decision-making process and service procurement competence <ul style="list-style-type: none"> Customer value (economic, strategic, practical, emotional)
<p>Income</p> <ul style="list-style-type: none"> Earning logic 		<p>Cost structure</p> <ul style="list-style-type: none"> Costs 		

Fig. 1 Service business model canvas

The empirical insights of this paper provided versatile views of companies regarding servitization and its implications for business models. Theoretically, the novelty value derived from the combination of servitization, business models, and boundary objects. Boundary objects clearly play a promising role in servitization aiding business developers in conducting the change in the industry. Future research could go on into this area and investigate other possible boundary objects that could facilitate service business development.

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