

University of Tampere

School of Management

# A CONTEXTUAL BUSINESS MODEL FRAMEWORK

## Business Model Development in a Product-Service Systems Context

Management and Organization

Master's Thesis

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September 2014

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## ABSTRACT

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Title:                         A Contextual Business Model Framework: Business Model Development in a Product-Service Systems Context

Master's Thesis:         94 pages, 3 appendices

Date:                         September 2014

Keywords:                 Business model, development, service business, services, product-service systems, PSS, servitization, service infusion, service-dominant logic, service logic, product-service transition, manufacturing, production, strategy, structure, culture, processes

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Increasingly, manufacturing-oriented companies are moving towards services provision with an accelerating pace, setting new requirements for their business models. This study addresses business model development in service business context, concentrating on transformation from products towards services. The study aims to find out which kinds of special needs does the service business create for business model development and, finally, to develop a business model framework that takes these needs into account better than the existing frameworks.

Business model discussion and the wide field of the service business theory provide the theoretical background for the study. Service-dominant logic is a comprehensive perspective towards the value creation whereas product-service systems and servitization address transformation of a production-oriented company towards service business. In the transformation towards services, organizational and cultural issues are also in an important role.

The study is based on an empirical case study concentrating on service-based business model design in a single case company setting. The case company is a manufacturing firm transitioning towards increasing services provision and developing a new business model for services in one of its subsidiaries. The study identifies the development needs in the case company's current business model as well as the limitations in the existing frameworks used for business model development.

As a conclusion, the notions identified are used as a base for constructing a new business model framework. The findings, including the identified limitations, are reflected with the previous service business discussion. Finally, according to the issues identified, a new business model framework is developed in order to answer to the specific needs the transitioning towards service business sets for the framework. The key findings emphasize the importance of taking into account the context in business model development.

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# I INTRODUCTION

## 1.1 Background

The old expression about the customer being the king has increasingly turned into action during the past years as companies have begun to re-think their business models. In business model development, customer needs are typically lifted up to be the starting point in designing how the business makes its revenues. The concept of business model has gained increasingly more attention in management literature during the recent times and has found its place as a useful tool in drawing out the core of any business.

Business model can be seen as a conceptual tool to describe the core logic of a business (Osterwalder, Pigneur & Tucci, 2005). It describes how a firm creates value to the customer, delivers it in means of products and services, and captures it in means of profit (Johnson, Christensen & Kagermann, 2008). Put simple, business models help us understand how a business functions and creates profit. Thus, it helps to gain a deeper understanding of any business, enabling designing it piece by piece, not forgetting the relationships between them.

This study searches to gain understanding of two important and, in practice, related concepts, business models and service business which however have not gained too much attention in academic research when taken together.

Service business has gained increasing interest in research, among other topics pointing out the manufacturing firms' shift in focus from products to services (Oliva & Kallenberg, 2003). One of the most commonly used terms describing the integration of products and services is product-service systems (PSS) (Barquet, de Oliveira, Amigo, Cunha, & Rozenfeld, 2013). It refers to a combination of products and services to fulfill customer needs (Goedkoop, van Halen, te Riele, & Rommens, 1999).

Previous academic research provides insight to the business models as well as to service business and product-service systems. However, there has been little attention to the fact of how does the business model concept fit to developing a business model in particular for service business as a part of product-service systems (Barquet et al., 2013). Taken into account the vast business opportunities in product-service systems a true academic

as well as practical need for research in addressing the business model concept in service business remains unmet.

### **1.1.1 Business models**

During the recent years, the concept of business model has become a popular topic in the business literature. However, total consensus of the definition of the term business model does not exist, especially when it comes to the elements it contains. Osterwalder, Pigneur & Tucci (2005, 17) see business model as describing the core logic of functioning of any business, providing a conceptualized tool for understanding it.

In assessing the concept of business model in this study the widely accepted, among both researchers as well as practitioners, business model canvas framework (Osterwalder & Pigneur, 2010) is used. Further, the special characteristics of service business and product-service systems are taken into special account to be able to address the fit of the business model concept in service business.

### **1.1.2 Relationship of strategy and business models**

The relationship of strategy and business model is a subject that has not come to a consensus. The main difference is if strategy is included in a business model as a part of it (Chesbrough, 2006) or if they are separate concepts, albeit related to each other (Osterwalder et al., 2005). Magretta (2002) states that whereas business models describe, as a system, how the pieces of the business fit together, they do not take competition into account as that is strategy's job. Bask, Tinnilä and Rajahonka (2010) see strategy, business models and process models as addressing the same problems on different levels; strategy is a corporate level tool, business model focuses on business unit or architectural level and process models on functional and implementation level.

### **1.1.3 Service business and product-service systems**

Manufacturing companies have increasingly been shifting from only selling products to also selling services driven by customer demands, competition and decreasing profit margins (Oliva & Kallenberg, 2003). Different aspects of the integration of products and services have been studied in the previous research, including product-service systems, servitization and service-dominant logic (Barquet et al., 2013). Product-service systems refer to a combination of products and services to fulfill customer needs



(Goedkoop et al., 1999), whereas service-dominant logic is a perspective to the value creation (Kowalkowski, 2010).

## **1.2 Research objectives and questions**

The objective of the study is to gain understanding in applying the business model concept in the context of service business, more accurately as a part of product-service systems. In other words, it aims to:

- Create an approach for business model development taking into account the needs of service business.

To fulfill its objectives, the research questions can be stated as follows:

- Which kinds of special needs does the service business create for business model development?
  - How can the needs be better addressed in a business model framework?

## **1.3 Structure of the study**

The structure of the study follows the research questions presented, starting from the literature review of the subjects, introducing the current frameworks and using them in the empirical case study and, finally, developing the frameworks further using the findings.

The study begins with a review of the recent research in business models and service business. First, the concept of business model, its definition, development and categorization are discussed. After this the study moves to review literature of service business, especially addressing the perspective of a manufacturing firm moving towards service business. Frameworks addressing business models and the transition towards services to be addressed for further investigation are identified.

After the literature review of the two main concepts, business models and service business, the research methodology is presented. Finally, the empirical part of the research takes its place. The case study uses a selected business model framework to present the current business model of the case firm and find the development areas in it. The aim is to identify aspects that are not included in the current business model frameworks but are important in order to successfully develop a business model in a

service business context. After identifying the aspects they are reflected further with the service business discussion presented earlier. Finally, after taking the business model and service business discussion together, the required development is condensed and a new business model framework is developed.

#### **1.4 Limitations**

The study aims to develop a common framework for addressing the business model development in service business by combining relevant theories and empirical data from the case study. However, as the case study is based on a unique context of a single case firm, it may limit the usefulness of the framework and the results of the study in other contexts. This is typical for an intensive case study approach, where the main aim is not to produce knowledge that could be generalized to other contexts but to explore and understand how the unique case works (Eriksson & Kovalainen, 2008, 121). Still, the theoretical framework developed is aimed to be commonly useful in the context of developing service business-based business model in a manufacturing firm, thus providing generalization to theory.

The study focuses on the business model development in the context of service business. It does not take a stand on corporate strategy but focuses on business model development at the business unit abstraction level. Business models can be seen as a business unit level tools whereas strategy belongs to corporate level and business processes to functional and implementation level (Bask et al., 2010). Taken into account this definition, the study does not focus on the functional or implementation level either.

#### **1.5 Methods**

The study begins with a review of research literature concerning relevant theoretical aspects of business models and service business. Based on the literature, the main frameworks to be used are selected. The research is of abductive logic, combining both deductive and inductive reasoning (Eriksson & Kovalainen, 2008, 21). From the perspective of deductive logic, the literature review provides a starting point for the further development of the current theories. Also, inductive logic is used to create new theoretical understanding raising from the empirical case study and reflecting it with the previous theories.

Theoretical discussion of business models is combined with theories of service business. The case study provides understanding for development of the frameworks as well as of the applicability of the frameworks in practice.

A multiple method approach is used to gain a comprehensive view of the research phenomenon (Nuutinen & Lappalainen, 2012, 145). The primary data collection methods used in the case study are semi-structured interviews and workshops that are arranged in both the case company's headquarters as well as in its Chinese subsidiary's locations. The interview frames and workshops are based on a pre-defined business model framework from the previous literature. In addition, company documents are used as a secondary source of research data.

The analysis is performed by coding the data according to the selected framework. To develop the business model framework further, the case study data is used to identify issues that are needed in order to develop a business model in a service business context but are not included in the current frameworks. Finally, based on the findings that are reflected with the previous service business discussion, a new business model framework is developed.

## II BUSINESS MODELS – CONCEPT AND DEFINITIONS

Business model as a concept has become increasingly popular in academic research since the dot-com boom. However, a clear consensus of the definition of the relatively new concept still does not exist. (Osterwalder et al., 2005; Osterwalder, 2004) One of the most comprehensive frameworks for the business model concept is developed by Osterwalder (2004), Osterwalder, Pigneur & Tucci (2005) and Osterwalder & Pigneur (2010). In his doctorate thesis, “The business model ontology – A proposition in a design science approach”, Osterwalder builds up a synthesis of previous research in the subject, identifying the central building blocks for his business model framework. The research in hand is mainly built up according to the Osterwalder’s business model framework for two reasons. Firstly, it is strongly justified as a framework due to its roots in a wide scale of previous research. Secondly, after its introduction it has become widely accepted both in academic research and practice, not only due to its strong base but also because of the clear way it can be used to conceptualize a business model.

Referring to Osterwalder and Pigneur’s work and other research, this study aims to develop understanding of what really is a business model and how it can be used. First, the categorization of the concept is addressed to better see the wide picture of its various uses. To understand the business model as a concept better, the study then takes a look at the history of the concept’s use in theory and practice. Finally, recent business model frameworks by selected authors are reviewed and compared with each other. Defining the concept as well as describing the elements it consists of according to different authors helps us to better develop understanding of the concept from different viewpoints.

### 2.1 Definition and categorization

Osterwalder, Pigneur & Tucci (2005) define the business model as follows:

*“A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its networks of partners for creating, marketing and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.”* (Osterwalder et al., 2005, 17)

As a conceptual tool, business model is a simplified representation of how the business of any company works. To make this, it contains elements describing different parts of a business and explains their relationships to each other. Thus, it tells the business logic of a firm. With the business model concept we can simplify which kind of value is offered to which customers, which kinds of resources, activities and partners are needed and finally, how the value offered to customers is captured and transferred back to the company through revenues.

According to Osterwalder et al. (2005), business models can be classified in three different categories according to how they are described by different authors: 1) overarching business model concepts, 2) taxonomies 3) instance level.

Overarching concepts consist of definitions of what a business model is and what belongs in it. Thus, they are abstract concepts describing all real world businesses. This category includes both definitions of what the concept of business model means as well as meta-models, which also define the elements included in it. The frameworks to be presented in the following discussion all fall in the category of meta-models.

Taxonomies category is formed by descriptions of different types or meta-model types that are generic but contain common characteristics. Types refer to simple categorization whereas meta-model types refer to different models. Taxonomies may apply to specific industries instead of business in general.

Instance level includes concrete real-world business models as well as conceptualizations, representations and descriptions of them. They are commonly used to describe companies in case-based studies.

## **2.2 History of the concept**

Even though business model as a concept already appeared in the first academic papers during the 1950s and 60s, it only rose to prominence towards the end of 1990s. Today it can be seen as a candidate to replace industry as a unit of analysis. Business model as a concept has previously often been discussed superficially and frequently without proper understanding of its roots, role and potential. This was also typically the case when the concept was discussed during the dot-com boom when it became a kind of buzz word and was used in describing several e-business companies with more or less functioning business models. The rise of e-commerce increased possible business model design

choices based on affordable and easily available information technology. Burst of the bubble then led to a sort of decline in the popularity of the concept's use. (Osterwalder et al., 2005, 3–6)

In research, different phases related to the categorization of business models can be determined. Since the beginning of the 21<sup>st</sup> century, research focus has moved from defining and classifying business models first to lists of business model components and through describing business model elements as well as modeling business and its components conceptually to applying the business model concept.

### **2.3 Business model frameworks – What is included and excluded?**

To get a good picture of business model concept and to be able to efficiently use it, addressing frameworks developed by different authors is needed. Next, selected meta-models are reviewed to provide insight into different kinds of categorizations of business model elements.

#### **2.3.1 Kaplan's business model story elements**

Kaplan (2012) describes business model with three simple “business model story elements” – value creation, value delivery and value capture. Value creation tells how the organization creates value and addresses customer experience part of the business model. Value delivery defines how the organization delivers that value, describing the operating model of the business. Finally, value capture takes into account the financial model, explaining how the organization captures the economic value for itself. Kaplan's elements can be seen as a unifying concept for most of the meta-model frameworks. The elements represented in the frameworks to be presented next can all be divided into parts concentrated in value creation, value capture and value delivery. To point out the similarities and develop understanding of the usage of different frameworks presented, each framework will be discussed from the value creation, capture and delivery point of view in the comparisons part.

#### **2.3.2 Osterwalder and Pigneur's business model canvas**

In their well-known book “Business Model Generation”, Osterwalder and Pigneur (2010) identify nine elements of their business model framework, and provide an easy-to-use canvas tool for business model development. The elements have their theoretical

underpinnings in Osterwalder's (2004) doctorate thesis, in which he develops a synthesis of the previous business model research. Each of the elements included in the framework has been mentioned at least by two other authors in previous literature. In the business model canvas tool the elements have been developed further from Osterwalder's previous work, resulting in a more easily useable structure and a change of names in some of the elements. However, the core idea of the framework remains the same. The nine elements of the business model canvas framework (See table 1.) belong into four pillars – product, customer interface, infrastructure management and financial aspects.

Pillar		Business Model Element	Description
I	Product	1 Value Proposition	Forms an overall view of a company's bundle of products and services that are of value to the customer.
II	Customer Interface	2 Customer Segments	Segments of customers a company wants to offer value to.
		3 Channels	Means of getting in touch with the customer.
		4 Customer Relationships	Describes the link a company establishes between itself and the customer.
III	Infrastructure Management	5 Key Resources	Describes the arrangement of assets required to create value to the customer, being the inputs in value-creation process and sources of capabilities.
		6 Key Activities	Actions a company performs to do business and achieve its goals.
		7 Key Partners	Voluntarily initiated cooperative agreements for outsourcing activities and acquiring resources outside the enterprise.
IV	Financial Aspects	8 Revenue Streams	Describes how a company makes money through a variety of revenue flows resulting from value propositions successfully offered to customers.
		9 Cost Structure	The representation in money of all the means employed in the business model elements.

**Table 1** *Business model canvas elements and descriptions* (Adapted from Osterwalder & Pigneur, 2010; Osterwalder, 2004)

### I Product pillar

Product pillar in essence answers to the question “what?” when it comes to business model. It describes in which business the company is in and defines the products and thus, value propositions it offers to the market. It describes an essential part related to overall business model innovations – product and service innovations.

**(1) Value proposition** forms an overall view of a company's bundle of products and services that are of value to the customer, consisting of sets of offerings. Value proposition describes a bundle of products and services that represent value for a specific customer segment and is packaged and offered to fulfill customer needs. Further, it describes how a firm differentiates itself from its competitors.

## **II Customer interface pillar**

Customer interface pillar concentrates on the question “who” in the business model. It tells who the company’s target customers are, how it delivers products and services to them and how it builds strong relationships with them. It defines the way how a company goes to market, reaches its customers and interacts with them.

**(2) Customer segments** define the types of customers a company wants to offer value to. A company selects its target customers by segmenting the potential customers according to different approaches.

**(3) Channels** describe the means of getting in touch with the customers. They are connections between a company’s value proposition and its target customers. Channels include communication, distribution and sales channel, delivering value propositions to customers. The sales channels can be further divided into own direct and indirect sales channels and indirect sales channels through partners.

**(4) Customer relationships** describe the kinds of links a company establishes between itself and its customers. All the interactions between a company and its customers affect in defining the strength of the relationships. As interactions come with cost, a company should carefully define which kinds of relationships and with which customers it wants to establish.

## **III Infrastructure management pillar**

Infrastructure management pillar addresses the question “how” in the business model, telling how a company creates value. It tells how a company efficiently performs infrastructural and logistical issues, with whom and as what kind of network enterprise. Thus, it defines what abilities the company needs to provide its value proposition and maintain its customer interface. It specifies the capabilities and resources needed in the



business model and the executors of each activity as well as their relationships with each other.

**5) Key resources** describe the arrangement of assets required to create value to the customer. They are inputs in value-creation process and sources of capabilities, which a company needs to provide its value propositions. Resources can be categorized to physical, intellectual, human and financial resources.

**6) Key activities** describe the actions a company performs to make the business model work. Business model framework helps configuring key activities inside a company and outside of it. This can be done according to value chain, value shop or value network logic.

**7) Key partnerships** describe the network of suppliers and partners needed to make the business model work. It is built up with voluntarily initiated cooperative agreements for outsourcing activities and acquiring resources outside the company.

#### **IV Financial aspects**

Financial aspects pillar defines the company's revenue model and cost structure, resulting in profitability. It defines the business model's economical sustainability as all the other elements' configuration results in it.

**8) Revenue streams** describe how a company makes money through a variety of revenue flows resulting from value propositions successfully offered to customers. Revenue streams directly results from pricing models chosen by the company.

**9) Cost structure** is the representation of costs resulting from the operation of a business model, which is to create, market and deliver value to customers. It sets a price tag for the other elements of a business model.

(Osterwalder & Pigneur, 2010; Osterwalder, 2004)

#### **2.3.3 Chesbrough and Rosenbloom's business model functions**

Chesbrough and Rosenbloom (2002) stress the business model's importance in taking technological innovations to market and this way mediating the technological innovation to create value. In his later work, Chesbrough (2007) also recognizes the importance of innovation in business model itself. It is not enough to develop a technological innovation but to build a business model around it in order to get it to

market and make revenue with it. Thus, the innovation needs to be translated to a value proposition and other functions of a business model. Without stating a validation based on their research or previous research, Chesbrough and Rosenbloom (2002) define six functions of business model being to:

- 1) Articulate the *value proposition* – the value created for users by the offering based on the technology
- 2) Identify a *market segment* and specify the *revenue generation mechanism(s)* for the firm
- 3) Define the structure of the *value chain* within the firm required to create and distribute the offering and determine the complementary assets needed to support the firm's position in this chain
- 4) Estimate the *cost structure and profit potential* of producing the offering
- 5) Describe the position of the firm within the *value network* linking suppliers and customers, including identification of potential complementors and competitors.
- 6) Formulate the *competitive strategy* by which the firm will gain and hold advantage for rivals.

Using the functions the business model can be developed. Thus, the functions work the same way as do business model elements or building blocks in some of the other frameworks.

### **2.3.4 Johnson, Christensen and Kagermann's business model elements**

Johnson, Christensen and Kagermann (2008) emphasize the importance of understanding the existing business model as a starting point of business model development and after this beginning to develop a way to “get the job done”. “Job to be done” refers to solving an important problem of fulfilling an important need for the target customer. They define four elements of a business model to create and deliver value. Customer value proposition refers to the value creation, whereas profit formula, key resources and key processes define the value delivery. (1) Customer value proposition includes the target customer, job to be done and offering that satisfies the job to be done. (2) Profit formula defines how the company creates value for itself. It is the blueprint of the financial aspects of the business model, including revenue model, cost structure, margin model and resource velocity. Johnson et al. stress the different aspects of the financial sustainability more than the authors mentioned earlier. (3) Key

resources include resources required to deliver the customer value proposition, such as people, technology, equipment, channels and partnerships. Finally, (4) key processes together with key resources define how the value is delivered. They include processes as well as rules, metrics and norms.

### 2.3.5 Comparing the frameworks

The frameworks presented can be compared with each other. The following comparison shows that they all include basically the same ideas but are represented in a different manner. Kaplan's (2012) elements are used as an overarching framework and the rest are reflected with each other.

Kaplan (2012)	Chesbrough & Rosenbloom (2002)	Johnson, Christensen & Kagermann (2008)	Osterwalder (2004), Osterwalder & Pigneur (2010)
Value creation	Value proposition	Customer value proposition	Value proposition
	Market segment & revenue generation		Customer segments
Value delivery	<i>Value network</i>	Key resources	<i>Customer relationships</i>
			Key partners
	Value chain		Key resources
			Channels
Value capture	Market segment & revenue generation	Profit formula	Revenue streams
	Cost structure & profit potential		Cost structure
	Competitive strategy		

**Table 2** *Business model frameworks comparison*

Osterwalder's and Pigneur's framework can be divided into parts representing value creation, capture and delivery identified by Kaplan (2012) (See table 2.). Value proposition and customer segments can clearly be seen as part of value creation – they

define the customers and customer experience, identifying which kind of value is created and to whom. Customer relationships can also be seen as part of value creation, especially in a value co-creation setting, apparent especially in service business, where the customer is part of the value creation process (Grönroos, 2008).

Channels, key resources and key activities form the core of a company's operating model and can thus be grouped to value delivery. Customer relationships can also be part of this as they are vital in delivering value to the customer. However, as stated previously, they can also be part of value creation. Key partners is another element that can belong to both value delivery and value creation. For example, some of the activities and resources needed in company's operating model can be outsourced. On the other hand, value created in networks can link it to value creation element (Nenonen & Storbacka, 2010). Finally, revenue streams and cost structure represent the financial aspects of the business model, defining how the value is captured.

When comparing Chesbrough & Rosenbloom's business model functions (2002) to Kaplan's (2012) categorization of value creation, delivery and capture, we can see that the functions are relatively easy to divide to those related to value creation, capture and delivery (table 2). We can link the first function, articulating the value proposition and the second one, identifying a market segment to value creation as they define the customer experience. However, in Chesbrough's and Rosenbloom's framework, the revenue generation mechanisms are linked to identification of a customer segment. This and the fourth function, estimating the cost structure and profit potential represent the financial aspects and form the value capture element. Finally, the third function, defining the value chain and the fifth function, the firm's position in the value network, define the value delivery, forming the operational model of a company.

Chesbrough's and Rosenbloom's business model framework's biggest difference to Osterwalder's and Kaplan's is that it also includes the competitive strategy as part of business model, whereas Osterwalder sees business model as a tool for different level than strategy (Osterwalder, 2004). Also, in the value chain function of the Chesbrough's and Rosenbloom's model competitors and complementors are advised to be identified, thus also relating to strategic issues.

As Osterwalder (2004) has also used Chesbrough's and Rosenbloom's work as a reference in developing his business model framework, it is valid to take a look at the

similarities the elements of these models provide and identify which of the Chesbrough's and Rosenbloom's functions are included in which elements of Osterwalder's business model framework (table 2). When considering the functions of Chesbrough's and Rosenbloom's business model framework except the competitive strategy, we can link them to Osterwalder's business model elements. Value proposition function has a similar analog in Osterwalder's framework, as has the customer segment. Whereas Chesbrough and Rosenbloom build revenue generation together with customer segment, Osterwalder defines it as a separate element, forming the financial aspects pillar logically together with the cost structure element. Thus, revenue streams and cost structure together form the profit, which is a result of these two elements instead of being included in the elements, whilst Chesbrough and Rosenbloom build it in one function together with cost structure. Chesbrough's and Rosenbloom's value chain function describes the value chain within the firm itself and not with its partners. By this reasoning we can see it to be linked to the Osterwalder's infrastructure management pillar's elements that describe value delivery inside the firm, key resources and key activities. Also, the function describes value delivery and thereby links to the channel element. Finally, the value network function defines a company's relationships with both its customers and partners and can thus be linked to Osterwalder's customer relationships and key partnerships elements.

Chesbrough's & Rosenbloom's and Osterwalder's business model frameworks should not be seen as competing against each other as theories but more as different ways of categorizing the parts of a business model. Taking into account their notable similarities and Osterwalder's approach in developing the business model concept based on the previous research, Osterwalder's work can be seen as a later, more developed and more carefully defined stage in evolution of a business model meta-framework. Also, in his later work, Chesbrough (2010) has recognized Osterwalder's business model framework as an example of a promising business model mapping concept.

Kaplan's (2012) division of business model into value creation, delivery and capture is also apparent in Johnson et al.'s (2008) framework. The authors themselves recognize the categorization to value creation and delivery. Thereby, the difference to Kaplan's work is categorization of the profit formula as part of value delivery instead of value capture.

In addition, as we can see, Johnson et al.'s categorization of the elements of a business model is another way more to view the concept. Several similarities can be found with Osterwalder's framework – customer value proposition is linked to value proposition and customer segments, profit formula to revenue streams and cost structure, key resources to key resources, channels, key partnerships and customer relationships and finally, key processes to key activities. It can be stated that the elements of Osterwalder's framework are presented in Johnson et al.'s framework as well but again, they are categorized in a different way.

### **2.3.6 Conclusions on business model frameworks**

Based on the review of the business model literature, we can make a notion that the meta-model frameworks represented mainly reflect the same ideas of a business model and its components but with different categorizations.

Osterwalder's (2004) research on business models and the approach of developing a framework with previous research as a base ties up and summarizes the previous literature on the subject, providing a validated model for business model development. Thus, it is reasonable not to study the previous frameworks further in this context as their ideas are reflected in Osterwalder's work and as the focus of the research in hand is not only to concentrate on the business model frameworks.

The review of the later development of the business model concept strengthens the assumption that the different frameworks reflect similar ideas through different categorizations, as has been shown when discussing the frameworks developed by Johnson et al. (2008) and Kaplan (2012).

One aspect that has to be taken into account is the concept of value co-creation (Grönroos, 2008; Gummesson, Lusch, & Vargo, 2010; Vargo & Lusch, 2004), which is not very apparent in the business model frameworks reviewed. The concept will later be discussed in a more detailed manner. Especially in Kaplan's (2012) framework the underlying logic seems to be production-oriented to a large extent – the company creates the value, delivers it to the customers and finally captures it, instead of co-creating value with the customers. However, the other frameworks could work in a co-creation perspective as well. In the first hand, the naming of the value proposition reflects the logic that the company does not necessarily create value alone but proposes

it. Also, if customer relationships and key partners in Osterwalder & Pigneur's (2010) framework and value network in Chesbrough & Rosenbloom's (2002) work are considered as part of value creation, the co-creation aspect can be taken into account. Thus, these frameworks do not necessarily line out the possibility to value co-creation and could thereby be used also in a business that operates with a service-dominant logic (Vargo & Lusch, 2004).

Finally, Osterwalder's (Osterwalder, 2004) and Osterwalder and Pigneur's (2010) business model framework can be seen as the most comprehensive of the business model frameworks reviewed. It has the most validated theoretical underpinnings and the elements are defined clearly and with an accurate manner. Also, it seems to be suitable for describing a service-oriented business as well as product-oriented business. For the reasons mentioned it is justifiable to use this framework as a theoretical base for this research.

### **III FROM MANUFACTURING TOWARDS SERVICES**

In several industries, manufacturing companies are increasingly extending their offerings to services (Mathieu, 2001; Kowalkowski, Brehmer & Kindström, 2009). There are several reasons that have led to this kind of development, most importantly including increased competition due to commoditization of products followed by decreasing profit margins as well as customers demanding more customized service and solutions.

For moving towards services, manufacturing firms are in a position where they can naturally take advantage of their installed base and wide product-related knowledge (Oliva & Kallenberg, 2003). Oliva and Kallenberg refer to three arguments often presented for increasing the service offering. First, the economic arguments state that substantial revenue can be generated from an installed base of products, and that services provide a more stable revenue source, as they are resistant to economic cycles that drive investment and equipment purchases. However, this might not always be the case as during economically hard times companies may cut from their spending on services if the services are not seen as vitally important. The second argument expresses that the customers are demanding more services. Finally, the competitive argument argues that services, by being less visible and labor dependent, are more difficult to imitate, and thus become an important source of competitive advantage. This argument is also under a question as the new ideas in service are often easy to imitate quickly and hard to protect (Bessant & Davies, 2007). Also, financial returns from services have not been reported as expected, especially in larger firms in highly developed economies. This is at least partly due to higher labor costs, working capital and net assets in servitized firms and the inability of manufacturing firms to cover the additional costs and investments required for service provision and to increase revenues to gain extra margin. (Neely, 2008) Finally, a firm transitioning towards a more service-oriented business model can often face several hurdles, and this kind of change is often difficult for a production-oriented firm (Gopalani, 2010).

During the past years, service business has faced increasing attention in the academic literature. Several concepts relate to the service business paradigm and the most relevant ones will be outlined in the following section. In order to be able to study the several viewpoints of the service business and its relation to business model development, it is



important to gain a comprehensive view of the paradigm. Further, this understanding is important in studying the business model development in the service business context as it enables better taking into account the several aspects relating to the business model and its context.

First, service-dominant logic, which closely relates to value co-creation, a concept of value creation that is especially apparent in service business (Vargo & Lusch, 2004; Grönroos, 2008) will be addressed. After this the discussion moves to the phenomenon of servitization and product-service systems that describe the transition of manufacturing firms towards service business. The next part of the service business discussion concentrates on organizational issues relating to the change, including addressing the organizational structures and culture. Finally, service business transition will be looked at from the business model perspective, reviewing literature concerning business models in service business, especially among manufacturing companies.

### **3.1 Service-dominant logic and value co-creation**

Service-dominant logic (S-D logic) takes the business logic away from the traditional goods-based logic towards a more customer-centered and relational view. It challenges the traditional thinking and changes the perspective to such that everything can be seen from the service point of view – also a good can be seen as a service for the customer when it fulfills its function. Customers consume service, regardless if service is considered as a perspective instead merely an action: “Service is a perspective on value creation rather than a category of market offerings” (Edvardsson, Gustafsson, & Roos, 2005, 118). Whereas in goods-based logic the value is created in exchange of goods, in service-dominant logic service, which takes its form in specialized skills and knowledge, is the fundamental unit of exchange. Goods are seen as distribution mechanisms for service provision. The firms do not create value by themselves but they can make value propositions – the customer is the one that creates the value in use. (Vargo & Lusch, 2004) Gummesson, Lusch and Vargo (2010) add that services and products should not be seen as separate from each other. Instead, the thinking should move from goods and services divide to goods and services union, as opposed to the division in the traditional service management. The focus should be on service and value, abandoning the producers and customers divide. Customers consume service, regardless of whether they buy goods or services. The authors point out the artificiality

of the goods and services division and the characteristics often defined as separating goods and services from each other – intangibility, heterogeneity, inseparability and perishability.

Grönroos (2008, 299–300) uses the term service logic instead of service-dominant logic and summarizes the essence for the customer and the provider as follows:

- 1) When using resources provided by a firm together with other resources and applying skills held by them, customers create value for themselves in their everyday practices (customer service logic)
- 2) When creating interactive contacts with customers during their use of goods and services, the firm develops opportunities to co-create value with them and for them (provider service logic)

Comparing the service logic to the traditional focus on goods in marketing, he points out that: (1) concentrating on goods draws the attention away from what ultimately is important for customers – their value-creating processes; that (2) goods can be seen as a platform for services and that (3) for the customer to use goods, other resources must accompany them, and the goods are only one resource among others in supporting customers' value creation. The process nature is the most distinguishing characteristic, and the aim of the process is to assist customers' everyday practices. (Grönroos, 2006) Later, he adds that service is a value-supporting process whereas goods are value-supporting resources (Grönroos, 2008, 300).

Grönroos (2008) clarifies the field of service literature by listing the common three aspects of the concept of service that are used in the literature today:

- 1) Service as an activity – the view traditionally used in literature, referring to a process where someone, for example a service firm, does something to assist someone, for example a customer.
- 2) Service as a perspective on the customer's value creation – foundation for customer's purchasing processes (customer service logic)
- 3) Service as a perspective on provider's activities – foundation for organizations' business and marketing strategies (provider service logic)

The two last ones present more overall perspective on service and are not related to the service activity. As the perspective on customer's value creation (2), Grönroos

emphasizes the idea of value-in-use, contrasting the more traditional view of exchange value (or value-in-exchange). The main idea is that the customer is an important part of the value creation and fulfillment process, calling for deeper interaction between the provider and the customer. When customers use the resources they have acquired, value is created as value-in-use. In contrast, in the exchange value model, the value is seen as embedded in products and services and exchanged for money or equivalent.

As a perspective on provider's activities (3), the service logic, as defined by Grönroos (2008, 307), argues that "...regardless of whether a firm is traditionally considered as a service firm or a goods manufacturing firm, if it attempts to assist its customers' practices and support their value creation, it has to think, plan and act as a service business," promoting the importance of the service-oriented thinking also for a manufacturing company.

According to the value co-creation view, providers and customers create the value together, and provider is not the one that embeds the value in products and services but makes value propositions and assists customer in the value creation. This turns the attention more towards taking into account the customer in the first hand.

The service-dominant logic takes an important outbreak from the production-oriented business theory and practice, emphasizing the importance of customer-centered thinking in value creation. Another side of customer-centered thinking is that, in some cases approaching the customer with service logic does not work. As has been noted by Grönroos (2008), some customers may still focus on the resources they buy – not on the manner they can be used and, thus, the value gained in use. In this case, approaching customers with service logic is not effective. Still, as has been noted by Gummesson et al. (2010), referring to a Harvard Business Review article by and Reinartz and Ulaga (2008), the mental model of the management in manufacturing companies has still remained goods-dominant to a large extent. This is easy to understand taking into account the long tradition of goods-dominant mindset and production-oriented economic theory. The service-dominant logic seems to appear as a hard-to-grasp concept for manufacturing companies' management as is such a radical outbreak from the traditional view of thinking. For the research in hand it brings an interesting addition explaining the possibilities of more service-oriented mindset and importance of the customer in the essence of business models – crafting the value propositions.

## **3.2 Product-service systems and servitization**

After discussing the service-dominant logic, a more overall perspective on service thinking, we now move to review the literature considering the service business phenomenon in manufacturing companies, including the concepts of product-service systems (PSS) and servitization. Several views of the concept have been discussed in the literature. More contemporary literature of servitization employs some concepts of service dominant logic, whereas earlier literature considers it as a “value added” activity to support product-oriented business (Barnett, Parry, Saad, Newnes, & Goh, 2013).

### **3.2.1 Comparing the service-dominant logic, servitization and product-service systems**

In his article, “*What does a service-dominant logic really mean for manufacturing firms?*” (2010), Kowalkowski takes a look at the differences between the service-dominant logic and product-service systems and explains what the service dominant logic means in a manufacturing firm context. The so-called service infusion or product-service systems describe the manufacturing firms moving to service provision, considering their strategic repositioning in the marketplace. This does not mean following the service-dominant logic, as the firms may still follow the goods-dominant logic in their business.

Service-dominant logic, on the other hand, is more a perspective on value creation rather than a theory, considering the aspects of value co-creation, value-in-use, long-term orientation and relationships and emphasizing the move from transactional product sales to relational services and solutions. Suppliers become resource integrators, and operant resources (intangible, dynamic resources capable to create value) are stressed instead of operand resources (tangible, static resources that require some action to make them valuable). Every interaction between buyer and supplier is seen as a service, and every business becomes service business. When the value creation is in focus, the traditional divide between products and services is not relevant. Due to value co-creation perspective, the shift in innovation is also apparent – it becomes a process involving several actors, especially customers, instead of being an internal process of the firm. Finally, service-dominant logic implies much more than service infusion – it is reframing the purpose of the firm and its collaborative role in value creation. However, Kowalkowski also adds that, if customers follow goods-dominant logic it may be

difficult and unprofitable for a firm to follow service-dominant logic and engage in close, long-term collaboration with them. (Kowalkowski, 2010)

Later, Kowalkowski (2011a) takes a closer look into value propositions, examining both value-in-use and value-in-exchange and their emphasis in value creation. The emphasis in value proposition can vary according to the customer – value proposition and offering can be crafted emphasizing either value-in-use or value-in-exchange. Thus, customer has a central role in determining the value emphasis. Roles and competencies in customers' buying centers as well as the firm's internal capabilities determine the value propositions that could and should be created. Kowalkowski (2011a, 286-287) proposes four principles explaining the emphasis between value-in-use and value-in-exchange:

- 1) Value propositions with an emphasis on value-in-use are more likely to address the needs of multiple evaluators than those with an emphasis on value-in-exchange.
- 2) The relative emphasis on value-in-use and value-in-exchange will normally change over time during the sales process.
- 3) The discrepancy between value-in-exchange and value-in-use is lower for offerings in which value-in-exchange manifests itself as continuous financial feedback linked to value creation for customers than for other types of offerings.
- 4) The closer the relationship between customer and provider, the more the emphasis of the value proposition can be placed on value-in-use.

Even though the value-in-use is seen as a more customer-oriented perspective on value creation, it is worth to note that not all the customers prefer, or understand, value in use. Decisions might be driven by short-term financial goals and transaction-based, value-in-exchange incentives (Kowalkowski, 2011a). Especially in indirect service provisions, when goods are accompanying the services, emphasizing value-in-use can become even more challenging. A customer may select lower price and value-in-exchange over higher price with better value-in-use potential and can also prefer unit price decreases over value increases as well as decreased value over increased price. (J. C. Anderson, Thomson, & Wynstra, 2000) Thus, emphasis on short-term transactions rather than long-term collaborative exchanges may be more appropriate (E. Anderson & Jap, 2005). Finally, value propositions can be different for different customer segments, according

to their preferences and operating logics. If customers are operating with a goods-dominant logic, crafting the value proposition using long-term value-in-use will be difficult. (Kowalkowski, 2011a)

Product service systems literature takes a less radical and comprehensive view on services, concentrating on firms moving towards service provision, instead of changing the whole idea of value creation. The concept was first introduced by Goedkoop, van Halen, te Riele and Rommens (1999), and defined as being “a marketable set of products and services capable of jointly fulfilling user’s need” (Goedkoop et al., 1999, 3). The product / service ratio can vary, and develop over time towards more service-centered business. Even though services may form a bigger share in a product service system, the work can still follow a traditional product-dominant logic, including the typical product-services divide. For product-oriented companies, the PSS is seen to be applied in order to escape from commodity market, create superior value for the clients (As can be seen, the value creation perspective remains traditional.), intensify customer relationships, supply a total offer, discourage newcomers and respond to changing policies. After Goedkoop et al.’s study, the concept of PSS has gained wide attention in the literature and has been researched further from several points of view.

Even though product-service systems and servitization do not take as radical point of view towards the idea of value creation, moving to services provision also requires major shifts in several fields of firm, including strategy, organizational structure and culture as well as operations. A strategic rather than an incremental change is needed in a firm aiming towards servitization, the move to gain value from services associated with its products (Barnett et al., 2013). This involves changes in the business model. When the business model is changed towards more service-oriented and focus shifts from transactions to relationships, it is often difficult and slow to implement, especially for larger and more complex organizations. Developing the required new capabilities will divert resources away from the traditional sources of competitive advantage, including manufacturing and development of new products. (Oliva & Kallenberg, 2003)

### **3.2.2 Frameworks addressing service strategies, offerings and transition towards services**

Several authors have assessed the manufacturing firms’ transition towards service provision, addressing the strategies as well as offerings related to this. The following

section reviews this literature, concentrating on frameworks and models to help understanding and analyzing the phenomenon.

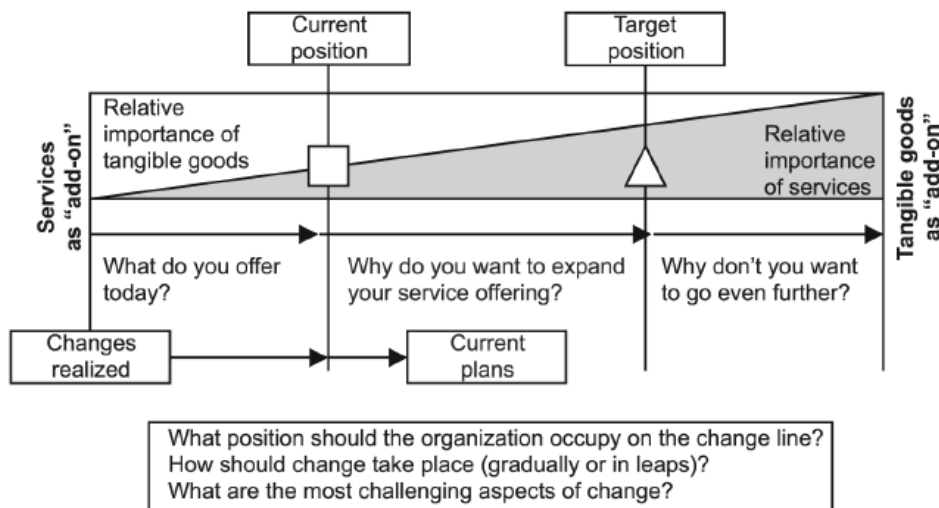
Mathieu (2001), concentrates in service strategies within the manufacturing sector, creating a typology of service “maneuvers” in manufacturing firms, referring to the variety of ways a manufacturing company can take to embrace the service field. The typology consists of two dimensions, and the position of the company on each axis defines the type of the service maneuver (See figure 1.). The service specificity dimension describes the nature of the offering or, the content of the manufacturer’s service maneuver, consisting of customer service, product services and service as a product. Customer service addresses the interactions between seller and the customer, product services support the suppliers product, whereas service as a product moves still further, referring to services that are independent from the company’s goods. The organizational intensity dimension “focuses on the way the company lives its service maneuver” (Mathieu, 2001, 453), thus referring to the strength and the scope of maneuver’s impact on the firm, and consists of tactic, strategic and cultural intensity. Tactical maneuvers are limited to specific actions in the marketing mix, strategic ones aim to add some key competencies to a firm’s portfolio, whereas cultural maneuvers reshape the firm’s mission and can alter fundamental characteristics of organization. The two dimensions address different realities of service maneuvers; the service specificity dimension describes the offering and the organizational intensity dimension deals with the different postures an organization may take to achieve this output. The two dimensions are considered to be independent, meaning that service specificity and organizational intensity do not necessarily lead to each other.

Mathieu argues that, as service specificity and organizational intensity increase, strategic and financial benefits increase. However, as do strategic and political costs. Also, as organizational intensity increases, marketing benefits increase as well. Another idea Mathieu (2001) proposes is that of a collaborative continuum. For service maneuvers, a company can select a form on a continuum moving from internalization to partnering in the halfway and outsourcing on the other end.



**Figure 1** Service maneuver typology (Mathieu, 2001, 453)

Oliva and Kallenberg (2003) propose a widely acknowledged framework describing the transition from products to services. First of all, a product-service continuum is presented, as companies move towards increased service provision (figure 2).

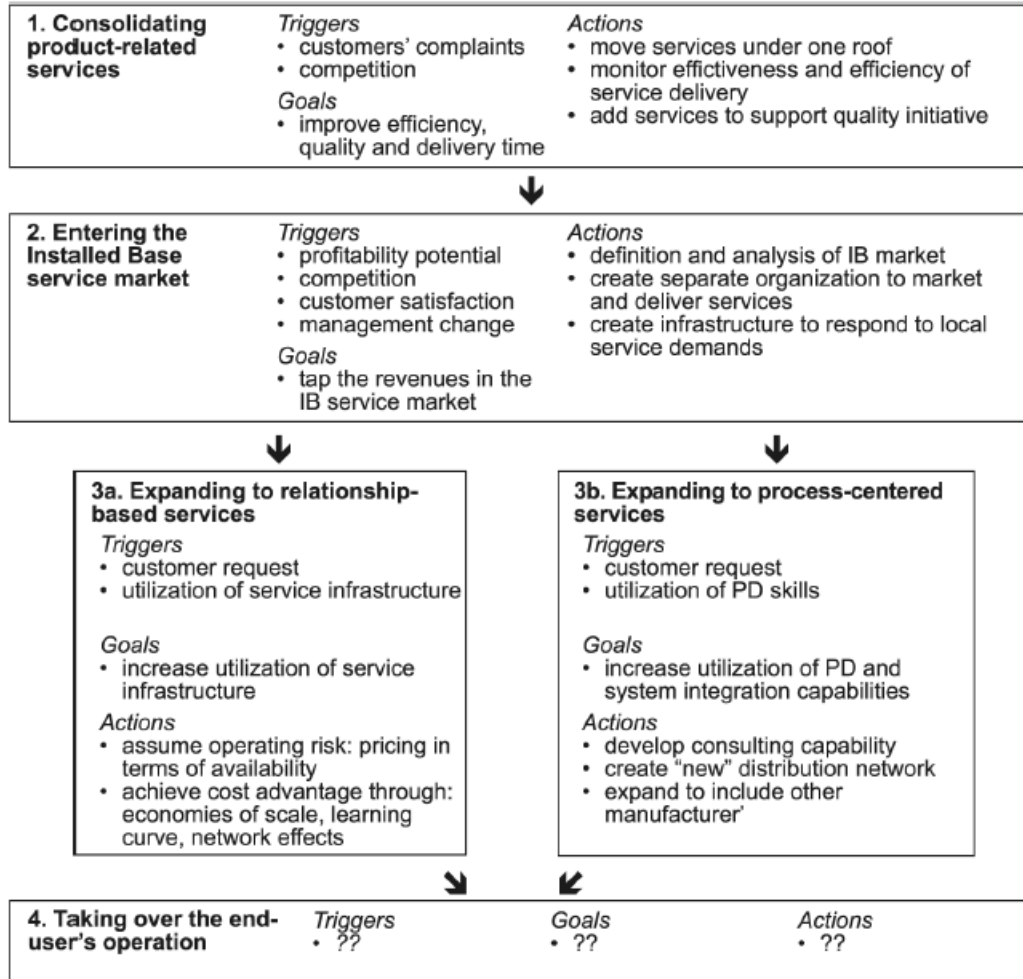


**Figure 2** The product service continuum (Oliva & Kallenberg, 2003, 162)

As the companies move on the continuum, they typically move step by step towards more advanced services (figure 3), starting from (1) consolidating product-related services. After this, the company needs to develop capabilities to (2) enter the installed base (IB) service market. The third step, (3) expanding the installed base service



offering happens developing either towards relationship-based or process centered offering. The final step is to (4) take over the end-user's operation.



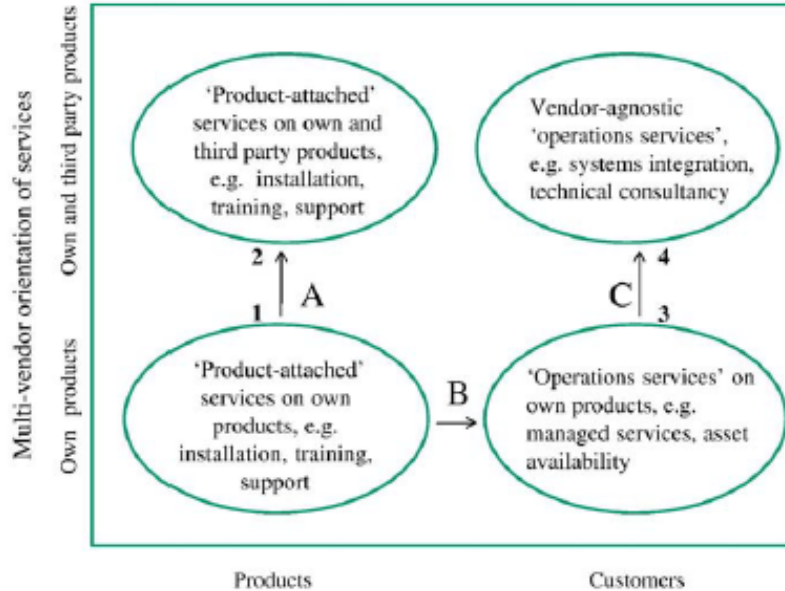
**Figure 3** *Process model for developing installed base service capabilities* (Oliva & Kallenberg, 2003, 165)

After entering the installed base service market, a company typically chooses either the relationship-based route, moving from transaction-based to relationship-based services, or the process-centered route, transitioning from product-oriented to process-oriented services, referring to concentrate the support on customer's processes instead of on the own product. These two routes are seen as separate from each other, and those occurring simultaneously would be an overly demanding task for an organization. Thus, a firm can move to both directions but the steps should not be taken simultaneously. The options in entering the installed base service market in the installed base service space and are illustrated in the table 3.

	Product-oriented services	End-user's process-oriented services
Transaction-based services	<i>Basic installed base services</i> Documentation Transport to client Installation/commissioning Product-oriented training Hot line/help desk Inspection/diagnosis Repairs/spare parts Product updates/upgrades Refurbishing Recycling/machine brokering	<i>Professional services</i> Process-oriented engineering (tests, optimization, simulation) Process-oriented R&D Spare parts management Process-oriented training Business-oriented training Process-oriented consulting Business-oriented consulting
Relationship-based services	<i>Maintenance services</i> Preventive maintenance Condition monitoring Spare parts management Full maintenance contracts	<i>Operational services</i> Managing maintenance function Managing operations

**Table 3** *The installed base service space* (Oliva & Kallenberg, 2003, 168)

Raddats and Easingwood (2010) address service growth options for B2B product-centered firms (figure 4). They divide the strategic choices on two dimensions. The product / customer orientation of services tells if the services are focused on products or customers' operational practices, relating to Oliva and Kallenberg's (2003)



**Figure 4** *Services strategy typology* (Raddats, 2011, 333)

dimension of product and process-oriented services. The other dimension defines whether the focus is on manufacturer's own or also third-party products. A firm typically starts from product-attached services for own products (1), and can move (A) towards services also for third-party products (2) or (B) towards more customer-oriented operations solutions (3). The most advanced option is providing operations

services for third party products as well as own products (4). This step (C) is to be taken only after the firm is providing operations services for own products. These strategic options are named as services engagement (1), services extension (2), services penetration (3) and services transformation (4) (Raddats & Easingwood, 2010) and are linked to sources of differentiation (Raddats, 2011). When the sources of differentiation are in resources linked to own products, services engagement or penetration strategy is likely to occur. When relationships with other OEMs (relational resources) are a source of market differentiation, this can lead to service extension or service transformation strategy. Finally, if a source of market differentiation lies in the firm's relationships with its customers (relational resource), services penetration and services transformation are likely strategic options. When taken to the offering level, the strategic choices made define which kinds of services are the most appropriate. Services engagement and extension strategies act as a base for discrete services, service penetration strategy for product lifecycle services and services transformation for output-based solutions. These service offering categories are backward compatible, meaning that, for example, a firm offering output-based solutions can also offer product lifecycle services and discrete services, but not the other way round. (Raddats, 2011)

Uлага and Reinartz (2011) go further in the offering level and take a look at the resources and capabilities needed for successful implementation of services in manufacturing firms, for creating "hybrid offerings". Four critical resources are identified, as well as five critical capabilities to leverage these resources (See table 4.). The unique resources are (1) installed base product usage and process data, (2) product development and manufacturing assets, (2) product sales force and distribution network and (4) field service organization. The distinctive capabilities include (1) service-related data processing and interpretation capability, (2) execution risk assessment and mitigation capability, (3) design-to-service capability, (4) hybrid offering sales capability and (5) hybrid offering deployment capability. Uлага and Reinartz as well propose a scheme to classify industrial services (see picture 6). One dimension is to address the service recipient – whether the service is oriented towards the supplier's good or towards the customer's process. Another dimension is for addressing the nature of the value proposition – whether it can be defined as a suppliers promise to perform a deed, being input-based, or to achieve performance, being output-based. Using the classification scheme, industrial services for hybrid offerings can be classified as (1)

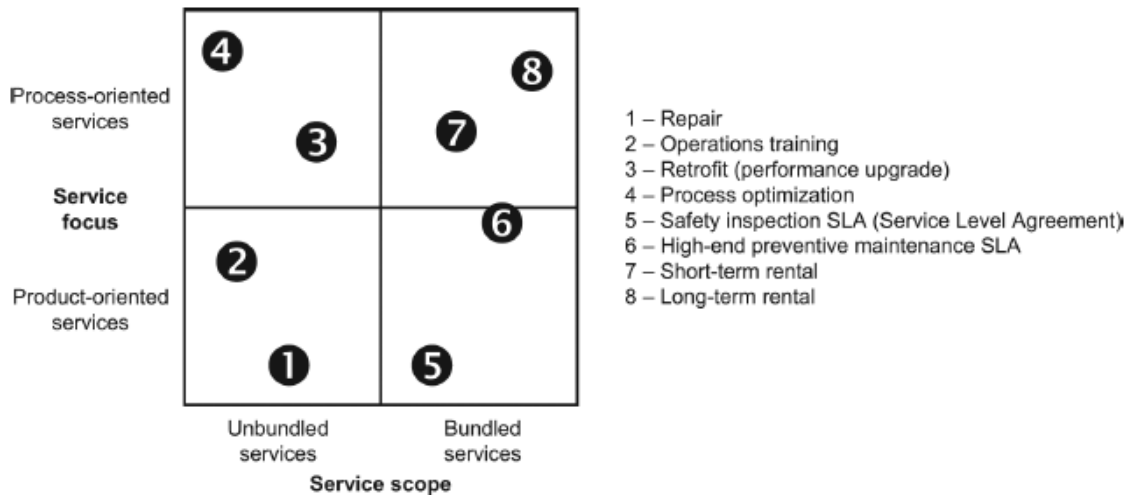
product life-cycle services (goods-oriented, input-based), (2) asset efficiency services (goods-oriented, output-based), (3) process support services (process-oriented, input-based) and (4) process delegation services (process-oriented, output-based). In each service class, different capabilities are needed to achieve competitive advantage – differentiation or cost leadership. The capabilities the firm develops thus define which kind of competitive advantage the firm can achieve in which service class.

<b>Classification Scheme of Industrial Services for Hybrid Offerings</b>		
<b>Nature of the Value Proposition</b>	<b>Service Recipient</b>	
	<b>Service Oriented Toward the Supplier's Good</b>	<b>Service Oriented Toward the Customer's Process</b>
Supplier's promise to perform a deed (input-based)	<p><b>1. Product Life-Cycle Services (PLS)</b>  <i>Definition</i>            •Services to facilitate the customer's access to the supplier's good and ensure its proper functioning during all stages of the life cycle  <i>Examples</i>            •Delivery of industrial cables            •Inspection of an ATM machine            •Regrooving of an industrial tire            •Recycling of a power transformer  <i>Primary Distinctive Capabilities</i>            •Hybrid offering deployment capability            •Design-to-service capability  <i>Main Underlying Resources</i>            •Field service organization            •Product development and manufacturing assets</p>	<p><b>3. Process Support Services (PSS)</b>  <i>Definition</i>            •Services to assist customers in improving their own business processes  <i>Examples</i>            •Energy efficiency audit for a commercial building            •Logistics consulting for material-handling processes in a warehouse  <i>Primary Distinctive Capabilities</i>            •Service-related data processing and interpretation capability            •Hybrid offering deployment capability            •Hybrid offering sales capability  <i>Main Underlying Resources</i>            •Installed base product usage and process data            •Field service organization            •Product sales force and distribution network</p>
Supplier's promise to achieve performance (output-based)	<p><b>2. Asset Efficiency Services (AES)</b>  <i>Definition</i>            •Services to achieve productivity gains from assets invested by customers  <i>Examples</i>            •Remote monitoring of a jet engine            •Welding robot software customization  <i>Primary Distinctive Capabilities</i>            •Service-related data processing and interpretation capability            •Execution risk assessment and mitigation capabilities            •Hybrid offering sales capabilities  <i>Main Underlying Resources</i>            •Installed base product usage and process data            •Product development and manufacturing assets</p>	<p><b>4. Process Delegation Services (PDS)</b>  <i>Definition</i>            •Services to perform processes on behalf of the customers  <i>Examples</i>            •Tire fleet management on behalf of a trucking company            •Gas and chemicals supply management for a semi-conductor manufacturer  <i>Primary Distinctive Capabilities</i>            •Service-related data processing and interpretation capability            •Execution risk assessment and mitigation capabilities            •Design-to-service capability            •Hybrid offering sales capabilities            •Hybrid offering deployment capability  <i>Main Underlying Resources</i>            •Installed base product usage and process data            •Product development and manufacturing assets            •Product sales force and distribution network            •Field service organization</p>

**Table 4** Classification scheme of industrial services for hybrid offerings (Ulaga & Reinartz, 2011, 17)

Kowalkowski, Kindström and Brehmer (2011) propose another classification scheme of industrial service offerings (figure 5). On dimension is service focus, containing

product-oriented and process-oriented services, similar to Oliva and Kallenberg's (2003) IB service space. Another dimension is service scope, consisting of bundled and unbundled services. Bundled services refer to bundling them together with products whereas unbundled services are independent from products.



**Figure 5** *Classification scheme of industrial service offerings* (Kowalkowski, Kindström, & Brehmer, 2011, 183)

As can be seen, there are notable similarities in the frameworks addressing classification of service strategies and offerings. Basically, in the frameworks of Oliva & Kallenberg (2003), Raddats & Easingwood (2010), Ulaga & Reinartz (2011) and Kowalkowski, Kindström & Brehmer (2011), one of the dimensions used for classification presents the orientation of the service towards either product or customer / customer's processes. Differences come in the second dimension, each framework presenting a different attribute for classification.

Storbacka, Windahl, Nenonen and Salonen (2013) take a solution perspective to business models and service business, referring to solutions including products and services bundled together. According to them, the transformation process towards solution business models depends on the business logic – installed base (IB) or input-to-process (I2P) logic. Installed base companies provide investment goods, creating installed base at the customers. I2P companies provide goods that are utilized as inputs in the customers' processes. IB companies can gradually transform towards solutions whereas for I2P companies the changes needed are less transitional. The authors construct four continua along which the transformation happens – (1) customer embeddedness, (2) offering integratedness, (3) operational adaptiveness and (4)

organizational networkedness. Customer embeddedness refers to relationships with customers becoming relational and long-term. Offering integratedness is about integration of offering components. Operational adaptiveness describes the adaptation of solutions to the customer's situation and processes. Finally, organizational networkedness indicates the change where actors in solution business network become increasingly dependent on each other's processes and activities, and increasing process harmonization occurs.

### **3.2.3 Supplementary services**

A more conservative view towards servitization is presented in the literature of supplementary services. In early literature of servitization, Vandermerwe and Rada (1988) define it as a movement in which companies develop service offerings that support their products to gain competitive advantage. By adding services they differentiate their offerings from competitors, increasing customer dependency and building barriers of competition (Vandermerwe & Rada, 1988). According to Lovelock (1995), supplementary services facilitate the augmentation of the core product but are not specifically part of the core offering. Lovelock (1995) also presents a model of supplementary services consisting of the core product and eight supplementary service clusters. Frow, Ngo and Payne (2014) sum up the previous literature of supplementary services by defining the concept consisting of the core products and supplementary services. Supplementary services literature strongly follows product-oriented logic, presenting services as value-adding features for products. Thus, it is not about moving towards increasing service provision and decreasing product-orientation but adding services to support products. Also, using the term "adding value" reflects goods-dominant logic, where value is created in exchange, as opposed to service-dominant logic's value co-creation perspective.

### **3.2.4 Challenges on the way towards service business**

Gopalani's (2010) study provides a comprehensive view to hurdles along the way when a product-centric firm moves towards services, thus summing up challenges that often occur during the transition discussed in the previous sections. These hurdles include (1) inability to detach service resources from product support roles, (2) misaligned go-to-market model to sell services leading to limited focus to service sales, (3) uncompetitive services pricing, (4) organizational paralysis due to perceived channel conflict and (5)

the inability to adopt a different business model (services versus product-centric). The author offers the following tactics to overcome the hurdles: (1) consolidating all services under a single profit and loss statement, (2) establishing consistent services pricing discipline, (3) providing an independent sales force to sell services, (4) gradually unbundling services by targeting different customer segments (5) creating a unique value proposition for channel partners and (6) developing distinct services processes.

Visnjic Kastalli, Van Looy and Neely (2013) emphasize the importance of suitable performance measurement systems and point out drawbacks of traditional, production-oriented measures such as market share. With the right measures, the market performance of services can be better addressed. Further, this can steer the transition towards services as their performance is better understood. The measures are built on two separate but related dimensions of market performance for service business – service adoption and service coverage. Service adoption reflects the proportion of the installed base of customers who purchase the manufacturer's services, and is thus a service equivalent of the market share. Service coverage addresses how well the service portfolio covers the overall needs of an average customer with whom the firm has established a service relationship. Another tool is complementarity index, which reflects the interdependencies between products and services. As a concern among many manufacturers is the possible cannibalizing effect of services to product sales, complementarity index helps in addressing this issue. The index can be calculated by comparing the annual (or quarterly, monthly or weekly) sales of services and products over a certain period of time. By calculating the correlation coefficients, a negative, substitutive or positive complementary relationship can be found. It is important to use the performance measures together and not isolation, to ensure that one measure is not emphasized over another.

### **3.3 Organizational structures and culture affecting service orientation**

Several authors have noted the importance of organizational issues affecting the service orientation of a company. Oliva and Kallenberg (2003) list the required cultural change from product-centered to service-oriented organization as one of the major challenges for a firm in transitioning to installed base services. Both organizational culture and structures require changes when firms move towards services provision. An organizational shift away from the value chain should be established, together with new

ways of working and increasingly customer-focused culture. (Barnett et al., 2013) In this section, both cultural as well as structural issues are addressed as they closely relate to each other.

### **3.3.1 Organizational structures**

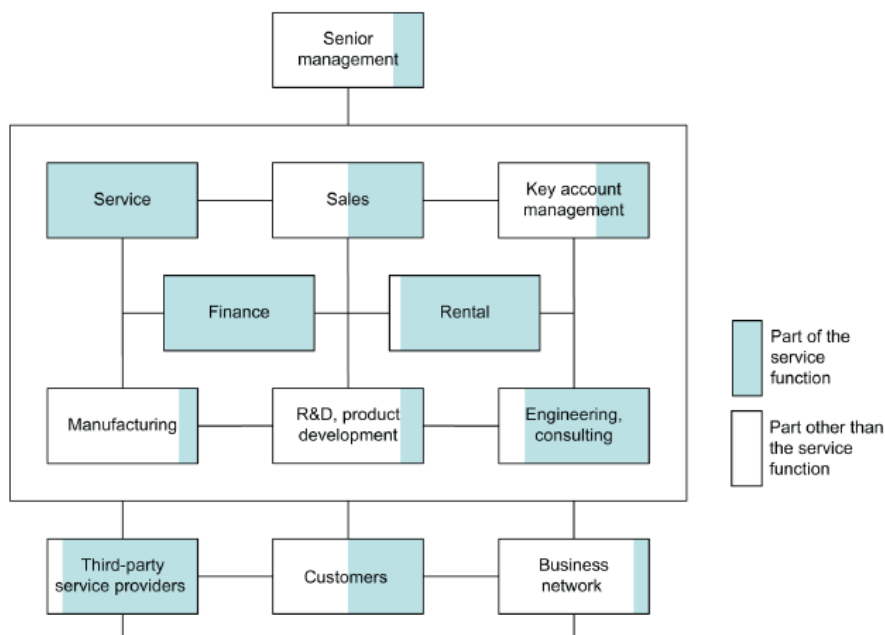
Kowalkowski, Kindström & Witell (2011), Kowalkowski, Kindström & Brehmer (2011), Kowalkowski (2011b) and Gebauer & Kowalkowski (2012) have addressed several organizational issues in a manufacturing firms' transition towards services provision. An organization can choose an internalization, externalization or hybrid configuration option for services provision, referring to providing services in-house or outsourcing them. The selected option depends on firm, offering and market-specific factors. The authors take a contingency theory-based viewpoint, emphasizing that there is no one best way but the focus should be on which organizational arrangement is best suited in a particular environment. Thus, in order to choose the best-suited configuration, a clear view of the firm's market position, service strategy and services portfolio should exist. In firm-specific factors a key factor for choosing internalization or externalization option lays in the degree of service orientation. Offering-specific factors include service relatedness, service predictability, service intensity and scarcity of resources needed to provide services. Service market conditions differ significantly across different geographical markets. Situation can be especially challenging if dealers and external service providers have strong market positions and limited interest in "true" partnership. (Kowalkowski, Kindström, & Witell, 2011)

Researching the subject of geographical markets further, Kowalkowski, Kindström and Brehmer (2011), take a look at local and global arrangements for services provision, concluding with four lessons; (1) an in-house local service organization is preferable when competing through industrial service offerings, (2) a transnational structure is superior when competing through industrial service offerings, (3) the balance between exploration and exploitation is dependent on the service portfolio and (4) reciprocity between product and service organization is needed for extensive service offerings.

Different viewpoints exist in the literature about the preferred organizational form for the services provision. Oliva and Kallenberg (2003) note the importance of a separate unit for services as a step towards product-service systems, whereas Neu and Brown (2005) recommend integrating services into the product organization. Also, Gopalani



(2010) promotes separate organizational unit for services as a revenue-generating structure when compared to “traditional” form where services are inside the other organization. Gebauer, Edvardsson and Bjurko (2010) do not see a direct effect of the chosen organizational form for services provision to firm performance. Kowalkowski (2011b) emphasizes the importance of a holistic view to the services function, noting that services is not just a task of a separate services unit of an organization but that other parts of the organization also belong to services function as part-time service personnel

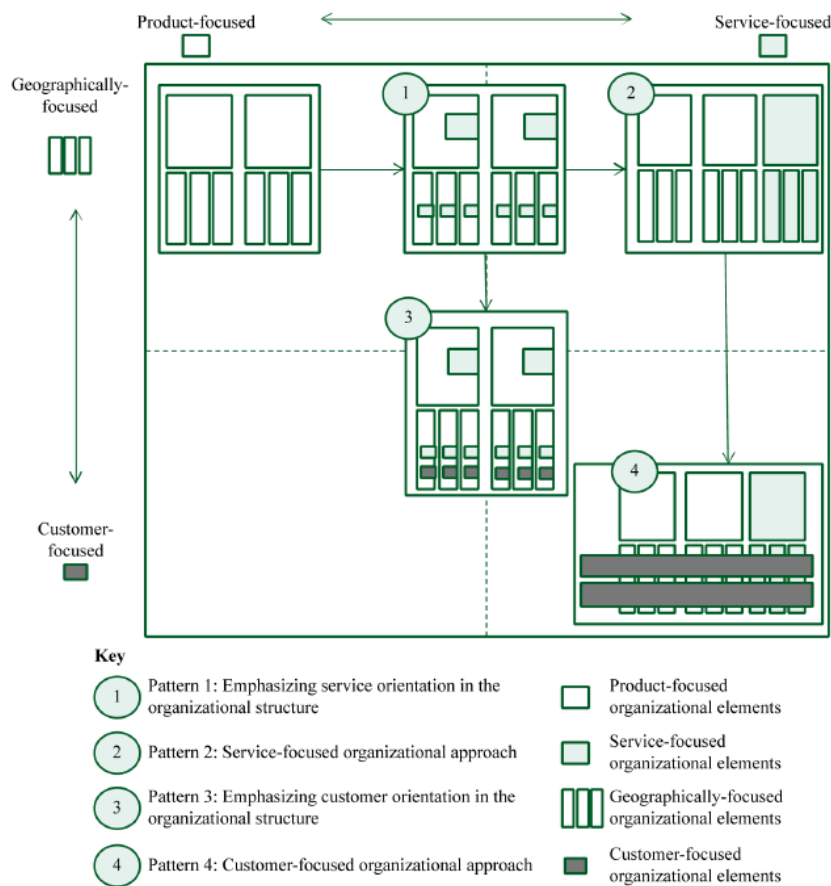


**Figure 6** An example of a firm's service function (Kowalkowski, 2011b, 487)

(figure 6). This means that efficient service provision also requires devotion to services from other personnel than those working in the services unit. Thus, services are to be seen as a dynamic and interconnected function between several parts of the organization. A good internal understanding and communications are needed in order for this to work.

Gebauer and Kowalkowski (2012) describe a capital equipment manufacturers' move towards services by highlighting the services and customer orientation in organizational structures. According to their view, patterns towards emphasizing service or customer orientation, and further moving to respective organizational structures, exist (figure 7). Typically, the first pattern is to emphasize service orientation within the existing structure, establishing a distinctive service management function. After this, the second

pattern towards a service-focused organizational approach may occur. This includes bundling all the service functions within a distinctive service business unit and establishing an own, dedicated sales force for services. Still, in many small and emerging markets the service organizations may not have a distinctive sales force. Another related geographical issue is that, in some markets including Asia, especially China, customers are often demanding services that are free of charge or included in the product price. Another option after the first pattern is to move towards the third pattern,

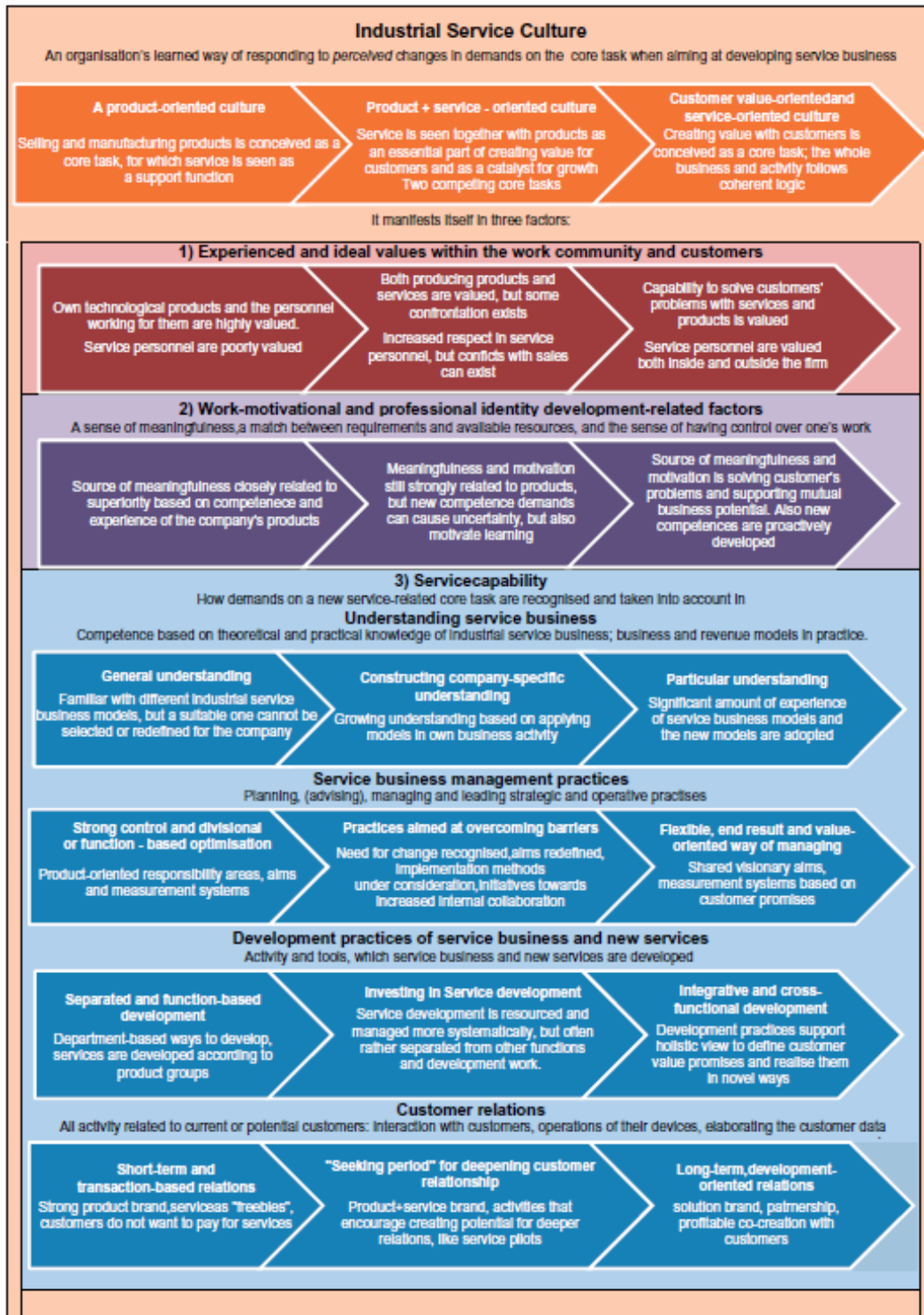


**Figure 7** *Organizational structures* (Gebauer & Kowalkowski, 2012, 531)

emphasizing customer orientation within the current structure. Finally, after the second pattern, the fourth pattern towards a customer-focused organizational approach may take place, referring to a matrix organizational structure with product and service business units on one axis and customer-focused business units on the other.

### 3.3.2 Organizational culture

Gebauer, Edvardsson and Bjurko (2010) address the impact of service orientation in corporate culture in the overall business performance of manufacturing companies, focusing on service orientation of management and employee values and behavior. They



**Figure 8** The main concepts, transformations and their manifestation in the elements of the industrial service culture and capability framework (Nuutinen & Lappalainen, 2012, 141)

propose a hypothesis that service orientation of management values would affect the service orientation of management behavior and further to employee values, and finally, to their behavior. They conclude that a stronger service orientation strengthened the firm performance in the focus companies of the study. The form of the organizational structure, either with integrated or separated services unit, was not proven to have direct effect to firm's performance. However, the organizational structure may have effect to the service orientation. According to them, the key to achieving sustainable business performance lies not directly in the type of the organizational structure but in the increase of service orientation in the corporate culture.

Nuutinen and Lappalainen (2012) provide a comprehensive view to cultural transformation from production oriented towards service oriented organizational culture, providing a framework for assessing the cultural phases and needed changes in the transformation process (figure 8), based on industrial service culture and capability. According to the authors, industrial service culture manifests itself in (1) experienced and ideal values within the work community and customers, (2) work-motivational and professional identity development-related factors and (3) service capability. Service capability can further be divided into the sub-sections of (a) understanding service business, (b) service business management practices, (c) development practices of service business and new service and (d) customer relations. In each of the three areas, three phases of cultural transition can be recognized; moving from product-oriented culture to product and service oriented culture and, finally, to customer value and service oriented culture.

### **3.4 Service business and business models**

Business models in service business have been studied by several authors. However, still not much research addresses frameworks for business model development in service business, especially in a manufacturing firm context. Only few studies address this issue, more accurately those of Kindström's (2010) as well as Kindström and Kowalkowski's (2014). The following section reviews this literature concerning business models in service business, especially among manufacturing firms moving towards services provision.

### **3.4.1 Business model aspects in service business**

Barquet et al. (2013) employ Osterwalder and Pigneur's (2010) business model canvas framework to product service systems context, validating its usability in service business. However, they concentrate on the canvas framework's role in supporting the adoption of different forms of product-service systems instead of addressing specially service-business related issues of business models. The business model canvas (Osterwalder & Pigneur, 2010) has also been applied for service business in manufacturing context by Zolnowski, Semmann, Amrou and Böhmman (2013). They use the concept of business model to identify opportunities for service productivity improvements, addressing internal, external and capacity efficiency in each of the business model canvas elements.

According to Gopalani (2010), a key issue is to understand that service business requires a different business model than the product business. His definition of business model includes value proposition, operating model and financial model. Whereas in product business models the value proposition is typically based on unique value offered for speed, feeds and technology built in a quality product, in services the value is based in functional experience and specialized skills that enhance client's competitive position. In operating model the key difference lays in the characteristic that product business is based on "first make then sell" logic whereas service business calls for "first sell then make" logic. In financial model an important differentiator is the source of value – in product business innovation and development whereas in service business talent and customer insight. The metrics should also be according to these, measuring rates and utilization in services instead of market share and cost of goods sold as in product business.

Palo and Tähtinen (2011) develop a network and service based business model framework. However, the model concentrates on describing actors in the network and interactions between them and not on the architecture of the single business itself. Thus, it can be seen more as a networked context inside which a business model of a firm functions.

### 3.4.2 Business model frameworks for service business innovation

Some of the most comprehensive approaches to business models in the context of a manufacturing firm moving towards service business are provided by Kindström (2010) and Kindström and Kowalkowski (2014). Kindström (2010) takes together Chesbrough's (2007) business model framework and Bessant and Davies's (2007) service innovation space, researching innovation activities – offering, process and position innovation – in each business model element. The business model as a whole in service business is considered as a paradigm innovation. In each element, a primary innovation activity and two secondary innovation activities can be identified (table 5).

	Service offering	Service process	Service position
Value proposition	Primary	Secondary	Secondary
Revenue mechanisms	Primary	Secondary	Secondary
Value chain	Secondary	Primary	Secondary
Value network	Secondary	Primary	Secondary
Competitive strategy	Secondary	Secondary	Primary
Target market	Secondary	Secondary	Primary

**Table 5** *Service innovation priorities* (Kindström, 2010, 488)

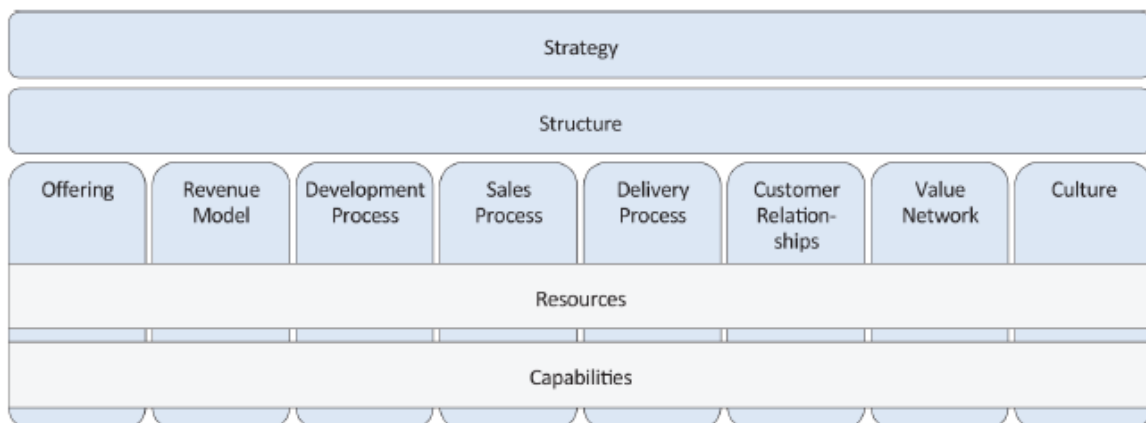
Business model parameter	Key issues	Managerial goal
Value proposition	<ul style="list-style-type: none"> <li>– Articulated offering</li> <li>– Visualization</li> <li>– Closer customer interaction</li> <li>– A dynamic offering portfolio</li> </ul>	<ul style="list-style-type: none"> <li>Structuring the new offerings and making them tangible</li> <li>Communicating the new value created, which may be intangible</li> <li>Achieving an excellent understanding of customer operations and business</li> <li>Reaching all potential customers</li> </ul>
Revenue mechanisms	<ul style="list-style-type: none"> <li>– New revenue model</li> </ul>	<ul style="list-style-type: none"> <li>Putting focus on new selling parameters primarily driven by customer perceived value creation instead of internal costs.</li> </ul>
Value chain	<ul style="list-style-type: none"> <li>– Dedicated roles for service development</li> <li>– A structured service development process</li> <li>– A new reward system</li> <li>– Extending the resource base</li> </ul>	<ul style="list-style-type: none"> <li>Achieving momentum and organizational focus</li> <li>Creating a decision process and establishing development stages</li> <li>Creating momentum and change</li> <li>Acquiring resources in e.g. service delivery not previously available in-house</li> </ul>
Value network	<ul style="list-style-type: none"> <li>– Finding partners that can add value to the new offerings</li> </ul>	<ul style="list-style-type: none"> <li>Supplying additional services not available in-house</li> <li>Provide local access and responsiveness</li> </ul>
Competitive strategy	<ul style="list-style-type: none"> <li>– Branding</li> <li>– Differentiation</li> </ul>	<ul style="list-style-type: none"> <li>Loading the product brand with service values</li> <li>Increasing differentiation possibilities</li> </ul>
Target market	<ul style="list-style-type: none"> <li>– New customer segmentation</li> </ul>	<ul style="list-style-type: none"> <li>Addressing the right customers in the right way with the appropriate product/service mix based on functional needs</li> </ul>

**Table 6** *Service-based business models: key elements* (Kindström, 2010, 483)

Further, these activities lead to more detailed descriptions of what is to be done in means of offering, activities and position. Service offering innovations call for new value propositions based on the customers' business and processes and development towards value-based pricing in revenue mechanisms. Needed service process innovations relate to the need for value chain development by designing structured service development process and establishing organizational roles related to services, as well as realigning reward systems. In value network, process innovations are about

selection and inclusion of service partners and suppliers. Service position innovations include strategic positioning according to service values and differentiation. In target market position innovation is reflected in finding new customer contact points and establishing a new segmentation scheme based on value and needs. The key issues of a service-based business model related innovation activities in each business model element are summarized in table 6.

Later, Kindström and Kowalkowski (2014) study the concept of service-based business model further and develop a new framework for business model development in service business. Their approach is built on insight from studies among product-centric firms transitioning towards service provision and is intended to be a generic for any service business. It consists of ten fundamental elements; (1) strategy, (2) structure, (3) offering, (4) revenue mechanism, (5) development process, (6) sales process, (7) delivery process, (8) customer relationships, (9) value network and (10) culture (figure 9).



**Figure 9** *Service business model* (Kindström & Kowalkowski, 2014, 99)

Above the other elements, strategy and structure span the eight elements. Strategy sets foundations for possible future service innovation activities and thus defines directions for where the firm should target with the business model. An appropriate organizational structure facilitates service innovation.

The rest of the elements lay under strategy and structure. Addressing these elements requires developing and deploying distinct resources and capabilities that foster service innovation. The authors see resources as productive assets the firm can use whilst capabilities as what the firm can do. Different resources and capabilities required can be identified for each element (table 7). The framework for service business also includes processes, as the authors see them intertwined with innovation in services. Successful change in the business model requires that the elements are synchronized with each

other and that corresponding changes and realignments are done in other elements as well when one is changed.

Business model element	Resources for service innovation	Capabilities for service innovation
<b>Offering</b>	Customer base Product usage and process data ICT deftness	Offering portfolio management capability Product-service integration capability Design-to-service capability Customer needing interpretation capability
<b>Revenue model</b>	Product usage and process data System knowledge Seamless offering	Pricing capability Value visualization capability Risk assessment and mitigation capability
<b>Development process</b>	Service development process and strategy Lead customers Dedicated service development roles	User involvement and engagement capability Internal sensing capability Formalization and replication capability
<b>Sales process</b>	Service-oriented incentive system Customer involvement Field service organization Back-office specialist support	Value visualization capability Internal coordination capability Customer needing interpretation capability
<b>Delivery process</b>	Field service network Back-office infrastructure Customer involvement	Capacity utilization and prognostication capability Internal-external design capability
<b>Customer relationships</b>	Customer interactor stability Field service organization Customer counseling and adaptiveness	Customer embeddedness capability Proactive-reactive balancing capability Customer portfolio management capability
<b>Value network</b>	Distributor network Customer interface Specialist supplier base Influencer relationships	Orchestration capability Partner knowledge capability Network dynamics understanding capability
<b>Culture</b>	Service awareness Long-term orientation Service champions Service-oriented incentive system	Service leadership capability Service logic translation capability Product-service balancing capability

**Table 7** *Resources and capabilities for successful service innovation* (Kindström & Kowalkowski, 2014, 101)

Kindström and Kowalkowski's (2014) study provides valuable insight to business model development especially for service business. In the research in hand, it acts as an important base for developing the business model framework for service business in a manufacturing firm further and will also be addressed in the following sections.



## **IV RESEARCH METHODOLOGY**

The study in hand is a qualitative case study, based on a single case. It aims to inductively develop theory further by constructing it from previous research and reflecting it with the findings from the case study (Koskinen, Alasuutari, & Peltonen, 2005). The qualitative research allows addressing the complexity of a business-related phenomenon, in this case business model, in its context (service business) (Eriksson & Kovalainen, 2008, 3). A multiple method approach was used to gain a comprehensive view of the research phenomenon (Nuutinen & Lappalainen, 2012, 145). It also increases the accuracy, cogency, diversity and richness of the research (Eriksson & Kovalainen, 2008, 126). The research is of abductive logic, involving both deductive and inductive reasoning processes, as does most of the social research (Eriksson & Kovalainen, 2008, 21). First of all, deductive reasoning was used to take the previous theories of business model and service business as a starting point, as the research aims to develop further understanding of the use of the business model concept in service business context. The relevant theoretical frameworks were also used for inductive reflection in the empirical research to develop theory further based on the findings. With this approach the study aims to develop understanding of business models in service business concept. As an employee of the case firm, the researcher was in active role in developing the framework to be used in the business model development.

### **4.1 A single-case based study**

The case study was selected as a research method according to its fit to the aim of the research to develop business model framework to be used in service business context in the case company. The study is an intensive case study, aiming to understand and explore the single case from the inside, instead of mapping common patterns among several cases (Eriksson & Kovalainen, 2008 118–120). A single case study approach is suitable as the focus is on a contemporary phenomenon in a real-life context, where in-depth understanding is required (Barnett et al., 2013). It is of explorative type, aiming to gain understanding of the business model concept in service business context as a phenomenon and to develop a new theoretical framework to be used in practice (Eriksson & Koistinen, 2005).

The single case study approach is used to gain detailed, intensive description of a research subject (Saarela-Kinnunen & Eskola, 2010, 190). The research object was selected due to practical interest from the case firm towards business model development in a service business context. According to Zähringer et al. (2011, 634), a single-case approach allows to gain deep insight into a research subject as well as to study multiple variables and complex relationships among them. As business model development in service business context involves several variables and complex relationships among the different elements, the single case study approach makes it possible to more deeply research and gain understanding of the phenomenon. Also, when inductively developing the theory by using the previous research and the empirical data, the case study allows the theory testing in practice (Zähringer et al., 2011, 634).

The study partly follows the approach used by Zähringer et al. (2011) by analyzing the applicability of service business theories to business models of a manufacturing firm providing product-related services. Following the approach, service business context can be seen as an independent variable and business model as a dependent variable.

Apart from the case study approach, action research is another approach that might have been used. The researcher is involved in the business model development process and is in close relationship with the research object as typically in action research (Eriksson & Kovalainen, 2008, 200). However, the research in hand concentrates on developing the framework to be used in business model design and selection instead of describing the change process and actions themselves. Thus, the case study approach was seen as more appropriate for the research as the aim is not to generate change simultaneously with the research as it is in action research (Heikkinen, 2010, 214). Instead of this, the findings of the research will be used for development afterwards. The case study approach is applicable for this as the core part of it is understanding and solving the case, thus, providing tools for the future development in the case-firm context (Eriksson & Koistinen, 2005, 115).

## **4.2 Data collection and analysis**

The empirical case-study is done using multiple methods to gain a comprehensive view of the research subject (Nuutinen & Lappalainen, 2012, 145). Multiple methods are useful when the aim is to produce detailed, intensive knowledge of a case (Saarela-

Kinnunen & Eskola, 2010, 190). The primary methods for data collection were semi-structured interviews and workshops, which took place during the spring 2014 at the case company headquarters in Helsinki, Finland and at the Chinese subsidiary's locations in Beijing and Shanghai. In addition, company documents, such as organizational structure diagrams and financial information, were used as a secondary data source. This helped in developing deeper understanding of the research subject.

In order to collect valid data of the business model development, Osterwalder & Pigneur's (2010) business model canvas framework was used as a base for both interviews and workshops. This ensured that the data stayed in the scope of business model development, further providing valid results. However, to make sure that the special characteristics of the service business setting are taken into account, the interview themes were developed wide enough to give interviewees possibilities to express their views from several perspectives.

#### 4.2.1 Semi-structured interviews

The semi-structured interview was chosen as a data collection method as it gives the interviewee more freedom to express his or her points of view (Koskinen et al., 2005, 104). This is important taking into account that the research aims to gain understanding of the underlying characteristics of the phenomenon, which may not be apparent in the previous understanding according to which the interview themes and questions were developed.

Position	Number	Location	Time
Services country manager, China	1	Beijing	3/14, 4/14
Service center manager	2	Helsinki, Beijing	3/14, 4/14
Head of calibration and repair services	1	Helsinki	4/14
Executive vice president, Services	1	Helsinki	3/14
President, Chinese subsidiary	1	Beijing	4/14
Market segment manager	4	Helsinki	3/14, 4/14
Head of regional sales, China	1	Beijing	4/14
Head of regional market segment, China	1	Beijing	4/14
Sales manager	7	Beijing, Shanghai	4/14
Marketing manager, China	1	Beijing	4/14
Manager, distributor company	3	Beijing, Shanghai	4/14
Process engineer, end customer	1	Beijing	4/14
Laboratory manager, accrediting authority	1	Beijing	4/14

**Table 8** *Interviewees*

Semi-structured interviews with managers and employees were held in both the case company's headquarters in Helsinki, as well as in the Chinese subsidiary's locations in Beijing and Shanghai (table 8). The research aims to develop a wide understanding of the possibilities of the business model concept in service business context. Thus, interviewees were from different functions and locations of the organization to gain better understanding and to develop "outside the box" thinking. In addition to this, interviews with distributors, customers and potential partners were committed.

Interviewees were selected according to their position in the organization (table 8). Also, references gained in the first interviews helped identifying the following interviewees. The interviews started in March in the headquarters. To gain pre-understanding and to identify a base for developing the interview frame, the services country manager for China and the Beijing service center manager were first contacted for an open discussion. This was followed by interviews of services executive vice president, two market segment managers and head of calibration and repair services as well as Helsinki service center manager. The data collection trip to China took its place in April. Services country manager and Beijing service center manager were interviewed another time according to the interview frame. The rest of the interviewees included president of the Chinese subsidiary, head of the regional market segment, head of the regional sales, sales managers, marketing manager, managers from distributor and customer companies as well as a manager from the laboratory accrediting authority in China. Finally, two additional market segment managers were interviewed after returning to the headquarters in April.

For the interviews, the semi-structured interview frames were developed (See appendices 1–3.). For the distributors, customers and potential partners, specifying questions of the interview frame differed from those used with the case company employees. The frames were structured according to five themes – product, customer, competition, resources & capabilities and financials. Osterwalder's (2005) classification of the pillars in the business model framework was used as a background for developing the interview frames to gain an overall understanding of the current business model in use, its limitations and possibilities to develop it further. Using a widely accepted theoretical framework as a background for the interview frame also increases the validity of the study in assessing the business model development. After deciding on the themes, more specifying and context-related questions were developed. My previous

work experience with the case company helped in developing relevant questions, providing more substance-related preliminary understanding.

The discussions followed the themes in the frame, giving space to the interviewee and his or her views. Thus, the specifying questions were not always used directly as described in the interview frame as the answers to them often came naturally during the discussions. Also, the order of the themes varied between the interviews according to the flow of the discussion. These issues are typical for semi-structured interviews, and the most important thing was to make sure that all the topics in the outline were covered (Eriksson & Kovalainen, 2008, 82).

The interview situations worked well and were easy to arrange. Each of the interviews took around one hour of time. As an employee of the case company and with management support with me, it was convenient to arrange the interviews and get the interviewees to participate. As the case company requires all of its employees in China to be able to speak English, which is the official company language, the interaction did not face remarkable language barriers. Interviews with the case firm employees and managers took place in the interviewee's room or in a meeting room in the case firm premises in Helsinki, Beijing and Shanghai. They had an informal atmosphere and the interviewees were willing to share information of the subjects. The interviews with the customers, distributors and potential partners were committed in their locations in Beijing and Shanghai. These were done with assistance of the case firm's employees as translators with me because the interviewees did not speak English.

During the interviews, I took relatively comprehensive notes with a computer on what was discussed on the themes of the interview frame and saved each interview in an own file. The total amount of the interview data consists of 109 pages of interview notes in .docx files, each filling from four to five pages of notes on average. This level of comprehensiveness in the notes was possible due to my foreknowledge of the subject and the position as an employee of the case company. All the interviews were also recorded, except for one customer that did not agree on recording. The recordings were mainly used to revise and complete the interview notes after interviews. Detailed transcriptions of all that was said during the interviews were not done due to the impracticability of that approach for the purpose of the interviews. Taking into account the purpose of the study to understand the business model in a service business context,

the main aim of the interviews was to gain more understanding of the subject as a whole and not to concentrate on detailed interpretation of expressing information. Thus, it is not seen as expedient to have detailed transcriptions of the words or sentences used in the interviews. As the transcription aims to produce an understanding of the general picture of the data, a lower accuracy level containing descriptions of the ideas expressed in the interviews is seen as adequate (Koskinen et al., 2005, 318–319).

#### 4.2.2 Workshops

In addition to the semi-structured interviews, another primary method used for data collection was workshops. After developing understanding of the current business model, workshops were arranged in April in Beijing and Shanghai and in May in Helsinki, being targeted directly to business model development in the case company context.

In the workshops, the participants took part in developing the business model with help of Osterwalder and Pigneur’s (2010) business model canvas framework. This enabled the workshops to keep the scope in the business model development and its elements, further providing valid research data. The aim was to collaboratively trigger thinking to develop new ideas, and, thus, provide insights to be developed further. The majority of the participants in the workshops were those interviewed previously, thereby having an understanding of the main idea of the work. However, a comprehensive previous understanding of the subject of the workshop was not required. I see this as an advantage as well, as it encouraged more “outside of the box” thinking.

Location	Number of Attendees	Time
Beijing	7	4/14
Shanghai	6	4/14
Helsinki	13	5/14

**Table 9** *Workshops*

Prior to the first workshop, I first drafted a proposition of the current business model using the business model canvas tool with my understanding gained in the interviews. After this, I created a draft proposition of a new business model with help of the main problems in the current model that had become apparent in the interviews. These two models were presented and opened up in the beginning of each workshop. In the actual workshop phase, the attendees were given five minutes of time for brainstorming in small groups (2–4 participants) for each business model element in order to create a new

model on a blank canvas. After the five minutes time for brainstorming an element, the participants presented their ideas focusing on that element before moving to the next element. In each workshop, a third version of the business model was developed as the result of the workshop. However, the business models developed in the workshops could not be used as such as they included views of several people, resulting in elements that would not fit together as a single model. More correctly, they worked as listings of more or less separate ideas for each business model element which could be developed further to construct a business model.

After each workshop, I documented the results from the new canvas model completed in the workshop in a separate file to ensure efficient analysis of the data. In total, this data consists of 18 pages of notes. The workshops were recorded as well, and also in this case the recordings were used afterwards as a supporting material to revise and complete the data.

#### **4.2.3 Analyzing and interpreting the data**

After collecting the empirical data discussed above, the data was thematically coded. As the research uses existing theories as a base, the analysis is partly based on preplanned systematic coding. However, as the research follows abductive logic and aims to give space to new insights, the previous theories were used more as sensitizing concepts to help analyzing and describing the empirical data. Consequently, the analysis is also based on partly pre-formulated theoretical propositions as sensitizing concepts and respective coding system. (Eriksson & Kovalainen, 2008, 128–129)

Finding patterns from empirical data and comparing them with the propositions pre-developed with the existing theories is used as an analytic technique (Eriksson & Kovalainen, 2008, 130), which in this case means comparing the research data with the business model frameworks and service business theories.

In order to develop reliable results, previous theoretical discussion was used as a background for coding the data. The business model canvas framework (Osterwalder & Pigneur, 2010) was used as a base for coding the interview and workshop data according to its elements. After this, the interview data that did not fit into the framework's elements was categorized according to the themes that became apparent. The themes represent gaps in the existing framework that would be needed to be filled

up in order to develop the framework further to increase its fit in the given context. Further, the identified gaps were used to develop additions to the existing business model frameworks by reflecting them with previous discussion.

The analysis for the data was completed during the summer and autumn 2014. The empirical data from the interviews was grouped according to the elements in the Osterwalder & Pigneur's (2010) business model canvas framework in an excel spreadsheet. The excel spreadsheet contains a cell for each interview's each business model element, finally consisting of 301 cells of text arranged according to the elements. After filling up the data into the nine cells representing the nine business model canvas elements, the data that did not fit into these elements was added in separate cells. I reviewed the "leftover" cells and grouped them according to themes that became apparent. By doing this I was able to identify what are the notions, or gaps, that the business model canvas framework does not include but became apparent in the empirical data gathering and are thus important for developing a business model in a the given context. The data from the workshops was not added in the same excel file as it was grouped according to the business model canvas elements already in the first hand.

Finally, the research moved to the phase of presenting the empirical findings and developing the results. The interview data from the excel files was condensed in a way that the main findings of each element were presented in the text. In this point the notions from the workshops were added in each business model canvas element in the text. The notions from the interviews and workshops that did not fit in the business model canvas framework – the identified gaps, or development needs, were condensed and added after discussing the elements according to the empirical data. By using these needs identified for further development of the business model framework, the additions for the business model were made.

In the end, a new business model framework based on the findings was developed. The identified gaps in the existing frameworks were reflected with theoretical concepts from the service business literature to ensure that all the relevant viewpoints were taken into account.



**V CASE STUDY – THE BUSINESS MODEL FRAMEWORK IN A  
PRODUCT-SERVICE SYSTEMS CONTEXT**

Sivut 57–75 on rajattu julkisuudelta 1.9.2017 asti.

## **5.1 Background**

### **5.1.1 Calibrations in general**

### **5.1.2 Calibration industry**

## **5.2 Current situation in the Beijing service center**

### **5.2.1 Services offered**

## **5.3 Business model development**

### **5.3.1 Value proposition**

### **5.3.2 Customer segments**

### **5.3.3 Customer relationships**

### **5.3.4 Channels**

### **5.3.5 Key resources**

### **5.3.6 Key activities**

### **5.3.7 Key partners**

### **5.3.8 Revenue streams**

### **5.3.9 Cost structure**

## **5.4 What the business model canvas framework does not tell?**

### **5.4.1 Customer preferences**

### **5.4.2 Competition, market and strategy**

### **5.4.3 Organizational and cultural issues**

## **VI DISCUSSION AND CONCLUSIONS**

The discussion section reflects the empirical findings of the case study with relevant theoretical aspects, especially from the service business literature. The goal is to analyze the aspects that became apparent in a detailed manner to describe the transformation towards more service orientation from several aspects that form the basis for functioning of a business model in the context. Thus, this section develops understanding on the context where the business model is to be applied, paying close attention to the service business discussion. Service business-related theoretical aspects are reflected with the relevant business model element notions. Further, these aspects are taken into account when introducing the new business model framework to be used especially the context of service business, product-service systems in particular.

### **6.1 Business logic – service and product orientation of the company**

The case company is moving towards a more service-oriented business logic from the traditional manufacturing and product-oriented logic. However, the transition does not happen overnight and several aspects define the change and its speed. The calibration and repair services have typically been seen as supplementary services for the product business, being value-adding and supporting the product sales. This view is still apparent in the case company but seeing calibrations as a potential business is increasing. However, as the role of the calibrations is still unclear both views have their supporters in the organization.

Also in the services such as calibrations more transaction-based perspective has been dominant, with emphasis on short-term on-demand services but the trend is towards more complete solutions and long-term perspective. However, this seems not to be the way to go in all cases due to customer mindsets. Still, as more lucrative business opportunities exist in more complete and long-term solutions in high-end segments this kind of perspective is to be developed further.

The general attitudes towards service business are changing as it is seen as a future way to go. Also, calibrations as a business are getting better understood among the organization. A trend of moving towards more complete solutions can be seen in calibrations value proposition development. However, to better form solutions there are

still several aspects to improve especially on three of the four continua identified by Storbacka et al. (2013) towards solution-orientation, including customer embeddedness to make customer relationships deeper, offering integratedness between products and services, as well as organizational networkedness where improved communication is needed in the first hand.

Still, the core business logic of the company remains largely product-oriented and goods and services are often seen as separate from each other instead of goods-services union (Gummesson et al., 2010) characteristic of the service-dominant logic. Also, the existing ways of segmenting customers are mainly based on products' market segments and product families instead of the service needs of the customers. However, as especially in China the customer mindsets are often product-oriented to a large extent, service logic for approaching them would probably not be effective, which supports the notions by Grönroos (2008) and Kowalkowski (2011a). Due to the price sensitivity and short-term orientation of the Chinese customers, their emphasis is often on lower price and value-in-exchange over higher price with better value-in-use potential and on unit price decreases over value increases as well as decreased value over increased price, in which case the emphasis should be on short-term transactions rather than long-term value-in-use perspective (E. Anderson & Jap, 2005; J. C. Anderson et al., 2000). This applies especially to the low-end customers but also to more high-end customers to some extent and increases the importance of educating the customers of the higher value-in-use potential of more complete, high-end calibration solutions.

In customer relationships especially towards the end customers a short-term, transaction orientation has been emphasized, which has resulted in lacking knowledge of the end customers. With distributors the relationships have in general been more long-term oriented but the focus has still been on products and transactions. In order to gain better understanding of the end customer service needs and installed base more emphasis on relationships as well as communication and key account management as key activities is needed.

## **6.2 Towards services provision – a product-service systems perspective**

In this section the focus is on examining the service business and calibrations in particular in the context of the case firm to form a picture of how the product-services transition is happening. Frameworks introduced in the theoretical discussion are applied

for this. By addressing the case company's move towards services provision with help of them helps to understand the current state and future growth options, which further develop understanding of the requirements for the business model. Also, we see how the suggested models work in describing a real-life case setting. The challenge in using several theoretical frameworks in assessing the current situation and future development is that they address different aspects. However, the selected frameworks have their similarities and, using several viewpoints helps in gaining a wider understanding of the subject.

### **6.2.1 Transition phase towards service business**

The case company has entered its installed base services market and is offering services for its own products, relating to product services on Mathieu's (2001) service maneuver typology. The organizational intensity dimension is more difficult to address due to several levels the transition is simultaneously taking. On one hand the transition is strategic as the services are seen as an important growth and focus area on the company level. However, their role in some parts of the organization such as in the Chinese subsidiary is not as clear and the steps have not been that significant.

The empirical findings support the study of Oliva & Kallenberg (2003). The development has started from servicing the installed base, and in China is still mainly based on repairs. As the calibrations volumes are increasing and the calibrations are targeted to be emphasized, the move is from transaction-based, product-oriented services towards preventive maintenance services that are more relationship-based. Thus, in the process model of installed base services (Oliva & Kallenberg, 2003) the company is moving from the second phase towards the 3a phase, having selected the relationships-based route and concentrating on services for its products. Supportive notions for Kowalkowski, Kindström & Brehmer's (2011) classification for industrial services offering scheme can also be presented. The services offered, especially repairs, have traditionally been product-oriented and unbundled, whereas promoting high-end calibrations and more complete contract solutions relates to the scope extension towards more bundled services. In Ulaga and Reinartz's (2011) classification scheme the value proposition remains input-based, concentrating on the own products, that is, towards supplier's good. The calibration and repair services thus fall in the category of product life-cycle services. The future development direction seems to go towards asset

efficiency services, keeping the own installed base as the base for services but helping the customers to improve performance with calibrations.

In the case firm it is seen as important not to take too big steps too fast but to first focus on getting the own installed base services on the growth track before taking new steps. In Raddat's (2011) typology the current as well as near future services strategy remains as services engagement. The future direction with this classification is not clear. Taking into account the customer relationships in the current state that would be difficult to leverage towards more services provision as well as the general customer preferences towards services, services penetration towards "operations services" does not seem as a probable option. As has been mentioned, a potential future step is to broaden the scope to third-party products, which is related to the step A, moving from services engagement towards services extension strategy, in Raddat's (2011) services strategy typology. A note that does not fully support Raddat's typology has to be made here. Whereas the case company's resources are highly linked to its own products, the services extension is seen as a more natural strategic option than services penetration. Even though the resources are linked to own products to a large extent, they can be easily applied for servicing the similar types of third-party products.

As a conclusion on the frameworks we can see a move from transaction-oriented services towards more relationships and long-term oriented, preventive maintenance services that still concentrate on the own installed base. However, taken into account the customer preferences the options for services are not limitless, demanding to take into account the possibilities to also start servicing third party products in the future.

With help of Ulaga and Reinartz's (2011) research the resources and capabilities, especially relating to the business model elements of key resources and key activities, can be addressed further. As Ulaga and Reinartz's (2011) suggest, in the product life-cycle services which the calibration and repair services currently represent, product development and manufacturing assets are central resources. They have been important for the current state but new development and move towards asset efficiency services requires developing new resources and capabilities. A notion that can be well supported is developing the installed base product usage and process data as a key resource and capability to interpret it, as has become apparent earlier. Even though not named as a main underlying resource for asset efficiency services by Reinartz & Ulaga, product

sales force and distribution network is in a very important role for the case firm in order to grow the service business both in services selling as well as helping to improve the abovementioned key resource, installed base data.

### **6.2.2 Challenges in transition**

When addressing the case firm's transition towards increased services provision, challenges on the way can be reflected using Gopalani's (2010) work. This helps identifying the challenges better and responding to them on time. The first hurdle named by Gopalani, inability to detach services resources from product support roles is clearly apparent in the case company as the general role of the services is still unclear. The large amount of repairs supports this notion, as a large amount of work is used for supporting the products with repairs instead of concentrating on a more lucrative business, calibrations. The second hurdle, misaligned go-to-market model to sell services leading to limited focus to service sales can also be seen – dedicated sales force for services does not exist and product salespeople have not been either interested or knowledgeable enough to sell services efficiently. The services pricing is also uncompetitive to some extent as it is seen as too high by many customers. However, this is partly due to lack of effort paid to customer segmentation and targeting the more high-end customer groups. Finally, organizational paralysis due to perceived channel conflict also partly exists, mainly due to inadequate communication and unclear channels. The solutions to the hurdles that are already partly identified follow those proposed by Gopalani. In this case a better picture of the services profitability has been gained with the research in hand to understand the role of the services, calibrations in particular, better as an own business. Pricing is to be developed further with focus on contracts and solutions. When it comes to selling services, the knowledge of the services needs to be better provided for the sales. In addition, a dedicated sales person for calibrations selling has already started the selling work. Finally, segmenting the customers has been identified as a key element for the business model development, including segmenting to high-end and low-end service customers as the starting point.

### **6.3 Organizational structure and culture**

Aspects related to organizational culture and structure are in a key role in defining how the services transition happens and how a service-based business model can function in the context of a manufacturing company. The empirical data shows important notions of the cultural and structural aspects of the case firm, which are next reflected with the earlier theoretical discussion.

#### **6.3.1 Organizational structure**

As has been discussed, different viewpoints in the literature exist of the supported organizational structure for services provision in a manufacturing firm context. The separate organizational unit for services supported by Oliva & Kallenberg (2003) is selected by the case firm. A notable drawback in the separate organization in the case company is the current inability of the organization to see the services in a more holistic manner, including personnel from other parts of the organization acting as part-time service personnel (Kowalkowski, 2011b). A better communication as a key activity is important in order to make the services understood in a more overall manner and to promote the holistic view among the organization.

The development of the organizational structure has similarities with the patterns proposed by Gebauer & Kowalkowski (2012). The company has established the separate services unit, which, however is more in a role of a support function in a matrix form for product-centered market segments. Services are not only seen as their own business but also as serving the needs of the market segments. This kind of structure is lacking in the study of Gebauer and Kowalkowski (2012). Having the services as covering the whole matrix organization but as an own function can be seen as a useful approach for services to support all the business areas. However, the challenge is to be able to combine the supportive role of it with the business role and to be able to see the financial results of it as an own business. An own, dedicated sales force for the services does not exist in a large extent, which is an additional challenge for making business with the services. The role of the services in the organization is still evolving and the importance of putting effort on developing it has been understood.

The current organizational configuration for the calibration services in the case company is internalization, whereas the suggested transition to the model using



partnering in addition means taking a hybrid configuration form (Kowalkowski, Kindström & Witell, 2011). The empirical findings of the case company show the importance of a manufacturer having a local, in-house service organization to be able to support the installed base service needs, supporting the notion made by Kowalkowski, Kindström & Brehmer (2011). Also, the suggestion of the same authors of reciprocity between product and service organization is seen as not only important but also challenging as has become apparent in several parts of the study.

### **6.3.2 Organizational culture**

The required cultural change is one of the major challenges for a firm in transitioning to installed base services (Oliva & Kallenberg, 2003). As has been addressed in the business logic section, the orientation of the case firm remains product and manufacturing-oriented to a large extent, being a significant part of the organizational culture.

The move towards a more service-oriented organizational culture can be addressed with the ISCC framework developed by Nuutinen & Lappalainen (2012). An interesting notion of the case company is that some parts of the organization are ahead of others in becoming more service-oriented, not only relating to the services function itself. Whereas the corporate level strategy takes into account services as an important part of creating value for the customer, the Chinese subsidiary, for which the research is concentrated, is behind the development in this sense. This is partly due to the different customer preferences and mindsets, which in China are largely product-oriented. In general, the company is moving from a product-oriented culture to product + service-oriented culture, some parts being ahead of others. Whereas the own technological products have historically been highly valued, services have nowadays become increasingly valued due to the future potential seen in them. The change can also be seen in the service capability-related areas. Willingness to apply service business models exists, being also the core driver for the study in hand from the company perspective. Services development is partly still done according to the needs of the product-oriented segment needs but also seen as its own business to develop separately. Customer relationships especially in the Chinese subsidiary are still short-term and transaction-based as has been noted, whereas interest towards moving to deeper relationships exists.

As has been shown, the case company is going through a service transition also in organizational structures and cultures. This all relates to how a service-based business model can be applied and function inside the company when it relates to one part of still largely product-oriented organization. Developing service business including business models to be applied is a step further in the development towards a more service-oriented organization.

## **6.4 Business model perspective and the required development**

The aspects discussed earlier define the organizational context in which the business model is to be applied and thus define its prerequisites to function from the product-service systems perspective in the case company. Thus, to conclude the service business related aspects this section summarizes the findings related to service business theory that have important effect to the business model elements. With this we can see what kind of development is required to develop the business model framework to better address the PSS context. The service business model framework (Kindström & Kowalkowski, 2014) is used as a point of comparison as it includes several notions that can be supported by the empirical research.

### **6.4.1 External and internal environment**

First of all, when designing a business model the environment where it is to be used – including the market and competitive landscape, customers as well as internal corporate environment – has to be well known. In addition to the environmental factors, a strategic direction where to go has to be known in order to make the business model function the way it takes the company towards the desired direction. In the case company a core strategic decision is that of designing the business model for seeking growth with calibrations as its own business instead of calibrations being a supporting function.

As has been discussed earlier, the empirical data includes important findings of the environmental and strategic aspects. The most of the business model frameworks presented in the theory section, including those of Osterwalder & Pigneur (2010), Kaplan (2012) and Johnson et al. (2008) do not include strategy as part of the business model whereas Chesbrough & Rosenbloom (2002) include it in the model as one of the elements. My opinion supports the view of Kindström & Kowalkowski (2014) that the

strategy is separate from the business model elements but affects to it and should thus be included in the framework separately from the elements, addressing the outer environment and spanning all of the elements. Strategy is in an important role in defining what is required from the elements of a business model – relating to the value proposition in the first hand and, further, to the other elements that make the value proposition possible.

The empirical data also shows the importance of the structure and culture to the business model and thus supports including them as well for the business model designing phase, thus supporting the framework of Kindström & Kowalkowski (2014) also in this phase. However, in my opinion structure and culture should be on a same level, spanning all the other elements whereas Kindström & Kowalkowski include culture as one of the elements. The business model of a unit inside a larger company cannot function without the other organization. On the other hand, a business model of the entire company needs to be designed taking into account the organizational culture and structure. Thus, these aspects should be included in the business model framework, however separated from the elements and uniting them. Organizational structure and culture are important attributes in defining how the business functions in a given company context, being especially important to take into account when designing a service-oriented business model inside a manufacturing-oriented firm. Addressing them helps in building the elements work together with a more seamless manner, taking a holistic perspective to the elements and helping in integrating them.

As a conclusion, the external environment including market, competition and customers with their preferences as well as internal environment including strategy, structure and culture should be properly taken into account in business model design and thus be included in the framework as background concepts. They define the context of the business model itself, including the basic orientation of the business logic behind the business model. When taken to the product-service systems context these concepts enable assessing the overall orientation towards services business and its role in the company, transition phase as well as organizational structures and cultures that all affect in the functioning of the business model.

#### 6.4.2 Business model elements

After addressing the environment where the business model is to be applied, value proposition should be designed the way that it responds to the environmental requirements. Taken into account the service-oriented discussion, value proposition is a neutral concept not taking sides in the value creation debate of value co-creation and is thus valid to be used in a service business context. After addressing the value proposition the rest of the elements should be designed the way that they enable the realization of the value proposition.

In Kindström & Kowalkowski's (2014) framework the business model elements are a collection that is rather confusing as the concepts seem to be from different abstraction levels, including three processes in addition to culture, offering, revenue model, value networks and customer relationships. Bask, Tinnilä & Rajahonka's (2010) notion of strategy, business models and process models as addressing the same problems on different levels can be used as clarifying the business model's idea on one level. Whereas in my opinion strategy should be included to business model as a background concept for defining the context where the business model is to be applied, processes in a meta-model level of abstraction should not be included to business model itself. Instead, the business model can act as a background for designing the processes but this is an issue to be addressed by process models. Thus, the elements in Kindström & Kowalkowski's (2014) framework do not reflect the idea of a business model in a clear enough manner. On the other hand, Osterwalder & Pigneur's (2010) framework calls for additions to also address the context where the business model is to be applied. However, the elements in their model do address the issues in a coherent manner, each on the same abstraction level. Thus, I see the Osterwalder & Pigneur's business model elements as the most coherent and comprehensive to be used as a base for developing the new business model framework further, using the additions that became apparent in the empirical case study. Also, the framework was validated and proven useful in the case study in a product-service systems context, mainly due to its easiness to use and understand in practice.

Kindström & Kowalkowski (2014) see the role of resources and capabilities as fostering the service innovation and uniting the other elements. In my opinion and based on the empirical study the capabilities as a rather abstract element are difficult to address

separately and can be included in the elements themselves instead of being separately visualized and addressed, whereas resources are a more concrete concept. Also, according to Osterwalder & Pigneur's (2010) view, resources are sources of capabilities. I do support the view of Kindström & Kowalkowski (2014) that resources are uniting the other elements as they are needed to make the other elements function. In addition to resources, I see a similar role for the activities as well. These two, resources and activities are needed in order to make the business model elements fit and work together. Also, activities can be seen as including the processes when taken to a lower abstraction level. Thus, the process model would basically describe the activities in a more detailed manner.

## **6.5 Conclusions: a contextual business model framework**

In the beginning of the study, the research questions were stated as follows:

- Which kinds of special needs does the service business create for business model development?
  - How can the needs be better addressed in a business model framework?

The findings strongly propose the notion that in order to better fit the business model into a service business the context itself needs to be profoundly taken into account. By better addressing the context in the business model development phase the special characteristics and needs of service business can be understood and the business model can be designed accordingly. Specifically service business-related additions for the business model framework are not seen as vital when it comes to designing a meta-model. Instead, the findings stress the importance of the context, which makes the new framework applicable in other contexts as well and thus increases the general usefulness of the results.

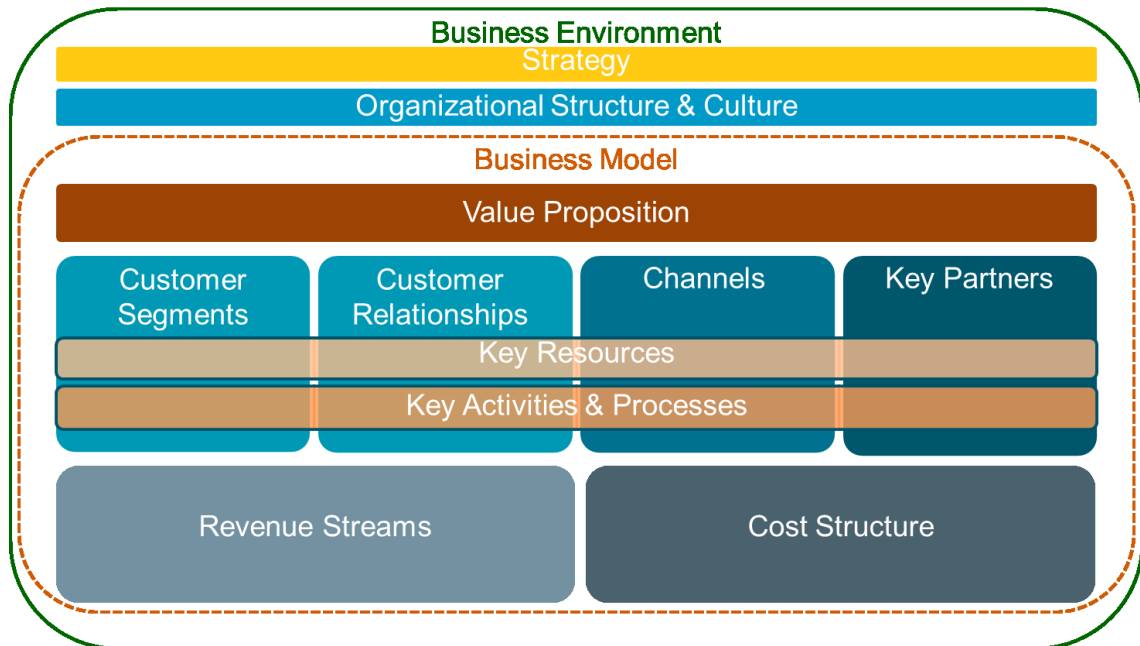
As a conclusion for the discussion reflecting the empirical findings with the previous literature of service business and business models, a new business model framework is presented. Osterwalder & Pigneur's (2010) is used as a base as it proved its usability in a service business context in the case study. The new framework is meant to be a universal framework that can be used in any business, and not meant for business models in service business and product service systems only. It is a new meta-model, describing a business model in a high abstraction level and allowing to describe any

business and its logic. However, the main additions it has compared to the previous models are designed to provide the business model a better fit in the context where it is applied. For this reason it also serves the needs of product-service systems where a service-based business model is applied in a manufacturing-firm context. The primary added value the new framework brings lays in this; the model has a universal applicability apart from its roots in the service business, however still providing better understanding for business model design in a service business context.

As has been discussed in the case study and the discussion following it, the main drawbacks of the Osterwalder & Pigneur's (2010) business model canvas framework relate to its inability to address the context, the environment where the business model is to be applied. This became especially apparent in the case study where the empirical data included several attributes that fell off the framework but were important in order to design the business model to function and fit in its environment. With adding the business environment aspect to the business model framework as a background concept these issues can be addressed. Due to the environmental background concept the business model can be better fitted in its context. For this reason I call the new model a contextual business model framework.

The business environment as a background concept also allows taking into account the special characteristics that the PSS context sets for business model development. With it the overall orientation of the business logic of the company can be addressed and the business model designed according to it. It also allows addressing the current transition phase in product-service systems so that it can be better taken into account in the business model elements. Finally, organizational structure and culture, which are closely related to the abovementioned aspects, can be addressed in order to build a better organizational fit for the business model.

### 6.5.1 Content of the contextual business model framework



**Figure 11** *The contextual business model framework*

As mentioned above the main addition of the contextual business model framework to the previous theoretical discussion is the inclusion of the context as a background concept for the business model. In this section the content of the framework (figure 16) is discussed further in order to explain the underlying logic of the framework and provide understanding of its use in the practice.

Business environment is included as a background concept in the framework. Thus, it is not part of the business model elements but is important for acknowledging where the business model is functioning. Business environment can be divided into external and internal environment. The external business environment assesses the market and competitive landscape, including potential customers and their preferences as well as competition and other external factors. Internal environment takes into account the environment inside the company where the business model takes its place.

Strategy and organizational structure & culture are concepts that condense the business environment. Strategy takes into account the external environment and shows how the company is positioned in it, thus serving as a link between the external and internal business environments. It relates to the overall strategy of the company where the business model is to be applied and, thus, sets the direction for the business. In this way it is in important role in defining what is desired to be achieved with the business

model. Organizational structure and culture are important in addressing the internal environment of the company and its personnel, affecting to the applicability of a business model in the organization.

Together strategy and organizational structure & culture are important in addressing the application of a business model in a product-service systems context. With them the overall orientation of the business logic can be seen. In the case company perspective it was important to understand the strategic role of not only of the calibrations business for the Chinese subsidiary but also the role of the service business in general in the company in order to be able to construct a functioning business model. By acknowledging these attributes the business model can be better built to fit and to serve its role in the company. Also, better addressing the strategy, structure and culture the development phase in the product-service systems transition can be better understood, which further helps in defining the possible next steps to be taken with the business model.

The business model part of the contextual business model framework follows the elements introduced by Osterwalder & Pigneur (2010) but are visualized in a different kind of manner. Value proposition is seen as a starting point to be addressed after taking into account the business environment, especially the strategic issues. Other elements are to fulfill the requirements set by the value proposition to the business model. Customer segments, customer relationships, channels and key partners are presented as the core elements for filling the value proposition, relating to each other. In a value co-creation perspective these elements can be seen as especially closely interrelated. In the contextual business model the capabilities discussed earlier are not included as an own element but are seen as built inside each element, resources forming the sources of them. Finally, revenue streams and cost structure elements form the bottom line, concretizing the monetary results of the business model.

Key resources and key activities & processes are seen as relating to the other elements to make them realized in the operation of the business. The processes are added to the key activities as they form the core of the activities and link the business model meta-framework to the next abstraction level of process models. This also explains why the context-related business model does not include especially service-business specific elements: A meta-model can describe any business whereas the differences become



apparent on lower abstraction levels. To a large extent, service business-related differences lay in activities and processes and thus, a process model for a service business would significantly differ from that of a manufacturing-oriented product business. Thus, the core logic of the business can still be described with a universal meta-model whereas the differences lay in lower abstraction levels.

The contextual business model framework is designed to be a tool to simplify any business model of a firm, taking into account the context. The notion of strategy and business model of being different level tools is still supported. The additions of strategy and organizational structure & culture are not part of the business model per se but important parts of the context where the business model is to be applied. Finally, the contextual business model framework is aimed to promote understanding of the interrelatedness of these concepts and the fact that a business model cannot be designed without acknowledging the business environment.

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## APPENDICES

### Appendix 1: Interview frame for internal interviewees

#### Theme 1: Product – What?

“What do we offer for the customer and what should we offer”

- Calibrations offering
  - o Now: “Get your device to give as accurate results as possible with our best possible calibration.”
    - Is this “too much” and “doing everything” instead of doing what the customer wants?
    - What does the customer really want?
  - o How to develop?
  - o What do you think customer would want us to do?

#### Theme 2: Customer – Who?

“Who are our customers and what do we know about them and of their wants and needs?”

- Biggest customers?
  - o Do we have big customers in product sales / calibrations sales?
- Knowledge of the customers?
  - o What do we know about our customers?
  - o What do we know about the installed base?
- How do we keep in touch with the customer?
  - o Are we distant for the end customer?
  - o How is the role of the sales?
  - o How is the role of distributors?
  - o How would you develop us to be easier to reach for the end customer?

#### Theme 3: Competition – Who & what kind?

“Who are our competitors and how is the pricing at the market?”

- Who are our competitors?
- How are their prices?
  - o How are our prices compared to market prices?

#### **Theme 4: Resources & Capabilities – How?**

“What do we have and what do we need for performing the calibrations the way the customers want us to?”

- Resource: installed base
  - o What kind is our installed base?
    - Which kinds of opportunities does it create for calibrations?
  - o Knowledge of the installed base?
- How do you see our strengths and weaknesses when it comes to resources?
  - o Devices, HR, financials?
- What about capabilities / activities?
  - o What do you see as important in the calibrations process for the customer?
    - Lead time?
  - o What do we do good and what not so well?
    - Calibration capabilities?
    - Efficiency
- Partners?
  - o Do we have possible partners?
  - o How do you see partnering as a choice?

#### **Theme 5: Financials – What results?**

“How do we get our revenues, how do the costs form and how could we be more profitable?”

- Current revenue model
  - o Pay per calibration
- Revenue model development
  - o Service contracts?
  - o More “total service”?
  - o Do you have some other ideas?
- Partnering
  - o How to gain revenues from partnering?
- Costs
  - o How do our costs form?
  - o How could we cut the costs?

- Profitability
  - o How do you see our chances for profitability?



## Appendix 2: Interview frame for distributors / potential partners

### Theme 1: Product – What?

- Calibrations offering
  - o Now: “Get your device to give as accurate results as possible with our best possible calibration.”
    - Is this “too much” and “doing everything” instead of doing what the customer wants?
    - What does the customer really want?
  - o How to develop?
- How do you see what do the customers value in calibrations?
  - o How important are the calibrations?
  - o What do you think they find important when it comes to measuring?
    - Accuracy?
    - Lead time?
    - Easiness?
- How do you think (*the case company*) succeeds in these?
  - o Do you think you could do something better?

### Theme 2: Relationships

- How
- Knowledge of the customers?
  - o How do you think (*the case company*) understands what you need?
  - o In products?
  - o In services?
- How do we keep in touch with you?
  - o Is it easy to reach (*the case company*)?
  - o Are we distant for you / for the customer?
  - o How do you find our sales?
  - o How do you find our technical support and contacting the services?
  - o How would you develop us to be easier to reach?

### Theme 3: Competition and pricing

- How do you find our prices compared to others?

- Current revenue model
  - Pay per calibration
- Revenue model development
  - Would you be interested in contract-based pricing?
  - “Total service”?
    - What would you think if we took care of all the end customer’s service needs in a more comprehensive manner?
  - Do you have some suggestions in how we could develop the pricing?

**Theme 4: Channels**

- How would you want to reach us for business?
  - Directly?
    - Internet
    - Call
    - Email
- How would you like calibrations to be delivered?
  - In service centers, using delivery by mail / courier service?
  - On customer’s site as field service?

## Appendix 3: Interview frame for end customers

### Theme 1: Product – What?

“What do we offer for you and what should we offer”

- Calibrations offering
  - o Now: “Get your device to give as accurate results as possible with our best possible calibration.”
    - Is this “too much” and “doing everything” instead of doing what you want?
  - o How to develop?
- What would you want (*the case company*) to do for you?
  - o How important do you find calibrations?
  - o What do you find important when it comes to measuring?
- What is important for you in calibration?
  - o Accuracy?
  - o Lead time?
  - o Easiness?
- How do you think (*the case company*) succeeds in these?

### Theme 2: Relationships

“How do you think we keep in touch with you and how do you find reaching us?”

- Knowledge of the customers?
  - o How do you think (*the case company*) understands what you need?
  - o In products?
  - o In services?
- How do we keep in touch with the customer?
  - o Is it easy to reach (*the case company*)?
  - o Are we distant for the customer?
  - o Do you prefer contacting (*the case company*) or a distributor?
    - Why?
  - o How do you find our sales?
  - o How do you find our technical support and contacting the services?
  - o How would you develop us to be easier to reach?

**Theme 3: Competition and pricing**

“Who else do you find as a possible calibration provider and how do you find our pricing?”

- Which other possibilities do you consider for calibrations?
- How do you find our prices compared to others?
- Current revenue model
  - o Pay per calibration
- Revenue model development
  - o Would you be interested in contract-based pricing?
  - o “Total service”?
    - What would you think if we took care of all your service needs in a more comprehensive manner?
  - o Do you have some suggestions in how we could develop the pricing?

**Theme 4: Channels**

“How do you find buying our calibrations and getting the calibration service? How could we develop it?”

- How would you want to buy calibrations?
  - o Internet
  - o Call
  - o Email
- How would you like calibrations to be delivered?
  - o In the service centers, using delivery by mail / courier service?
  - o On your site as field service?
- Partnering
  - o How would you find the calibrations performed by a partner instead of (*the case company*)?