



Radboud Universiteit Nijmegen

# **Manufacturing organizations transforming into service providers:**

Discovering and relating the changes in  
business model and organizational  
structure

*Master Thesis*

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*Organizational Design & Development*

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# Preface

This report concludes my Master in Organizational Design and Development at the Radboud University Nijmegen. Being at the end of the trajectory I would like to thank my supervisor Mr. Lekkerkerk, who offered the necessary guidance and feedback which helped to improve the quality of my report. Next to this, I would like to thank the respondents for their time as well as their enthusiasm with regard to the topic of my study. Last, I would like to thank Ben Gräve, chairman of the Service Logistics Forum, for helping me get into contact with several organizations. I wish all of you pleasure in reading.

Nijmegen, December 2016

Martijn van de Ven

# Abstract

This research aims to 1) describe what kind of changes in business model and organizational structure appear when traditional manufacturing organizations adopt a servitization-strategy and 2) describe how these changes in business model and organizational structure relate to each other.

To do this we first build a theoretical framework in which the concept of servitization, the concept of a business model and the concept of organizational design are explained and related to each other.

This research is theory-oriented, qualitative in nature and includes descriptive knowledge. Results were derived from the analyses of interviews held with several organizations engaged in the servitization trend.

With regard to business model changes the following was found: An increased focus on 1) creating customer intimacy, 2) offering more complete packages and 3) unburdening the customer, an increased importance of the dealer, a different and stronger customer, a more intense relationship with both customers and dealers, a revenue model directed at service fees rather than product sales, software becoming a key resource, a changed role of human capital, the offering of more advanced services, a larger need for collaboration and finally a more value driven cost structure.

With regard to changes in organizational structure the following changes were identified: A growth of the service (units), an increased integration of the service departments into product development processes, growth by acquisitions, centralization and geographical dispersion.

With regard to the relationship between these changes the following was found: The changes in business model and the changes in organizational structure are very much interrelated and complement each other. Customer driven changes in the value propositions of organizations are central here as they shape both other changes in the business model as well as changes in the organizational structure.

The above described findings contribute to the academic field by 1) describing what kind of changes occur after the adoption of a servitization strategy and 2) by showing how these changes relate to each other.

# Table of content

|  |    |
|--|----|
| Preface .....                                    | 1  |
| Abstract .....                                   | 2  |
| Table of content.....                            | 3  |
| Chapter 1: Introduction .....                    | 6  |
| 1.1 Introduction .....                           | 6  |
| 1.2 Problem statement .....                      | 7  |
| 1.3 Research question.....                       | 8  |
| 1.4 Structure of the thesis .....                | 8  |
| Chapter 2: Theoretical framework .....           | 10 |
| 2.1 Introduction .....                           | 10 |
| 2.2 Servitization .....                          | 10 |
| 2.2.1 Introduction .....                         | 10 |
| 2.2.2 A definition .....                         | 10 |
| 2.2.3 Related concepts.....                      | 11 |
| 2.2.4 Drivers of servitization.....              | 13 |
| 2.2.5 The transition.....                        | 14 |
| 2.2.6 Different types of services.....           | 15 |
| 2.3 Servitization and business model change..... | 17 |
| 2.3.1 Introduction .....                         | 17 |
| 2.3.2 The Business Model Canvas .....            | 17 |
| 2.3.4 The Servitization Maturity Model.....      | 21 |
| 2.4 Organizational design.....                   | 24 |
| 2.4.1 Introduction .....                         | 24 |
| 2.4.2 The Modern Socio-technical Theory.....     | 25 |
| 2.5 Combining the theory .....                   | 27 |
| 2.6 Overview theoretical framework.....          | 29 |
| Chapter 3: Methodology.....                      | 31 |
| 3.1 Introduction .....                           | 31 |

|  |    |
|--|----|
| 3.2 Research Strategy .....  | 31 |
| 3.2.1 Qualitative .....  | 31 |
| 3.2.2 Theory-oriented .....  | 32 |
| 3.2.3 Descriptive .....  | 32 |
| 3.3 Data collection.....   | 33 |
| 3.3.1 Method: The interview .....  | 33 |
| 3.3.2 The interview procedure.....   | 34 |
| 3.3.3 The sampling technique .....   | 34 |
| 3.3.4 The organizations .....  | 35 |
| 3.4 Operationalization .....   | 36 |
| 3.4.1 Introduction .....   | 36 |
| 3.4.2 Introductory and conclusive questions .....  | 37 |
| 3.4.3 Organizational structure .....   | 37 |
| 3.4.4 Servitization & business model changes .....   | 38 |
| 3.4.5 Changes in organizational structure .....  | 38 |
| 3.3.5 Overview operationalization .....  | 38 |
| 3.5 Data analysis .....  | 39 |
| 3.6 Research ethics .....  | 40 |
| Chapter 4: Results .....   | 42 |
| 4.1 Introduction .....   | 42 |
| 4.2 Summary interviewed organizations .....  | 42 |
| 4.2.1 Introduction .....   | 42 |
| 4.2.2 The organizations .....  | 42 |
| 4.2.3 A comparison .....   | 45 |
| 4.3 Outcomes coding.....   | 46 |
| 4.3.1 Introduction .....   | 46 |
| 4.3.2 Changes in business model .....  | 46 |
| 4.3.3 Changes in organizational structure .....  | 55 |
| 4.4 The relationship between changes in business model and changes in organizational structure ..... | 60 |
| 4.4.1 Introduction .....   | 60 |
| 4.4.2 The expectations.....  | 60 |

|  |    |
|--|----|
| 4.4.3 The found changes in organizational structure..... | 62 |
| 4.4.4 A final word .....                                 | 64 |
| Chapter 5: Discussion & Conclusion .....                 | 65 |
| 5.1 Introduction .....                                   | 65 |
| 5.2 Conclusion.....                                      | 65 |
| 5.3 Discussion .....                                     | 67 |
| 5.3.1 Introduction .....                                 | 67 |
| 5.3.2 The results .....                                  | 67 |
| 5.3.3 Ensuring the research quality .....                | 68 |
| 5.3.4 Limitations .....                                  | 69 |
| 5.3.5 Recommendations .....                              | 69 |
| References .....   | 71 |
| Appendix A: Interview guide (in Dutch) .....             | 75 |
| Appendix B: Overview coding.....                         | 79 |

# Chapter 1: Introduction

## 1.1 Introduction

In the last few years, more and more manufacturing organizations started to offer services in combination with their product offerings (e.g. Beuren, Ferreira & Miguel, 2013; Cook, Bhamra & Lemon, 2006; Jacob & Ulaga, 2008; Neu & Brown, 2008; Davies, 2003). As such, a future in which integrated offers of services and products is the dominant mode of production and consumption seems ever more likely (Cook et al., 2006). Manufacturing organizations realize that the integration of production and service activities is necessary for organizational survival and begin to incorporate more and more service elements into their offers. This trend towards more service-oriented manufacturing organizations, which has become ever more common and popular over the years (e.g. Jacob & Ulaga, 2008; Vargo & Lusch, 2008; Oliva & Kallenberg, 2003; Wise & Baumgartner, 1999), is called “the servitization of manufacturing” (Vandermerwe & Rada, 1988), for which a shortest description would be to add value to products by adding services. When organizations adopt a servitization-strategy, they aim to transform their offerings into so called Product-Service Systems, which are “integrated offerings of products and services that deliver value in use” (Baines et al., 2007, p.3). By integrating the offers of services and products, manufacturing organizations can differentiate themselves and become more profitable than their competitors, as they employ business models which allow profits to be captured at the customer’s end of the value chain (Wise & Baumgartner, 1999). This means that for manufacturing organizations, the sale of a product is now seen as being only at the beginning of the value chain, which means a surplus of money can be made after the sale of a product. Moving towards a service orientation as a way of differentiating from competitors in a market with pressurized profit margins is considered to be a smart way to achieve new kinds of competitive advantage, as well as to sustain overall profitability (Gebauer, Pütz, Fischer & Fleisch, 2009).

The concept of servitization embraces a service-led competitive strategy which can provide increased revenues and profit margins as well as an opportunity to differentiate from organizations originating from lower cost economies (Baines, Lightfoot, Benedettini & Kay, 2009). Within this trend, organizations increasingly offer what is being called “full solutions” (Vandermerwe & Rada, 1988). These full solutions are combinations of goods and services

which together are able to fulfill the entire customer's need. This trend is customer driven, as customers are no longer looking for standalone product sales, but rather desire to pay for offerings which fulfill all their needs at once (Oliva & Kallenberg, 2003).

## **1.2 Problem statement**

Although the servitization trend appears very promising for organizations, success is not ensured when trying to transform into a full solutions provider. A reason for this is that the increased focus on providing integrated offers requires some essential organizational changes. One important change involves the change of business models, or said differently, the way an organization aims to create and deliver value to its customers. Rather than selling products, services which include the use of products, are being sold. Development of business models towards such a focus on service providence can be labeled as business model innovations. Business model innovation entails the development of business models to so called more mature states. In the context of servitization we refer to these more mature states as being more servitized business models. With regard to these states, a spectrum exists which ranges from approaching services as mere add-ons to products to a view in which products are seen as add-ons to the offered services (Oliva and Kallenberg, 2003).

While the need for the adoption of more servitized business models is widely recognized (Gebauer & Fleisch, 2007; Gebauer, Friedli & Fleisch, 2006), developments toward such business models requires many challenges to be overcome (Oliva & Kallenberg, 2003; Wise & Baumgartner, 1999). One of these challenges, which has received only little attention so far, is how to align the organizational structure with the new service focus of the organization (Gebauer et al, 2009). As manufacturing organizations choose to expand the amount of services they offer, new tasks are created, and new tasks involve the division of labor, hereby raising the question if and how the current division of labor should change. And more interesting, as answering this question can help managers to restructure their organizations successfully, if the division of labor should change, how exactly should it change? And how do changes in organizational design relate to changes in business models? For instance, do particular business model changes require specific changes in organizational structure? And what do these changes look like? Within the trend of servitization more servitized business models drastically differ from less servitized business models, as the transition to more servitized business models requires changes as drastic as an alteration of the mission



statement (Mathieu, 2001). We conclude, based on our own review of literature, that the role which organizational structure plays here is still rather unknown however.

### 1.3 Research question

The posed questions above result from a lack of knowledge on the relationship between business model changes and changes in organizational structure in the case of servitizing manufacturing organizations. To bridge this knowledge gap we first need to know what kind of changes occur. Therefore, the first aim of this research is to describe the changes business model and organizational structure which occur when manufacturing organizations adopt a servitization-strategy. Second, this research aims to understand how these changes relate to each other. To support this twofold aim, the following research question is formulated:

*What are the effects of the adoption of a servitization-strategy on changes in business model and organizational structure and how do these changes relate to each other?*

By answering the question above, this research contributes to the academic field as it relates servitization to organizational design by providing insight into the kind of changes which emerge in the business models and organizational structures of organizations adopting a servitization-strategy and by providing insight into how these changes in business model and organizational structure relate to each other. Combined these insights help to create a better understanding of the changes organizations face when they chose to adopt a servitization-strategy. This understanding may in turn help practitioners to match their strategies on business model change and organizational structuring in such a way they can overcome some of the challenges faced when transforming into a full solutions provider.

### 1.4 Structure of the thesis

The structure of this paper is as follows. In the next chapter, chapter two, the theoretical framework of this paper is presented. Here, first the concept of servitization is discussed in more detail. Second, the concept of business models is explained and third, organizational design and its relationship to business model changes as well as a theory which enables us to work with organizational design are discussed. To conclude this chapter, four expectations about the relationship between servitization and changes in organizational structure are formulated. Chapter three comprises the methodological part of this paper. This chapter elaborates on the nature of our research, the data collection, the data sources, the operationalization, the manner of data-analysis and the relevant ethical considerations in this

research. In chapter four the results of the analyses of the interviews are presented by 1) describing the changes in business model found, 2) describing the changes in organizational structure found and 3) relating the changes in business model and organizational structure to each other. Finally, chapter five contains the conclusion and discussion section. The discussion section includes a reflection on the results, a reflection on the research quality, a description of the research limitations and some recommendations for further research.

# Chapter 2: Theoretical framework

## 2.1 Introduction

In this chapter we discuss the theoretical foundations of this research. The chapter consists of five different parts. In the first part, we elaborate upon the concept of servitization. Then, in the second part, we turn our attention to the concept of a business model. Here, we present one model which helps us to explain what a business model is as well as one model which allows us to distinguish between different types of business models related to a servitization-strategy. In the third part the design theory used in this research is discussed. This is the Modern Socio-technical Theory. In the fourth part, we combine the theory in order to formulate some expectations about how business model change may affect organizational structure. Finally, in the last part, a figure which summarizes the conceptual framework used in this research is presented and explained.

Before moving on, a clarification on how service is defined in this research is required. While in many organizations the label “service” is used to describe repair and maintenance activities we use the label “service” to describe all those activities in which value for a customer is created where production and consumption happen simultaneously.

## 2.2 Servitization

### 2.2.1 Introduction

In this first part of the theoretical framework, which knows five parts, we look into the concept of servitization. First, the definition of servitization is discussed. Second, in order to provide clarification, some concepts closely related to servitization are discussed. Third, we zoom in on which kinds of benefits drive organizations to pursue a servitization-strategy. Fourth, we describe what the transition towards becoming servitized entails and to end a categorization of different types of services is explained and related to the concept of servitization.

### 2.2.2 A definition

Servitization is a term first mentioned by Vandermerwe and Rada (1988) and can most easily be explained as the process of creating value by adding services to products (Baines et al., 2009). Servitization encompasses the transition traditional manufacturing organizations

engage in when they increase their service orientation. It was defined by Vandermerwe and Rada (1988) as the movement in which corporations are increasingly offering fuller market packages. Here, these market packages or so called “bundles”, which are combinations of goods, services, support, self-service and knowledge, are getting more and more dominated by services (Vandermerwe & Rada, 1988). The ideas behind servitization contain a different view on service activities. Rather than viewing service activities as unpleasant necessities connected to the sale of products (Wise & Baumgartner, 1999), service activities are seen as activities which create value. The definition of servitization as used by Vandermerwe and Rada (1988) is still used by authors nowadays and it is also this definition we use as the starting point for our definition of servitization. The definition of servitization we use in this research is “The movement in which manufacturing organizations are increasingly offering more advanced services to their customers.” While this definition does not deviate much from the definition of Vandermerwe and Rada (1988), it is more suitable for this research as it is more specific. This definition emphasizes that the movement concerns manufacturing organizations only, which is in line with the ideas of Baines et al. (2007). A small deviation however is the replacement of “the offering of fuller market packages” by “the offering of more advanced services”. This change is made because we believe this new definition makes it easier to distinguish between the productization and servitization trend (see next section). Additional, in this research we make use of a model which enables us to distinguish between more and less advanced services, hereby making our definition more practical. What is meant by more advanced services is discussed in section 2.2.6. First however, the next section sheds some more light on the above mentioned reasons for altering the definition of Vandermerwe and Rada (1988) by discussing servitization from a broader perspective.

### **2.2.3 Related concepts**

As there are some concepts which are closely related to servitization, the main one being the concept of Product-Service Systems (Goedkoop, van Halen, te Riele & Rommers, 1999), we aim to prevent confusion by discussing the differences between two of these concepts. To help us do this, we use figure 2.1, which we adopt from Baines et al. (2007).

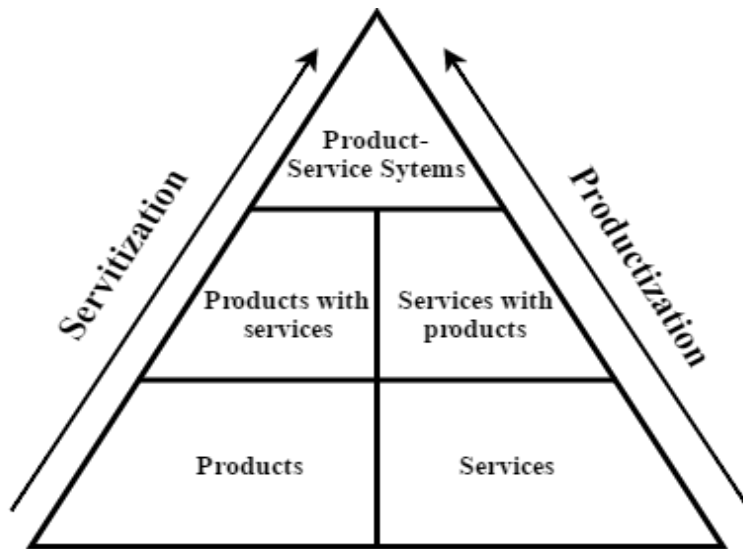


Figure 2.1: Servitization, Product-Service Systems and productization (Adopted from Baines et al., 2007)

Although the concepts of servitization and Product-Service Systems are often considered as synonyms they are actually not (Beuren et al., 2013). Whereas servitization is used to label the process of manufacturing organizations adding more service-elements into their offerings, a Product-Service System is the name for the combined offering of products and services. It is defined by Goedkoop et al. (1999, p.18) as “a marketable set of products and services capable of jointly fulfilling a user’s need”. The definition of a Product-Service Systems thus does not include a dynamic aspect whereas the definition of servitization does (it implies a transition). To clarify, a manufacturing organization which successfully managed to adopt a servitization-strategy can be recognized by the existence of Product-Service Systems within the organization. Following this line of reasoning, we can view the adoption of (a) Product-Service System(s) as an outcome of the servitization process.

Another related concept is that of productization (Baines et al., 2007), which just like servitization is the name for a movement. However, productization differs from servitization as it entails the movement of service organizations adding products to their offerings. This process also aims at the adoption of Product-Service Systems, but does this the other way around. As in this study we have chosen to solely focus on servitization, whenever we speak of the adoption of an integrated offering of products and services we refer to the servitization trend rather than the productization trend.

#### 2.2.4 Drivers of servitization

This section deals with the reasons as to why servitization is considered to be relevant for manufacturing organizations. An analysis of the literature leads us to find three main types of benefits deriving from servitization; financial, marketing and strategic benefits (Baines et al., 2009; Gebauer & Fleisch, 2007; Gebauer et al., 2006; Mathe & Shapiro, 1993). These benefits are simultaneously seen as the three main drivers behind servitization, or in other words, the main reasons why organizations choose to adopt a servitization-strategy. We elaborate upon these three different benefits/drivers based on the work of Baines et al. (2009).

1. **Financial drivers:** Two main financial drivers exist. First, a servitization-strategy can lead to higher profit margins as service revenues can be much greater than the revenue generated by product sales. Important here is the lifespan and service-dependency of a product. The higher these are the more revenue can be generated via service activities. Second, a servitization-strategy leads to a more stable income as the product-service sales are more resistant to the economic cycles that influence the purchase of goods and investments.
2. **Marketing drivers:** Increased service elements in an offer can boost the sales because customers perceive these service elements as valuable to them. This statement especially holds for B2B or industrial markets as here customers are increasingly demanding services. Here, service activities can create customer loyalty and even dependence upon the supplier, leading to repeated sales. Additional, service activities enable organizations to develop more customized and personal offerings because they help to gain insight into the customers' needs.
3. **Strategic drivers:** The strategic drivers for servitization are mostly related to the creation of competitive advantage. The service elements of an offer allow manufacturers to differentiate their offerings, hereby providing competitive opportunities. The created competitive advantage is rather sustainable as the services are very labor dependent and less visible than the products involved in the offerings, making them hard to imitate.

The overview above shows that different types of drivers associated with different types of benefits for the adoption of a servitization-strategy exist. Important here is that these benefits, and hereby the strength of the drivers, may differ based on the type of business an

organization is in. Thus, for some types of organizations (for instance B2B-manufacturers which produce products with a long lifespan) servitization is more relevant than for others.

### 2.2.5 The transition

In order to move from being a product manufacturer to being a service provider, a transition needs to be made. These transitions occur along a “product-service continuum” (Baines et al., 2009; Oliva & Kallenberg, 2003), where on the one end products are seen as being of the greatest importance and service is seen as an “add-on”, and on the other end services activities are considered to be central for value creation with products being an “add-on” to the offered service package. This continuum is illustrated in figure 2.2.

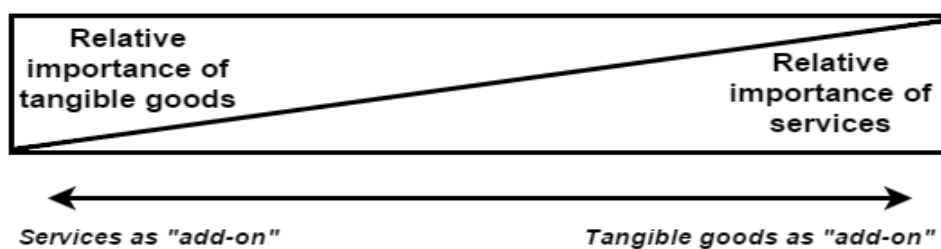


Figure 2.2: The product-service continuum (adopted from Oliva and Kallenberg, 2003, p.162)

In this continuum the term relative importance is used since focusing on either products or services does not mean the loses its importance. Even though manufacturing organizations can put their focus on providing service, the actual product included in the offered package will always remain to play an important role. Servitization involves moving to the right side of the spectrum. Movements towards this right side of the spectrum do not necessarily mean an organization reaches more turnover or profit in terms of their service activities but only means they deem their service activities as more important than before. However, it is the case that service related sales tend to have much higher profit margins than product related sales (Baines et al., 2009). Moving towards the right side of the spectrum should not be seen as transition which happens fluently; in fact, Oliva and Kallenberg (2003) argue that this movement occurs in stages. They state that in each of these stages, organizations focus on developing different kinds of capabilities.

Mathieu (2001) approaches this transition from a more strategic perspective and explains that movements towards the right side of the spectrum can differ in intensity. This intensity is determined by the strength and scope of the movement. The most intense movement identified by Mathieu (2001) is the cultural movement, which deals with reshaping the

mission of the firm. Mathieu (2001) states that while more intense movements are related to higher benefits, they are also more difficult and expensive. Having discussed the basic ideas and theories related to the transition which forms the servitization trend, the next section gives this transition more body by explaining different types of services that exist and how these relate to servitization.

## 2.2.6 Different types of services

### Introduction

As servitization entails an offering more dominated by the service activities performed by organizations it is useful to have a more detailed understanding of the types of services that exist. In order to provide this understanding, we use a diagram which categorizes different types of services and shows to what degree they are directly related to a product. The used diagram is derived from a report produced by the Boston Consulting Group (2009) about achieving excellence in after-sales services for manufacturing organizations. In this report service activities of manufacturing organizations are divided into three main categories: Traditional life-cycle services, enhanced technical services and business services. These three categories are elaborated upon in the next paragraph. For this elaboration we also made use of the report of Innovatie Zuid (2013), which also used the report of the Boston Consulting Group (2009). The diagram can be seen in Figure 2.3.

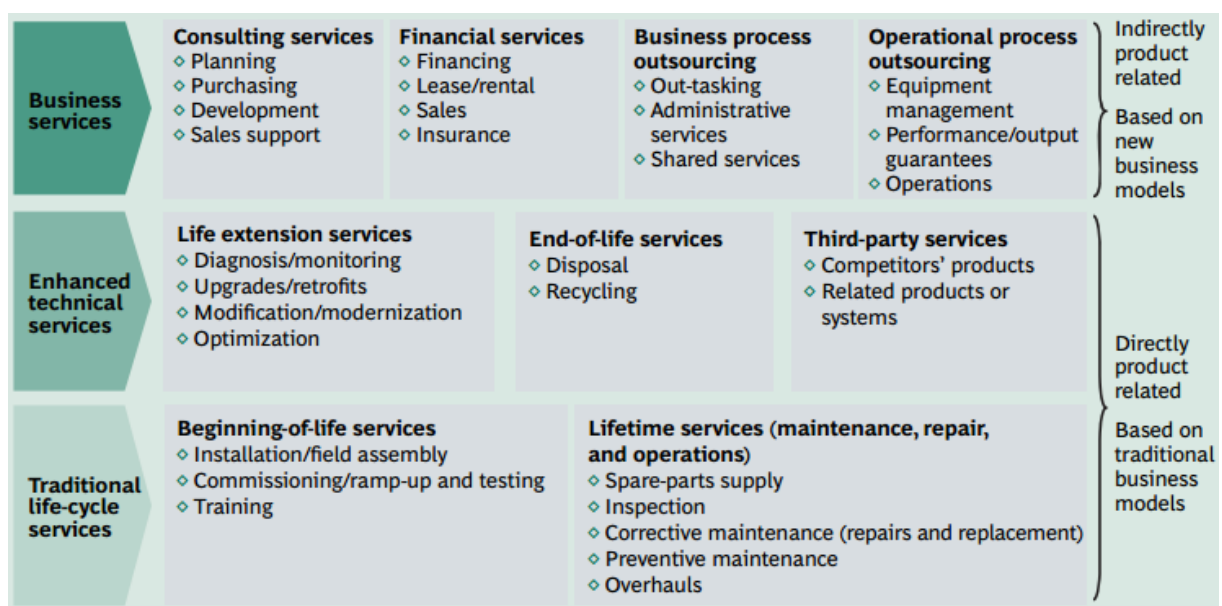


Figure 2.3: Different types of services (Adopted from Boston Consulting Group, 2009, p.4)



### Three types of service activities

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- 1. Traditional life-cycle services:** Here, service activities are directly product related and can be divided into either beginning-of-life services or lifetime services. These kinds of activities fit to a traditional business model of manufacturing organizations and can be seen as the basic services offered by manufacturing organizations providing basic support to the customers who bought the product.
- 2. Enhanced technical services:** Here, service activities are still directly related to the product and can be life extension-, end-of-life- or third party services. While these activities also still fit into a rather traditional business model they are a bit more innovative in the sense that they look beyond the original lifetime of a product. With the end-of-life services and third-party services, the activities here create a fuller package which can be offered to the customers.
- 3. Business Services:** Here, service activities are only indirectly related to products and can be consulting services, financial services, business process outsourcing and operational process outsourcing. The idea behind these activities is based on new business model logic. While the first two types of services are performed by almost all manufacturing organizations, only a minority of organizations perform business services (Innovatie Zuid, 2013). The performance of these activities can create the offering of full solutions to the customers.

### The different types of services and servitization

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As servitization is the trend of moving from more traditional product focused business models to more service centered business models, it relates the movement towards the offering of enhanced technical services and ultimately business services. When moving up in the diagram (figure 2.3) the new services must be added to the current offered services rather than become replacements of the more traditional services already offered, as these more traditional services form the basis of the service offered by the organizations. In the diagram we consider the services higher up as more advanced services and view developments towards offering these as servitization. In the remainder of this paper whenever we use the phrase “more advanced services” we refer to developments towards services higher up in the diagram of figure 2.3.

## **2.3 Servitization and business model change**

### **2.3.1 Introduction**

Servitization and business model change are closely related. In fact, the adoption of a servitization-strategy implies changing the currently employed business model. Organizations offer their customers solutions rather than stand-alone products. A core idea here is that the offered packages of products and services create more value for the customer than these customers would be able to create for themselves when sticking to the purchase of stand-alone products (Galbraith, 2002). Organizations must focus on fulfilling the job customers want to have done and must combine the services and products needed for this fulfillment. Such a focus on the job to be done requires organizations to approach their customers from a different perspective (Christensen et al., 2007). The way an organization intends to create value is different under a servitization-strategy, which means business model changes are a crucial part of a servitization-strategy. Before we can get a thorough understanding of how business models actually change, we first need to know what exactly a business model is. For this, we use the work of Osterwalder and Pigneur (2010), who explain the concept of a business model by using a created Business Model Canvas (BMC). Next to the Business Model Canvas, we discuss the Servitization Maturity Model (Atos Consulting, 2011), a model which includes a typology that enables us to categorize a certain business model based on some of its key characteristics.

### **2.3.2 The Business Model Canvas**

#### **Introduction**

The Business Model Canvas (see figure 2.4) by (Osterwalder & Pigneur, 2010) is a model which explains the concept of a business model by describing nine building blocks. Osterwalder and Pigneur (2010) define a business model as “the rationale of how an organization creates, delivers and captures value” (p.14). This is also the definition used in this research, as it is clear and allows us to work with the Business Model Canvas. The Business Model Canvas is used because it serves as a good tool for describing the characteristics of different business models. This is because the model is both comprehensive, it provides a nice visual overview of the nine building blocks, and extensive, its span includes four different areas: the customers (building blocks 1,3 and 4), the offer itself (building block 2), the infrastructure (building block 6,7 and 8) and the financial viability (building block 5

and 9). The infrastructural part of this model is of particular relevance to this research as changes here are likely to be related to changes in organizational structures.



Figure 2.4: The Business Model Canvas (adopted from Osterwalder and Pigneur, 2010, p.44)

In figure 2.4 the nine building blocks of a business model are shown. What can be seen here is that the value proposition takes a central place, which represents the fact that the value proposition is a very fundamental part of the business model. Below, the building blocks are discussed in the same order of occurrence as done by Osterwalder and Pigneur (2010). As will become apparent from these explanations, the different building blocks are closely related to each other, and the creation of a solid business model involves a certain fit between the different building blocks.

### The building blocks

- 1. Customer segments:** The customer segments building block relates to the different groups of customers an organization aims to reach and serve. It concerns the strategic choices made by organizations to either focus or not focus on particular groups of customers. Organizations may group customers into distinct segments based on their different needs, behaviors or other attitudes in order to better satisfy them. The development of the rest of the business model depends upon the decision made with regard to which customers to serve.

2. **Value propositions:** The value propositions building block relates to the bundles of products and services used to create value for each specific customer segment. These bundles should be able to solve customer's problems or satisfy customer's needs. It is the value proposition which attracts customers and can make these customers prefer one organization over another. The value proposition is an essential building block and choices in the subsequent building blocks are all heavily influenced by the choices made about the value proposition.
3. **Channels:** The channels building block relates to how an organization delivers and communicates its value proposition to its customer segments. As channels (communication, distribution or sales channels) comprise an organization's interface with customers, they are central to the customers' experience.
4. **Customer relationships:** The customer relationships building block relates to the type of relationships an organization wants to establish with its customer segments. Customer acquisition, customer retention and sales boosting are all motivations which may determine the type of customer relationship. Examples of different categories of customer relationships are personal assistance, self-service, automated services, communities and co-creation.
5. **Revenue streams:** The revenue streams building block relates to the cash organizations generate from each customer segment. For each customer segment the revenue stream may have a different pricing mechanism. An important distinction here is that between transaction revenues which result from a one-time customer payment and recurring revenues resulting from ongoing payments. This block is about how customers pay. Different ways of generating revenue streams include asset sale, usage fee, subscription fee, renting, licensing, brokerage fees and advertising.
6. **Key resources:** The key resources building block relates to the organizations' most important resources for the creation and offering on its value proposition, the reaching of markets, the maintenance of relationships with customer segments and the earning of revenues. Key resources can be physical, financial, intellectual or human and either owned by an organization or leased or acquired from partners.
7. **Key activities:** The key activities building block relates to those activities most important for the successful operation of the organization. The key activities arise from the key resources and are also concerned with making different elements of the business model work. Three types of key activities are distinguished: Those related to

production, those related to solving problems and those related to the creation and management of platforms or networks.

8. **Key partnerships:** The key partnerships building block relates to the network of suppliers and partners an organization has. Three main motivations for creating partnerships exist: Optimization and economy of scale, reduction of risk and uncertainty, and acquisition of particular resources and activities. Four different types of partnerships can be distinguished: strategic alliances between non-competitors, strategic partnerships between competitors (coopetition), joint ventures and buyer-supplier relationships.
9. **Cost structure:** The cost structure building block relates to the costs incurred when operating a business model. It is concerned with defining the costs generated by the key resources, key activities and key partnerships. Business model cost structures can either be more cost-driven or more value-driven. The first kind focuses on minimizing costs while the latter has a larger emphasize on the creation of value. Characteristics of cost structures are the amount of fixed costs, the amount of variable costs, the degree of economies of scale and the degree of economies of scope.

The nine building blocks explained above together shape the business model of an organization. Internal fit between the building blocks is important for shaping a successful business model. As said, building blocks 6, 7 and 8 (comprising the infrastructural part of the model) are of particular interest to us as changes here are likely to cause changes in organizational structure. First, key resources are closely related to organizational design as for servitized organization employees are likely to be one of the key resources. Second, key activities are closely related to organizational design as they shape the primary process, or in other words, the production structure (see section 2.4) of an organization. Last, key partnerships are closely related to organizational design as choices here determine the boundary of an organization's operations. As for the rest of the building blocks, a good alignment between these three building blocks is crucial.

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### **The BMC and servitization**

In this section we discuss what the impact of a servitization-strategy on the nine different building blocks may be. First, with regard to customer segmentation, organizations may focus more on dividing based on the job to be done (Christensen, 2007, see 2.3.1) rather than on the different needs of the customers in terms of products. Second, with regard to the value

proposition, the offer is expected to be more dominated by service elements. Third, with regard to the channels, the two last phases (phase 4 and 5) are expected to increase in importance as they entail the providence of service. More specific, the channels involved in this are expected to be direct and owned by the organization since this allows for a more personal relationship with the customer. This helps in customizing the offers for the different customers. Fourth, with regard to customer relationships, customer retention becomes more significant, as movements towards the right side of the product-service continuum (figure 2.2.) increase the dependence of the organization upon its customers. Fifth, with regard to the revenue streams, the revenue is more likely to be generated by lending/leasing contracts or usage fees rather than via asset sales. Sixth, with regard to the cost structure, a servitization-strategy and its focus on offering clients total solutions corresponds more with a value driven cost structure.

With our research question in mind, the most important parts of the BMC, since they are closely related to organizational design (see section 2.3.2.2), are the building blocks key resources, key activities and key partnerships. Servitization impacts the key resources of an organization as human resources become more important. While traditionally, manufacturer's key resources mainly consist out of the physical capital goods needed for production activities, the increased focus on service providence requires extra human resources to carry out the activities. This is because the key activities performed by the organization are now not only production activities but also problem solving activities. It is the latter kind of activities that cannot be performed by physical resources, thus creating a need for human resources. While production activities are likely to remain dominant for manufacturing organizations, servitization may create new kinds of non-production activities such as product installation, maintenance and customer support. Last, servitization impacts key partnerships as organizations may choose to outsource their production activities since these become less important when the business model becomes more servitized. Additional, organizations may require external resources in order to transform successfully, thus motivating them to create partnerships.

### **2.3.4 The Servitization Maturity Model**

#### **Introduction**

While the Business Model Canvas (Osterwalder & Pigneur, 2010) is a very useful tool for describing a specific business model, it does not enable one to classify specific business

models. Classification however can be useful because it allows one to compare different types of business models with different kinds of structural changes, which makes it easier to formulate valid statements on the relationship between these two concepts. Because of this, we chose to make use of a model which allows us to make these classifications. The model we use for this is the Servitization Maturity Model (SMM) by Atos Consulting (2011), which includes a typology of four different types of business models. The SMM is of particular interest to us as the typology it provides is specifically based upon manufacturing organizations adopting a servitization-strategy. Even more specific, it focuses on Original Equipment Manufacturers (OEM's) active in the B2B market, a market in which servitization is of particular interest (see section 2.2.4). Furthermore, the SMM includes elements similar to the ones used in the BMC. Additional, it can be linked to the product-service continuum (Oliva & Kallenberg, 2003). Unlike other models of consultancy organizations, this model does have strong theoretical foundations. The report is the result of a thorough research based upon state of the art literature on servitization and business model changes. Based on the reasons given above plus the fact we believe this model has a lot of practical value, we deem this model to be suitable for our research. The model itself is explained in the next section.

### **The model**

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The Servitization Maturity Model (Atos Consulting, 2011) is a model which can be used to determine the type of business model and corresponding organizational architecture for B2B manufacturing organizations involved in servitization. While the actual model consists out of two parts: a part on business models and a part on organizational architecture, only the first part of the model, which deals with classifying different types of business models, is used. We do this because in terms of organizational architecture, our research focuses on the division of labor in terms of the Modern Socio-technical Theory, whereas the organizational architecture part of the SMM is much broader than this. Also, those elements in the second part of the SMM which relate to organizational design as defined by the MST are only discussed briefly. For these reasons, we do not present or explain the second part of the SMM.

In the first part, the business model part of the SMM, six elements are used to distinguish between four different types of business models: the product manufacturer, the added value manufacturer, the full service provider and the integrated solutions providers. These four descriptions relate to the different stages (in accordance with the ideas of Oliva & Kallenberg (2003), see section 2.2.5) an organization's business model can take when transforming into a

service provider. This hierarchy within the four different business models described by the SMM can be found in the term “maturity”. Moving from left to right, the different business models described in the SMM become more mature. More mature here corresponds with moving to the right side of the product-service continuum (Oliva & Kallenberg, 2003). The six elements used to distinguish between the four different types of business models are (Atos Consulting, 2011, p.12):

1. The market maturity for services as indicated by the growth in percentage in services
2. The kind of customer relationship the organization pursues
3. The product value proposition
4. The service value proposition
5. Service revenues as a percentage of total revenue
6. The extent to which the Product-Service System is integrated into a unified revenue model.

Figure 2.5 shows the first part of the SMM. This figure provides more information on the content of the six different elements mentioned above.

|                |                       | Company typology                                      |  |   |  |
|----------------|-----------------------|---|--|---|--|
| Business Model |                       | Product manufacturer                                  | Value added manufacturer                                   | Full service provider   | Integrated solutions provider                            |
|                | Market maturity       | Emerging (annual growth > 10%)                        | Growing (annual growth < 10%)                              | Maturing (no / marginal annual growth)                        | Ageing (declining product market)                        |
|                | Customer relationship | Focus on new customers                                | Focus on extending sales at existing customers             | Focus on vertical bundles to improve horizontal applications  | Focus on few partnerships and ecosystem integration      |
|                | Value proposition     | Develop, sell & deliver products                      | Develop, sell & deliver products + services                | Develop, sell & deliver value added services, incl. platforms | Develop, sell & deliver customized, integrated solutions |
|                | Service proposition   | Services are necessity for product sales and warranty | Services are additional recurring revenue & profit streams | Services are primary recurring business                       | Solutions are primary recurring business                 |
|                | Service revenue       | < 10% of total revenue                                | 10 - 50% of total revenue                                  | 50 - 80% of total revenue                                     | > 80% of total revenue                                   |
|                | Revenue model         | Pay per product, incl. services                       | Pay per product, pay per service                           | Pay per use   | Pay per performance                                      |

*Figure 2.5: The business model part of the Servitization Maturity Model (Adopted from Atos Consulting, 2011, p.13)*

As said, the four different types of business models as depicted in figure 2.5 should be seen as different organizational stages product organizations pass when transforming into service providers. Product organizations start as regular manufacturers and aim to become integrated solution providers. Here, value added manufactures and full service providers are labels for



organizations which have made some progress towards becoming the integrated solution provider. The further you want to develop as a manufacturing organization, the harder it gets (Atos Consulting, 2011). While for a product manufacturer becoming a value added manufacturer may require relatively little change, the same does not hold for becoming a full solutions provider. Furthermore, the transformation towards becoming an integrated solutions provider involves more radical change and therefore is much more difficult. A last thing to note with regard to this model is that adopting a more mature business model is no guarantee for increased organizational success (Atos Consulting, 2011).

## **2.4 Organizational design**

### **2.4.1 Introduction**

It should be apparent by now that the business model changes resulting from the adoption of a servitization-strategy have consequences for organizational design. Several authors (Gebauer et al., 2006; Galbraith, 2002; Quinn, 1990) recognize this and address the notion of organizational design in their papers on servitization. We now provide some examples of how these authors relate servitization, which implies business model maturation, to organizational design. First, Quinn (1990) states that organizations should outsource all activities which do not contribute to giving them a competitive edge. From this we can learn that a manufacturing organization may consider outsourcing its service activities when they are not considered to be key activities. On the other hand, fitting the servitization story, this means that in manufacturing organizations where the service activities are key and the manufacturing activities are not, the latter activities should be outsourced. Where Quinn (1990) sticks to the issue of outsourcing, Galbraith (2002) discusses some more features of what an organizational structure should look like for manufacturing organizations which offer solutions. Galbraith (2002) notes that there is a greater need for customer segment specific units, which should be led by a centralized unit which connects the customer-centric units with the product units. This way of organizing creates organizations which strength lies in their ability to provide customized, desirable client outcomes (Miller et al., 2002). Additional, Galbraith (2002) notes that when the service and production department are integrated, there exists a freer flow of customer knowledge which should enable the organization to better fulfill the customers' needs. The idea here is that the knowledge created by performing the service activities can be used to improve the production activities and vice-versa. Finally, Gebauer et al. (2006) found that decentralized service organizations were more successful in terms of revenues. While the

papers discussed above all mention organizational design, none of them covers this topic in much detail. Furthermore, these papers do not approach organizational design from an integral perspective as each author focuses only on a subset of the organizational structure of organizations. This research does aim to use an integral perspective and for this we chose to use the Modern Socio-technical Theory (MST) as it has an integral approach covering the entire span of organizational (re)structuring. Additional, the MST's ideas on organizational design apply to all organizations, which means the theory can be universally applied. The next section summarizes the key ideas and concepts of the MST.

## **2.4.2 The Modern Socio-technical Theory**

### **An introduction into the MST**

The Modern Socio-technical Theory (MST) is a design theory which originates from a line of studies (Trist & Bamforth, 1951; Trist et al., 1963) conducted in the British coalmines in Durham between 1950 – 1958 (Kuipers, van Amelsvoort & Kramer, 2010). As sub-streams exist within the MST, we specify to base our work on the Dutch version of the MST. Because of this, from now on whenever we use the term MST, we specifically refer to the Dutch version of this design approach. Our work on this paper and our knowledge of the MST are mainly based on the work of De Sitter (1998), Achterbergh and Vriens (2010) and Kuipers et al. (2010).

The MST concerns the design of organizational structures. What is meant with the word structure here is how the division of labor looks like. Kuipers et al. (2010, p.41) define organizational structure as followed: “The grouping and linking of activities”. Achterbergh and Vriens (2010, p.231) define organizational structure as “a network of related tasks”. Although the two definitions are quite similar, we use the definition of Kuipers et al. (2010) because it exhibits the two different elements of organizational structure as interpreted by the MST: how the work is divided and how the work is subsequently coupled together. Division of work is necessary as too large departments or groups are dysfunctional. Kuipers et al. (2010) state that at macro-level organizational units should not exceed 200 people and furthermore the number of employees in one team should not exceed 20.

A key characteristic of the MST is its aim to design flexible structures in order to reduce structural complexity. According to Kuipers et al. (2010), structural complexity increases exponentially when the degree of labor division increases. To reduce this complexity, the

MST makes use of Ashby's 'law of requisite variety' (Ashby, 1956), which states that an organization must be able to produce as much variety as it wants to control. What this law implies is that an organization must have at least one solution for every possible disturbance that may occur. Following this line of reasoning, the MST aims at minimum division of labor as this decreases the probability of disturbances while increasing the capability of an organization to deal with disturbances (Kuipers et al., 2010). The division of work that is created when following the principles of the MST is characterized by the existence of broad and complex tasks within a simple structure. This is an opposition to the structure of so called "bureaucratic" (Kuipers et al., 2010) organizations, which are characterized by having simple tasks within a complex structure, which often lead s to a lack of controllability of the organization. Having explained the basic ideas of the MST, some of the concepts of the MST used later in this research are described.

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### **Operational and regulatory transformations**

Achterbergh and Vriens (2010) associate tasks with the realization of an end state by the performance of a particular transformation process. This realization, which is about changing a begin state into an end state, is called a transformation. Two types of transformations can be distinguished (Achterbergh & Vriens, 2010): Operational and regulatory transformations. Operational transformations refer to those activities directly leading to the desired end state and together these activities are often labeled as the primary process. Regulatory transformations refer to those activities dealing with the disturbances which occur when performing the operational transformations and do themselves not directly contribute to realization of the desired end state.

---

### **Macro-, meso- and micro-level structuring**

In the MST, when talking about structure, three aggregation levels are distinguished: the macro-, meso- and micro-level (Kuipers et al., 2010). The macro-level concerns the grouping and linking of different organizational units and involves structuring at the highest aggregation level, the meso-level concerns the grouping and linking of groups within the made organizational units and the micro-level concerns the grouping and linking of activities among individual workplaces.

---

### **The production and the control structure**

Another essential distinction made in the MST concerns the difference between the production and the control structure of organizations. The production structure refers to the

structuring of the operational transformations whereas the control structure refers to the structuring of the regulatory transformations (Kuipers et al., 2010). In this study, when analyzing the organizational structures of the cases, we mainly focus on the production structure. This is done because in manufacturing organizations this structure is more easily identifiable than the control structure because the activities in the production structure shape the primary process, which can more easily be described than the regulatory processes as it involves a physical process. Furthermore, the production structure is the most important part of the structure as it is designed first, and hereby determines the design of the control structure (Kuipers et al., 2010).

### **The use of the MST**

The explanation of the core ideas and concepts of the MST above is given since with the help of these, the characteristics of an organizational structure can be described. Thus, understanding

## **2.5 Combining the theory**

In this chapter, we discussed the concepts of servitization, business models and organizational (re)design. Combining and using this gathered knowledge led to the creation of four expectations about the relationship between business model changes and organizational (re)structuring in the case of servitization. Although investigating these expectations is not sufficient to answer our research question, since our research question captures more, we chose to use these expectations because they provide structure. Furthermore, reviewing these expectations can help to get a more concrete understanding of the relationship between business model change and organizational (re)structuring. Although these expectations play a central role in this research, an open view towards other outcomes is maintained. The four expectations are presented and explained below.

*Expectation 1: The more an organization moves towards a more servitized business model, the more changes in organizational structure this requires.*

For this hypothesis we made use of the idea that business model change occurs in stages (Oliva & Kallenberg, 2003) and the idea that the more servitized a business model becomes the more radical changes are needed for further development (Atos Consulting, 2011). In order to test this expectation, we make use of the work of the Boston Consulting Group

(2009) and look at the changes occurring when 1) expanding to the offering of enhanced technical services and 2) when expanding to the offering of business services.

*Expectation 2: The more an organization moves towards a more servitized business model, the more it outsources its production activities.*

As Quinn (1990) states that an organization should outsource all those activities which are not related to the key competences of an organization, production activities should only be performed by the organization itself when they are considered as key activities. In the case of servitization, when a business model gets more servitized, services become more dominant and they, instead of production activities, become key activities, which means production activities are more likely to be outsourced.

*Expectation 3: The more an organization moves towards a more servitized business model, the more it becomes decentralized.*

This expectation is derived from the statement of Gebauer et al. (2006) that decentralization fits a servitization-strategy (see section 2.4.1). This statement fits the idea that when adopting a servitization-strategy, more regulatory potential is needed at a lower level in the organization in order to provide the customers with more tailored solutions. Now, the more the business model is servitized, the more this providence of tailored solutions is important and thus the more likely decentralization of the organizational structure is.

*Expectation 4: The more an organization moves towards a more servitized business model, the more integration between service and production activities occurs.*

As stressed in the explanation behind expectation 3, within more mature business models, the providence of more tailored solutions becomes more important. Expectation four is based on the statement of Miller et al. (2002) that the integration between production and service activities enables the development of more tailored solutions, herby creating extra value for the customer.

## 2.6 Overview theoretical framework

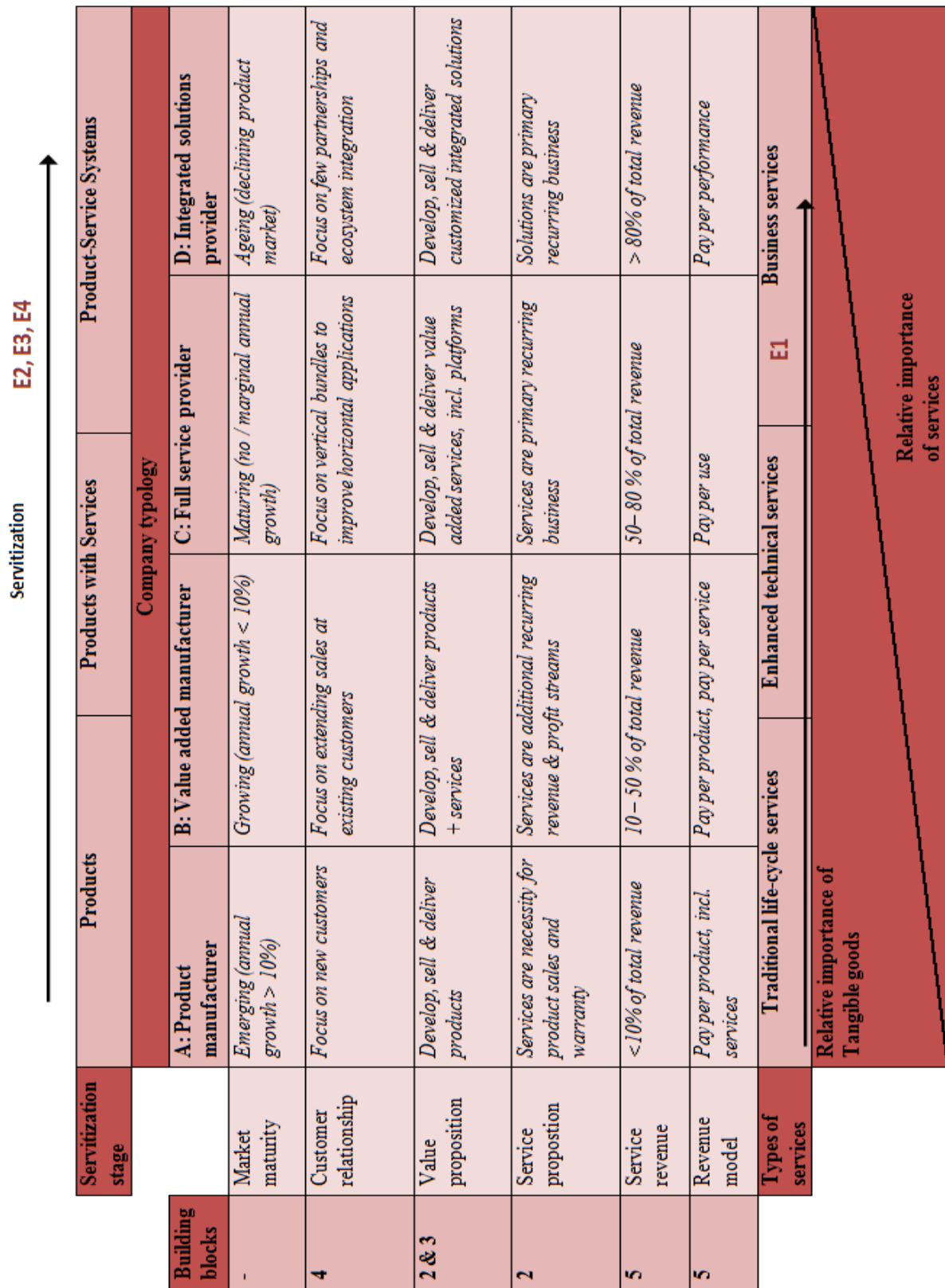


Figure 2.6: Overview theoretical framework

To conclude a visualization (figure 2.6) of the theoretical framework constructed in this chapter is presented. In this visualization the core ideas of the discussed concepts as well as the four formulated expectations can be found. Figure 2.6 represents an integration of five pieces of theory, each of these pieces are marked by a cell colored dark red.

The core of the visualization is formed by the Servitization Maturity Model (Atos Consulting, 2011). The SMM forms a good basis as it shows how different elements of a business model look like giving different degrees of maturity. Here, more mature is synonym for more servitized. To the left of the SMM the header “Building blocks” is used to denote which building blocks of the BMC (Osterwalder & Pigneur, 2010) match with the different elements of a business model used in the SMM. At the top of the model the left side of the pyramid of Baines et al. (2007) (see figure 2.1) is integrated to display how maturation of the business model leads from the offering of a product to the offering of a Product-Service System. Then, below the traditional SMM a row is added to show how the adoption of more mature business models corresponds with the offering of different types of services as categorized by the Boston Consulting Group (2009). Finally, the bottom part of the visualization adds the product-service continuum of Oliva and Kallenberg (2003), hereby showing again how the focus in servitization gradually shifts from relying on goods to relying on services.

The four formulated expectations can also be found in figure 2.8. First of all, expectation number one (E1) can be found above the arrow showing a shift in the types of services offered. The other three expectations (E2, E3 and E4) are depicted at the top for convenience reasons, since this improves the clarity of the figure, but actually belong to the maturation stages of the business models as presented by the SMM (denoted by A, B, C and D).

With this visualization of the theoretical framework we display how the different theories discussed fit together in an overall picture and also where in this picture the formulated expectations belong. It must be noted that the visualization represents a simplification of reality and does not correspond with the full complexity which exists in the relationships between the different theories.

# Chapter 3: Methodology

## 3.1 Introduction

In this chapter the methodological framework of this research is presented. First, the nature of the conducted research is discussed. Second, the interview as a data collection method, the interview procedure, and the participating organizations are described. Third, the operationalization of the interview is shown. Fourth, the way in which the gathered data was analyzed is explained and to conclude some notes are made about the ethical considerations relevant in this research.

## 3.2 Research Strategy

### 3.2.1 Qualitative

The nature of this research is qualitative. Creswell (2009) discusses the characteristics of qualitative research and mentions its focus on the understanding of social or human problems, its iterative style and its recognition for the existence of complexity. Qualitative methods focus mostly on interpreting text and finding themes and patterns within these texts and typically use open-ended questions. This is opposed to quantitative research, which focuses more on statistical interpretation of numerical data often using pre-determined question with fixed response categories (Creswell, 2009). These differences are in line with the differences in terms of the aim of the methods. Quantitative research generally aims to make statements about a large number of themes without going into depth whereas qualitative research aims to provide an in-depth understanding of one or a small number of themes. Since in this research we only have two main themes (business model changes and organizational (re)design), a qualitative approach is desirable, as this allows us to thoroughly examine the relationship between these two themes. Another reason to choose for a qualitative research approach is because of its inductive character (Vennix 2011, Creswell 2009). Since the topic of this research is relatively new and relatively little is known about it a qualitative approach, with its inductive character, is suitable because it allows for the discovery of unexpected outcomes. Furthermore, with its more open approach, qualitative research enables the researcher to adjust its research design based upon experience obtained during the research process (Creswell, 2009). Such an approach can help to develop a valuable piece of theory, in this



case on the relationship between business model changes and organizational (re)design, since it allows continuous adjustments which helps to capture the most relevant information.

### **3.2.2 Theory-oriented**

Besides the distinction between qualitative and quantitative research, another distinction worth mentioning is the distinction between practice-oriented and theory-oriented research (Bleijenbergh, 2013; Vennix, 2011; Verschuren & Doorewaard, 2010). We clarify the differences between these two orientations by looking at the descriptions given by Verschuren and Doorewaard (2010). These descriptions are: “Theory-oriented research is all about solving a problem encountered in the theory development in a particular scientific area, and within this area, with regard to a specific issue.” (p. 42) and “Practice-oriented research is meant to provide knowledge and information that can contribute to a successful intervention in order to change an existing situation.” (p. 45).

This research is theory-oriented as it aims to create knowledge on and further development of the scientific areas of servitization and organizational design. More specific, it aims to reduce the lack of existing knowledge on the relationship between business model changes and organizational (re)design within servitizing organizations. Reflecting on this aim shows that knowledge, rather than a changed situation, is the intended product of this research. This does not mean however, that this kind of research has no practical relevance, since the produced knowledge may well be useful to practitioners, which is the case more often with theory-oriented research (Verschuren & Doorewaard, 2010).

### **3.2.3 Descriptive**

Verschuren and Doorewaard (2010) distinguish between two types of knowledge a research can produce: descriptive and explanatory knowledge. They describe descriptive knowledge as helping to answer “how reality is”, “what it (reality) looks like” or “how thing work” and describe explanatory knowledge as helping to answer “why things are the way they are” (Verschuren & Doorewaard, 2010, p.94). Looking at the research question and aim (see section 1.3) shows this research is descriptive in nature since it aims to describe rather than explain the changes which occur when organizations adopt a servitization-strategy, hereby answering the question “how” instead of “why”.

### 3.3 Data collection

#### 3.3.1 Method: The interview

The used data collection method in this research is the interview. A well-recognized strength of the interview as a method is its ability to get descriptions of the meaning which interviewees ascribe to one or more so called life-world phenomena (Bleijenbergh, 2013; Kvale & Brinkmann, 2009). As this research aims to understand the relationship between business model changes and structural changes, the interview is a very suitable data collection method. This is because the interview enables us to learn from the people which know most about these changes. It is the managers who, through experiencing, know what business model changes and structural changes exist and how these relate to each other. With the help of interviews, the knowledge of these managers can be made explicit. Also, the interview as a method enables us to understand the relationship between business model changes and organizational design as within the context of the organizations. We expect this relationship to be heavily reliant upon the specific context, which forms another reason to use interviews as a data collection method.

The type of interview we use is the semi-structured interview (Bleijenbergh, 2013; Marshall & Rossman, 2011; Vennix, 2011, Kvale & Brinkmann, 2009; Patton, 2002). As can be seen above, many authors have written about this approach. Since these authors sometimes use different terminology and speak about the approach somewhat differently, this chapter spends some extra attention to the description of how the semi-structured interviews in this research were developed and conducted. This is done in order to prevent problems arising from the use of different terminology.

The choice for a semi-structured interview approach was made since we expect the relationship between business model change and organizational (re)design to be rather context specific and therefore somewhat unique within every organization. Here, a strength of the semi-structured interview is that it allows us to alter the order and or the exact formulation of the questions based on what is already said, as such to optimize the relevance of the asked questions. Additional, this approach helps to increase the relevance of the collected data by allowing follow-up questions to be asked when deemed necessary.

### **3.3.2 The interview procedure**

The interviews were conducted face to face and were designed to have a length of approximately 60 minutes. All interviews, after granted permission, were recorded in order for them to be transcribed afterwards. The interviews consisted out of five parts including an introduction and a closing section. During the interviews, topics or concepts which might have been unfamiliar to the interviewees were explained. Also, since the scope of the interviews is intended to be limited to only those changes which result from the adoption of a servitization-strategy, when deemed necessary, participants were reminded of this. To help in conducting the interviews, an interview guide (Patton, 2002) was constructed. An interview guide is a list of topics that should or can be addressed. The interview guide, in Dutch, can be found in Appendix A. The operationalization of the interview is described in section 3.4.

### **3.3.3 The sampling technique**

The sampling technique used in this research has elements of purposive sampling as well as convenience sampling and thus can be said to be a mixture of both. Purposive sampling (Yin, 2011) involves deliberately choosing certain study units because these are expected to provide the most relevant data given the topic of a specific study. On the other hand, convenience sampling involves the selection of study units because of their ready availability (Yin, 2011).

The purposive sampling elements exist in the fact that a set of criteria was developed before contacting any organization. The characteristics an organization needed to have in order to qualify for being used in this research were the following: 1) The organization is or has been a manufacturing organization with its own physical production facilities, 2) the organization operates in a B2B-market, 3) the organizations has over 100 employees and 4) the products which the organization produces have a relatively long life span (>5 years)

Having defined these criteria, participants were gathered in three ways: First of all, with the help of a request send by the chairman of the Service Logistics Forum, second by contacting organizations which participated in the research of Atos Consulting (2011) on servitization and third by contacting organizations which participated in the research of Innovatie Zuid (2013) on servitization. In the above, the convenience sampling element can be found as only those organizations that reacted positively could be interviewed. Due to a higher amount of positive responses than expected a number of interested organizations had to be turned down,

since the scope of this research is limited, providing an extra opportunity for purposive sampling.

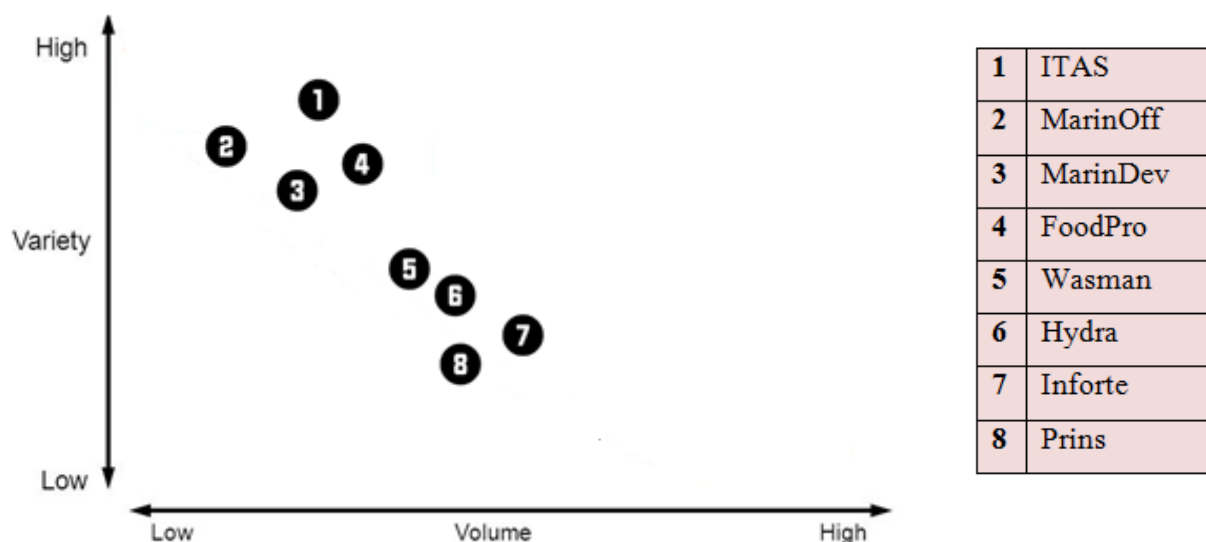
### 3.3.4 The organizations

Using the technique described above, an intended number of eight organizations was reached. In figure 3.1 some basic information about the interviewed organizations is given. In this figure the names of the organizations are fictional in order to provide the participating organizations anonymity.

| Organization: | Industry:                           |
|---------------|-------------------------------------|
| ITAS          | Information technology and services |
| MarinOff      | Marine and offshore                 |
| MarinDev      | Marine and offshore                 |
| FoodPro       | Food processing                     |
| Wasman        | Waste management                    |
| Hydra         | Hydraulic equipment                 |
| Inforte       | Information technology and services |
| Prins         | Printing systems                    |

*Figure 3.1: The interviewed organizations (fictional names used)*

All of the interviewed organizations are or were traditional manufacturing organizations with well over 100 employees, owning physical production facilities, operating in a B2B market, producing products with a relatively long lifespan and engaged in the servitization trend. Although all the organizations possess the above mentioned characteristics they cannot be considered as a homogeneous group since they operate in different markets. Also, they differ in the degree of variety and volume which characterizes their production process. As having either very complex one-of-a-kind customized products or simpler commoditized products has very different implications for the type of business model used we chose to show how the eight organizations differ in this. For this, we make use of the Product-Process Matrix (Hayes & Wheelwright, 1979) which shows the amount of variety in the product as well as the volume in which it is produced.



*Figure 3.2 The interviewed organizations on the Product-Process Matrix (Adopted from Hayes & Wheelwright, 1979)*

In figure 3.2 the organizations at the left-top corner offer relatively unique products at a relatively low volume whereas the organizations at the right-bottom corner offer relatively standardized products in a high volume. The representation in figure 3.2 must be seen as a generalized overview and does not correspond with reality in the sense that it is a simplification of reality. In fact, the individual organizations may consist out of different departments which may substantially differ from each other in terms of volume and variety. Also, for any position in the matrix different servitization options as well as different ways to implement these (in terms of strategy) exist.

### 3.4 Operationalization

#### 3.4.1 Introduction

This section describes how the interview questions were developed and heavily relies on the theoretical foundations of chapter two. The result of the operationalization process is the interview guide which can be found in Appendix A. As the interviews were conducted in Dutch, the interview guide is also in Dutch. For convenience, interview question described in this section are translated into English. For the operationalization of the core part of the interview we start, as we should (Cassel & Symon, 2004), with looking at the research question. This is very important since the goal of the interview should be to collect data which can be used to answer this question.

*What are the effects of the adoption of a servitization-strategy on changes in business model and organizational structure and how do these changes relate to each other?*

In order to answer the research question, the interview is divided into three core parts. The order and content of these three parts has been adjusted based on the first two interviews to form a final interview guide which slightly deviates from the original interview guide used during the first two interviews. The adjustment made after these two first interviews was to begin with asking about the organizational structure instead of the servitization-strategy since asking about the servitization-strategy was found to be easier when possessing knowledge about the organizational structure.

Of the core, the first part aims to gather data on what the structure of the interviewed organizations looks like. The second part aims to gather data about the adopted servitization-strategy and how this strategy caused changes in business model. Then, the third part aims to gather data on how this strategy caused changes in organizational structure. During all three parts, it is important that to the interviewees it is clear that the questions in each of these three parts should be answered within the context of the adoption of a servitization-strategy. Therefore, this is mentioned in the introduction. In the next sections, the operationalization of the three core parts of the interview is discussed. Before doing this however, the introductory and conclusive questions, which are also in the interview, are explained.

### **3.4.2 Introductory and conclusive questions**

Besides the core part, the interview consists of introductory and conclusive questions. These questions have no connections to the theoretical framework but exist for practical reasons, which we explain now by describing the aims of these questions. First, the goal of the introductory questions is to provide the necessary context which can help us to better understand the answers given in the core parts. Second, the conclusive questions aim at making sure the interviewees get a chance to share additional information which might be of relevance to our research. Last, the conclusive questions may also provide us with feedback which can be used to improve our manner of interviewing as well as to improve the further continuation of our research in general.

### **3.4.3 Organizational structure**

The first core part of the interview is directed at getting an understanding of the structure of the organizations and starts by asking what the primary process of the organization looks like,

hereby targeting at information about the production structure. After this, the control structure is addressed and to conclude we ask about the value chain of the produced product to see to which extent this chain is controlled by the organization. In this last question, special attention goes to the end of the value chain since the service activities lie here.

#### **3.4.4 Servitization & business model changes**

The second core part intends to gather information on how the different building blocks of the business model changed because of the servitization-strategy. This part starts with an introduction question about the role servitization plays in the organization. Following this introduction question are questions about how each of the nine building blocks of the BMC changed. Here, for each of the nine building blocks, specific follow-up questions are formulated.

#### **3.4.5 Changes in organizational structure**

The last core part of the interview intends to gather information on which changes in organizational structure occurred as a result of the adoption of a servitization-strategy. We expect that simply asking the participant how the organizational structure changed is too abstract and might cause them not to mention some actually relevant changes. It is for this reason that we put this question at the end of the interview so that the information obtained during the interview may serve as input in this part. Additionally, to overcome this same problem, four sub-questions matching with the four expectations (see section 2.5) are formulated

#### **3.3.5 Overview operationalization**

In figure 3.3 an overview, which can also be seen as a brief summary of the core part of the interview as found in the interview guide (Appendix A), of the topics covered in the interview is shown. Since this interview is semi-structured, the order in which the topics pass in the interview may deviate based upon the course of the held interview.

| Part | Topic                               | Item(s)                |
|------|-------------------------------------|------------------------|
| 1    | Organizational structure            | Production structure   |
|      |                                     | Control structure      |
|      |                                     | Value chain            |
| 2    | Business model changes              | Customer segments      |
|      |                                     | Value propositions     |
|      |                                     | Channels               |
|      |                                     | Customer relationships |
|      |                                     | Revenue streams        |
|      |                                     | Key resources          |
|      |                                     | Key activities         |
|      |                                     | Key partnerships       |
|      |                                     | Cost structure         |
| 3    | Changes in organizational structure | Expectation 1          |
|      |                                     | Expectation 2          |
|      |                                     | Expectation 3          |
|      |                                     | Expectation 4          |

*Figure 3.3: Overview operationalization interview*

### 3.5 Data analysis

According to Wester and Peters (2004) the core of qualitative analysis lies in reconstructing towards objectification. The analyses are intended to make sense out of the collected data, which in this case is the text of the interviews. While no predetermined themes exist, the nine building blocks of the BMC (Osterwalder & Pigneur, 2010) are used as dimensions. Also, the four expectations formulated serve as guidelines. The above means the data analysis is partly deductive and partly inductive. To help us perform the analysis in a strict and objective way, we make use of the following model:



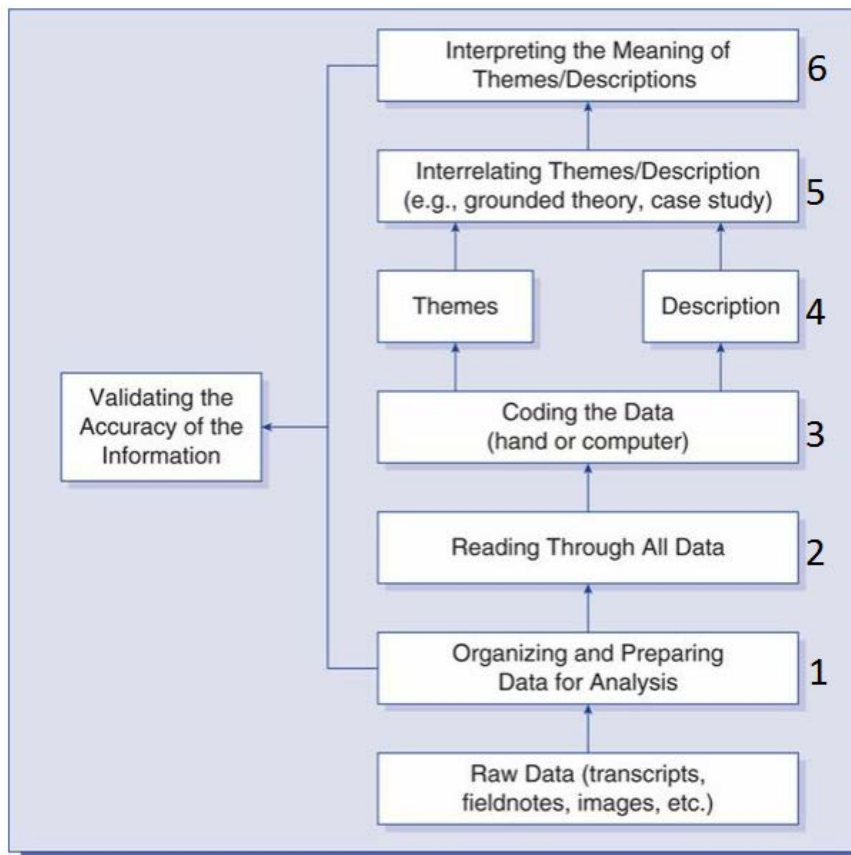


Figure 3.4: Data analysis model (Adopted from Creswell, 2014)

While the model in figure 3.4 might appear linear, in practice it is more interactive, which means the different stages are interrelated and not always visited in the order presented (Creswell, 2014). It is possible to move backwards and forwards between the six (numbered) steps, which is in line with the iterative character of qualitative research. While performing these steps, next to the work of Creswell (2014), we make use of the work of Boeije (2005) who provides some useful explanations on how to perform some of these steps. The coding was done with the help of the qualitative data analysis software MAXQDA (version 12).

### 3.6 Research ethics

Throughout the planning and execution of this research ethical considerations were taken into account. Creswell (2014) points out that in all stages of the research process the researcher should consider the ethical issues that can be anticipated. Based on the overview of Creswell (p.93-94, 2014), we discuss the most relevant ethical considerations within our research.

The first considerations relate to the participants in this study. As the data was collected via interviews, these participants play a central role in this research. It is important that these

participants are treated with care and discretion. The first thing we did here was to make sure the participants were all well-informed about the purpose of the study. We made sure that those participants who attended did so voluntarily and recordings of the interview were only made with consent of the participant. Also, the names of the organizations are anonymized and the transcripts of the interviews are not added to this paper in order to preserve the confidentiality of the participants. As a reward for their participation the respondents were offered to receive the results of this research. With regard to the reporting of this research, in order to avoid falsifying authorship, evidence, data, findings and conclusions, the guidelines of the American Psychological Association (APA, 2010) were followed. Finally, the language of this report is adapted to be appropriate for the expected audiences.

# Chapter 4: Results

## 4.1 Introduction

In this chapter the results of this research are described. To start, we provide some more information about the interviewed organizations in the form of short organization summaries followed by a comparison of the organizations based on the degree to which they were found to be servitized. Then, the results of the data analysis are addressed by discussing the changes in business model which occurred, by discussing the changes in organizational structure which occurred and by relating the changes in business model to the changes in organizational structure.

## 4.2 Summary interviewed organizations

### 4.2.1 Introduction

In this paragraph we briefly describe the operations of the interviewed organizations in this research as well as the impact of the servitization trend on the business models and organizational structures of each of these organizations.

### 4.2.2 The organizations

#### ITAS

ITAS is a global information technology organization which traditionally focused on the sale of hardware, but has long ago transformed into a service organization selling solutions, of which currently in the domains of Clouds, Analytics, Mobile, Social and Security. Since a long time ITAS works with business models in which revenues are earned via service fees rather than via prices for physical products. Customer value is created by offering their customers complete and customized products with service agreements which relieve these customers from all their worries about the IT-infrastructure of their organizations.

Acquisitions of other organizations by ITAS throughout the last decades played an important role in helping ITAS gain the knowledge and competences needed to offer these complex service packages.

## **MarinOff**

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MarinOff is an organization developing, producing and distributing components and tailor-made systems for the worldwide marine and offshore industry. MarinOff wants to expand its scope of activities with added value producing activities and aims to double its service revenues in the near future. In order to achieve this, MarinOff focuses on improving the level of customer intimacy and on moving towards the offering of more advanced services.

Developments involve engagement in condition monitoring, data mining and video inspection, exploitation of intellectual property in order to provide customized and more complete service offerings and an increased influence of service throughout the organization.

## **MarinDev**

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MarinDevs main activities involve the development, sales and service of equipment in the marine sector. Within MarinDev three business units exist: two focusing on products and a third focusing on service. While this third business unit traditionally focused on after sales services such as the delivery of spare parts, in the last years it developed towards offering more advanced services. Examples of these developments are the offering of more complete service kits, the expansion of the data infrastructure to enable cloud services and condition monitoring and the increased emphasis on shared value creation. Additional, this business unit has grown in size since service engineers originally belonging to the two product-centered business units were placed in the service unit. This was done because the service quality was below customer's standards with slow responses due to the long processing times of the two product-centered business units being the main reason for this. Over the last years, this third business unit focused on strengthening the relationship with the customers by improving the quality and range of offered services. These changes were enabled by the creation of a more proactive organizational culture.

## **FoodPro**

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FoodPro produces components and systems for sophisticated processing processes of which mostly food production processes. Two years ago FoodPro initiated a structural change process involving the transfer from five existing units towards two business units. Of these two new business units one is mainly responsible for the production of equipment while the other is responsible for offering solutions to its customers. One motivation behind this change was to improve the customer satisfaction. Additional, to achieve this improvement, FoodPro focused at moves which involved increasing the amount and quality of the service(s) offered.

This led to increased offering of more advanced services such as extended life services and consulting services. Other ways by which FoodPro joins the servitization trend is by aiming to unburden their customers, by shifting from volume to performance-based contracts and by optimizing the reliability of their products with the use of condition monitoring software.

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### **Wasman**

Wasman is a manufacturer and provider of waste management systems with sales worldwide, although mainly in the European market. Wasmans main activity is the manufacturing of refuse collection vehicles. Having noticed margins on the sale of their products had been declining, Wasman started developing the service side of their business. Here, the focus moved from concentrating on maintenance and repair activities to the sale of spare parts and the securing of their original parts in their service network. Apart from this, Wasman started consultation in the form of a mobile support line and started using software for intelligent routing and for condition monitoring in order to unburden their customers by enabling predictive maintenance.

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### **Hydra**

Hydra develops, produces and tests high-pressure hydraulic equipment for several different applications. It sells and provides maintenance and repairs to these products throughout the world via offices in various countries as well as via an extensive dealer network. With customers demanding more than the offering of a high quality product, Hydra focused at building long-term customer relationships with a high degree of customer intimacy. Several changes were made to realize this. The most noticeable changes are the creation of a more open culture in which knowledge is shared freely, the execution of large marketing campaigns directed at emphasizing the service story of Hydra, the development of an online portal which both the end-users and dealers can use to access valuable product information, a more early involvement of the service department into product development processes and the delivery of customized products made through a process of shared value creation with its customers.

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### **Inforte**

Inforte is a global organization offering products and services revolving around document management systems, production print solutions, visual communication systems and digital cameras. In short, Inforte offers its customers technological infrastructure. Over the last two decades Inforte managed to shift towards the offering of complete service packages in which

the actual products used do not dominate the revenue model employed. Important changes related to this shift are the acquisition of other organizations for their knowledge and competences, the emphasize on revenue models which involve payment based on usage rather than ownership of equipment, the involvement of customers in a process of shared value creation which leads to customized solutions and the offering of IT-consultancy and operational process outsourcing.

## **Prins**

Prins both develops and produces products and services which relate to document and information management. Around a decade ago, a new business unit focusing on providing more advanced services, was shaped by Prins as a response to changing market conditions. Activities in this business unit aim to increase the relationship with Prins' customers and involve services such as business consulting and operational process outsourcing. In the other two business units, which revolve around products, business model innovation has also occurred. Examples of this are the adoption of revenue models which involve monthly service fees, the intention to improve the contact with their dealers and the desire to increase customer intimacy. All of this relates to the fact that Prins has come to focus more on highly advanced high volume printing systems in the B2B-market, with lower sales volumes but higher prices and an increased importance of the added value concept. The above mentioned developments represent the ongoing transformation of Prins from product developer and manufacturer towards service provider. Another effect of this transformation can be seen in the management team, where the influence of service has grown significantly.

### **4.2.3 A comparison**

While all organizations described above relate in the sense that they are all involved in servitization and have all made changes to become more service oriented, the degree to which they can be called 'servitized' differs. Using online information about these organizations as well as the held interviews we have organized them based upon the extent to which these organizations are 'servitized' (see figure 4.1). The placement of the organizations in figure 4.1 is determined by looking at the relative importance of tangible goods in the current value proposition(s) of the organizations, the degree to which they offer more advanced services and the degree to which their revenue stems from service activities. Comparing figure 4.1 with figure 3.2 confirms the notion that for any position on the Product-Process Matrix different servitization options exist.

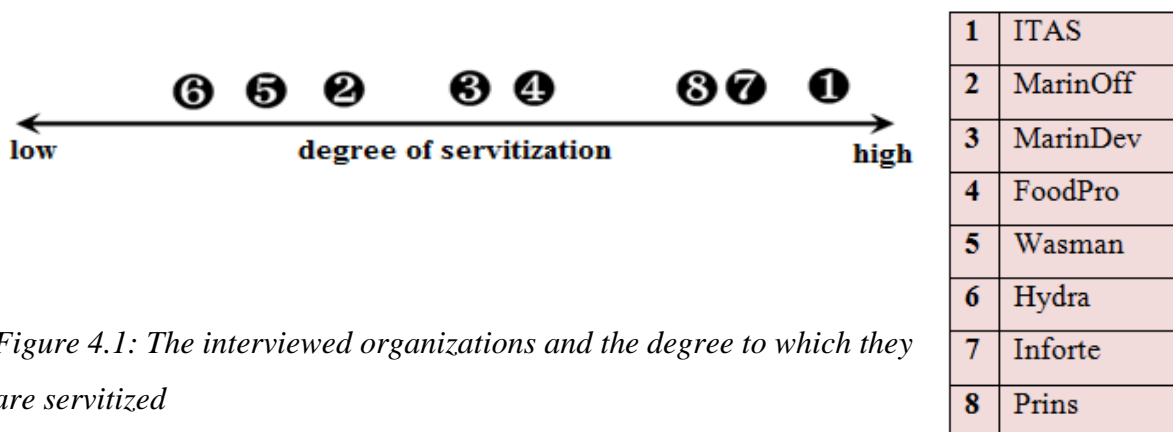


Figure 4.1: The interviewed organizations and the degree to which they are servitized

## 4.3 Outcomes coding

### 4.3.1 Introduction

In this section we describe the most relevant outcomes of this research. First we describe the changes in business model, second we describe the changes in organizational structure and third we describe how these changes relate to each other. While providing the outcomes we make use of quotes to illustrate our explanation. Note that these quotes are translated as the interviews were conducted in Dutch. Used quotes are followed by the name of the organization and the number of the fragment (in MAXQDA) where they were found. An overview of the coding can be found in Appendix B.

### 4.3.2 Changes in business model

The coding of changes in business model was done by using the nine building blocks of the Business Model Canvas (Osterwalder & Pigneur, 2010) as themes to which coded segments were assigned. After this, all the coded segments belonging to a particular building block were compared after which they were grouped in to what can be called subthemes. We describe the changes in business model by looking at the subthemes found in each of the building blocks.

#### Changes in customer segments

No relevant findings with regard to changes in how the organizations segmented their customers after the adoption of a servitization-strategy exist. For customer segmentation, most organizations used the type of product or the type of industry, with classifications remaining the same after adopting a more service-oriented focus.

## **Changes in value proposition**

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We found three subthemes which describe the changes in the value propositions of the interviewed organizations: Creating customer intimacy, offering more complete packages and unburdening the customer.

### **Creating customer intimacy**

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The first subtheme concerns the increased importance of having a close relationship with your customers and is labeled as “creating customer intimacy”. It includes a shift in orientation towards more long term relationships with customers, which is clearly stated in the following quote:

“We are not an organization which says if I can make ten euro here I will do it whatever the costs, we really try to create a long term collaboration with our clients so that this is a piece of added value which we do.” (Hydra, 24).

A good way to improve the amount of customer intimacy is by being closer to the customer. The following quote, explaining a change where offices in one country are no longer meant to be the main point of contact of a customer from a country which has its own national office, describes this: “... we must offer the client a better service, a better package, and we want to do this by being close to our customer so in all cases the sales has to be done by the organization within the country.” (FoodPro, 26).

### **Offering more complete packages**

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The second subtheme, “offering more complete packages”, involves making offers which are more complete in the sense that they consist of a bundle of products and services which can be used together.

“.. in the end it means that one provider can offer your client the complete package. So you can say we can build your factory, we can do maintenance in your factory and eventually you are only involved with one party so it is also a one-stop-shop effect for our customers.” (FoodPro, 18).

The quote above shows that by offering a complete package you can create value as one can become a one-stop-shop for your customers, offering them value in the form of convenience. Another important aspect in the offering of complete packages is the ability to customize the offer. “We are capable of making the vehicle exactly as you want it, of course within the



limits of regulation. Yes, this is a piece of value which we add.” (Wasman, 46). With this, a customized and complete package as an offer, the focus lies more on selling a solution than on selling a product.

### **Unburdening the customer**

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The third subtheme “unburdening the customer” involves relieving the customers from their concerns. One important element here is relieving customers of their worries about the downtime of their machinery by offering contracts in which a certain amount of uptime is guaranteed. The next quote shows how offering uptime can be seen as a service which creates value: “... 95 % uptime is a service which you offer to the customer which has a price tag.” (Prins, 23). In order to achieve this amount of uptime, a large focus on efficient logistic operations should exist. In case of a break down, service engineers must be on the spot as soon as possible and the same goes for the spare parts needed to make a repair. Being able to repair a broken machine within a very short time frame is something which creates value, as can be seen in the following quote where this ability is sold in the form of more expensive service contract: “... what we call delivering high availability services, say the more expensive maintenance contracts where commitments are made that repairs will be made within two or four hours.” (ITAS, 107). Not having to worry about what to do when equipment breaks down appeared to be greatly valued by the customers and it are the organizations who respond to this by offering services which involve percentages of uptime or hours of response time.

### **Changes in channels**

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Two subthemes describing the changes found in how the organizations communicated and delivered their value proposition(s) to their customers were found: “Increased importance of the dealer” and “a different type of customer”. A note to make is that while the importance of a well-organized dealer structure has risen under the adoption of a servitization-strategy, the majority of the interviewed organizations still purposely used a dual channel strategy with both direct and indirect sales channels. A main reason for maintaining a direct sales channel is the fact that many of the organizations have frequent large-scale engineer-to-order projects in which direct contact is crucial.

### **The increased importance of the dealer**

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As mentioned in the previous section an important element of the organizations' value propositions under a servitization-strategy is customer intimacy. As all of the interviewed organization sell on a global scale, using dealers to some extent becomes almost inevitable as is made explicit in the following quote: "(talking about America) ... but that land is so big you cannot, even with a 1000 salespeople, serve it well. So then you work with a sales partner model." (MarinOff, 123). Because using a dealer structure causes organizations to lose their direct line of contact with the end-user, the importance of a having good relationship with their dealer(s) increases. This is because the nature of their business is effected by the type of relationship they have with their dealers. As the dealers are the closest to the customer they are the ones who can offer the value adding services. When they do not control this, organizations may become a seller of spare-parts rather than a service provider. "If you know that even other people have to service this thing, well even your business model can, can change because often with a dealer business the business becomes parts which are sold ..." (Prins, 50). So while for the selling of products a dealer structure worked well, selling services with the use of a dealer structure requires a different approach, which is discussed later in this chapter.

### **A different type of customer**

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Two things are meant with the phrase "A different type of customer": The dealer as becoming a customer and a change of people within the end-user's organization who you have contact with. The first, the dealer as becoming a customer is in line with the above mentioned increased importance of the dealer and concerns the fact that given this risen importance the dealers rather than the end-users can be seen as customers. We do not elaborate upon this trend any further in this section as it is further discussed in the section "key partnerships". The second "different people in an organization who you have contact with" refers to a change in the roles of the persons who form the contact point within the organizations of the customer. We found that with the ongoing servitization-trend these contact points become people higher up in the hierarchy of the organization. This has to with the fact you are offering more complete packages, or said differently, solutions: "And the customer nowadays wants more solutions, they have a business problem and nowadays our client often is the CIO of an organization and not the datacenter manager, the datacenter manager has to execute it." (ITAS, 95). So now rather than selling products to people in the organization which actually

use these products, you sell solutions to those higher up the hierarchy. We believe this change of contact point results from the fact that the offering of more complete bundles involves making a sale to the customer's organization as a whole, rather than to one of departments within its organization independently.

### **Changes in customer relationships**

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Looking for changes in the relationship between an organization and its customers led to the formulation of two subthemes: "A stronger customer" and "An intensified customer relationship".

#### **A stronger customer**

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While analyzing the interviews, it became apparent that the customers bargaining power has been increasing during the last decade. While one reason for the adoption of a servitization-strategy is to innovate as such to create a competitive advantage over competitors, making it a conscious strategic move, the strongest reason appeared to be meeting the changing demands of the customer, making this a very strong customer-driven trend. "(about the increasingly higher standards the organization asks from its dealers) ... that is something which has emerged in the last 10 years of which in the last two years this strategy has been strongly applied by me. Why? Because the end-customers have higher demands." (Wasman, 44). "So if we do not handle the problem now, it is I will find another supplier then." (MarinDev, 30). The two previous quotes make clear that it is the customers who set the demands and the organizations which have to ensure they can meet these demands. Whereas before some of the organizations had a queue of customers eager to make a sale, nowadays the roles have changed and it is the organizations that have to adopt to the customer in order to make the sale.

#### **An intensified customer relationship**

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As organizations focus on creating customer intimacy and becoming a one-stop-shop the relationship they have with their customers intensifies. Rather than developing a product and selling it afterwards, the organizations involve the customers in a process of shared value creation.

"... and then together with the customer we look at what exactly do you want? What do you need for it? And then, together with the customer, we organize it to collectively reach a best solution. And you do see this we are doing this more and more." (Hydra, 126).

This more intense relation is also the result of organizations trying to offer their customers as many of their services as possible: “And then we do try to get our service portfolio as much towards the customer as possible. And that is of course the ultimate goal, that you can do the entire part” (FoodPro, 68). In the last quote doing the entire part refers to offering services to the customer at each phase of the product’s lifecycle, hereby intensifying the relationship via the offering of enhanced technical services on top of the already offered traditional life-cycle services. From the interviews it became clear that the relationships between the organizations and their customers have become more intense with more complete bundles being offered and a higher degree of customer intimacy.

### **Changes in revenue streams**

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The change found with regard to the generation of revenue is that revenue models become more and more dominated by service fees.

### **Obtaining revenue based on service fees**

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A major change in the way the organizations aimed to create revenue after the adoption of a servitization-strategy is represented by their increased focus on obtaining revenues from subscription on or usage of services rather than from product sales. An increase in revenue made from these service activities can be noticed. “That means the profit model slowly shifts from the vehicle towards other services.” (Wasman, 52). The revenue model becomes based on the amount of service(s) the customer requires: “With the connectivity program they pay a fixed amount each month and this amount goes higher and higher depending on the extent to which the customer wants extra programs.” (MarinDev, 54). The previous quote also demonstrates that with the offering of services, in this case in the form of a monthly fee, recurring revenues come to exist. Especially in the more servitized organizations the amount of this fee is not so much dominated by the product agreed upon in the contract but more by the amount of performance promised or the degree to which a service is being utilized: “Yes, that is the next step: Pay per click.” (Inforte, 30), “With a large printer for example I am not going to sell you a printer and perform maintenance on it, instead you just pay for the amount of prints you make.” (ITAS, 53).

### **Changes in key resources.**

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Two trends related to how the key resources changed after the organizations adopted a servitization-strategy were spotted and labeled as “software as a key resource” and “the changing role of human capital”.

#### **Software as a key resource**

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When focusing on the offering of more advanced services software increasingly seemed to become a key resource. Many interviewed organizations expanded to the offering of enhanced technical services and it is here where software plays a crucial role. For offering predictive maintenance, doing condition monitoring and optimizing equipment, data on this equipment is crucial and it is the software systems which provide an organization with such data.

“We have linked our installation to the internet so all data is logged. We analyze this and we look for trends so we can expect when something will break down and then we can make recommendations. So we couple our service contracts to this.” (MarinDev, 48).

The previous quote describes the situation where MarinDev has two clients which ships are coupled to the cloud, which enables them to analyze the data, which in turn helps them to serve the client better by allowing them to increase the guaranteed amount of uptime. The increasing importance of software can be related to the automation trend which is occurring: “... one of the other things that is going to happen is automation. Standard alerts and standard solutions will in many cases no longer be solved by people but much more with software with a kind of robot-like IT-robots.” (ITAS, 161). With these automation trend and the offering of more advanced services, software has become a much more central and important resource within the organizations.

#### **The changing role of human capital**

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The last quote of the previous section already shows that the function which people fulfill is changing. As with servitization comes the offering of more advanced services, people are being placed in new roles. Due to automation, when performing maintenance or repairs, knowing how to interpret parameter values becomes relatively more important whereas actually knowing how a piece of equipment works becomes less important: “Where in the past the operator stood next to the machine, next to the line and knew exactly what the status of this line was by real knowledge, nowadays they only know this by watching parameters on a monitor.” (FoodPro, 76). Next to this, and more specific to servitization, the offering of new

kinds of services brings a different kind of work. The following quote describes how in Prins, with the growth of the service department, new function came to exist:

“... if you look at that club as such they have invested in people, it where 4 or 5 before but now there are 10 to 15, all with different roles. We have business consultants, systems consultants, we have system integrators, we have project managers and we have media specialists. So a club of people with expertise and experience on this area was created.” (Prins, 96).

The above shows how functions revolving around more advanced services have come to exist.

### **Changes in key activities**

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Two subthemes which describe changes in key activities were found: “Improving the customer relationships” and “a shift towards more advanced service activities”.

#### **Improving the customer relationships**

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The first subtheme describes the increased focus on improving the customer relationship which has become present in all service related activities. As such, this subtheme does not describe an actual change in activities but a change in mindset within the people which perform the activities. “We have determined a service definition and it is build, maintain and improve customer performance.” (FoodPro, 34), “Well, what you try as an organization is to build a relationship ...” (Inforte, 24). This improved focus links to what is already told about customer intimacy and the intensified customer relationship.

#### **A shift towards more advanced service activities**

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The most noticeable change in the key activities performed by organizations which adopted a servitization-strategy is that more advanced service activities become more important. While all interviewed organizations already had a variety of traditional life-cycle services before they adopted a servitization-strategy, it was only after the adoption that most of them started developing enhanced technical services and business services. The two quotes below describe this change towards more advanced service activities:

“If we talk about servitization we say yes in the past it was only technical maintenance and nowadays we go much beyond this and we say our current manner of providing service and support or providing professional services is a major step we took in this curve that is called servitization.” (Prins, 77)

“We move to industry 4.0 with data mining, video inspection, drones, condition monitoring, remote monitoring of their own products for end-user by access to service portals etcetera.” (MarinOff, 137)

### **Changes in key partnerships**

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The subthemes “an intensified relationship with the dealers” and “a need for collaboration” were identified as trends relating to changes in key partnerships.

#### **An intensified relationship with the dealers**

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As discussed in the changes in channels, the importance and role of the dealer has changed. Rather than a mean to reach a higher volume of asset sales, when adopting a servitization-strategy, a dealer becomes an intermediary. Since the interviewed organizations focused on offering high quality services, the dealer became of great importance for them and this relationship was intensified. This closer relationship was engaged in to ensure a better service quality for the end users. Also, this closer relationship can help to ensure the sale of services to this dealer, preventing a loss of service revenues due to a loss of direct contact with the end-customers. The next quote is an example of how this changed occurred:

“But that was before, you sold the dealer a product and he went on and sold his product and if he offered a service he offered a service and if not, well he did not. But nowadays we say you may sell our product but only when you sell this along with our service contract.” (FoodPro, 102).

The following quote shows how, through training and educating the dealer, an organization can ensure its end-customers a high level of service quality: “... the dealer is trained and educated by us and is provided with all resources. He has to buy a certain package so he has all the appropriate testing equipment to begin.” (Hydra, 58)

#### **A need for collaboration**

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The other trend identified is the need for collaboration. In order to offer more complete packages, certain resources, in the form of competences or assets, need to be acquired. For instance, for the offering of third-party services, a relationship with this third-party needs to be established. The following quote describes this relationship between an interviewed organization offering an IT-solution and the third-party organization which products are used in this solution:

“... and then you have to imagine that we use this organization’s product in this solution. And then we are a reseller of this organization’s products in an IT-solution. And, then we also have a maintenance contract with this organization for its products.” (ITAS, 105).

Another example of this need for collaboration is given in the next quote about the development of software for a cloud environment: “... we do this with an organization because we do not possess this knowledge yet ...” (MarinDev, 84). Collaboration is not the only option here however, as these resources can also be obtained by acquisitions. More on these acquisitions follows when describing the themes found in the occurred structural changes.

### **Changes in cost structure**

In the interviews not many changes in the cost structure of the organization were mentioned. However, one change in cost structure can be argued: Moving towards a more value driven cost structure.

### **Moving towards a more value driven cost structure**

Rather than focusing on limiting the costs, with the adoption of a servitization-strategy the interviewed organizations seemed to focus more on maximizing the customer value. “We do not want compromise in price but we want to provide extra service and hereby make sure we can keep the price high” (MarinDev, 12). Although no other interviewed organization explicated this change in focus like in the quote above they still represent this change as this change is captured in the changing value proposition which these organizations did make explicit.

### **4.3.3 Changes in organizational structure**

While many different changes related to the organizational structure of the interviewed organization happened, are still ongoing, or are planned, these changes happen for a variety of reasons of which becoming more servitized is only one. Rather than addressing all the changes in organizational structure described in the interviews, this section aims to address only those which are at least partially related to the adoption of a servitization-strategy. Based on analyzing the changes the following themes were identified: “the growth of service”, “an increased integration of the service department into product development processes”, “growth by acquisitions”, “centralization” and “geographical dispersion”. It is important to keep in



mind that the themes discussed below are a representation of the general changes found, which means that they do not necessarily exist in each individual organization.

### **The growth of (the) service (departments)**

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The first identified theme relates to the growth of the service departments. A growth in the size of the existing service departments as well as the formation of new service departments was found. Here, with service departments we do not refer to the classic service department responsible for performing after-sales activities but to all departments focused on the offering of services. The following quote describes how a department responsible for the offering of additional services to a product, over a time period of three years, grew in size: “Professional services was simply, there were 4 to 5 people instead of 13 people.” (Prins, 92).

While the above describes a significant increase in size of this department over a relatively short period of time, this change occurs only at the micro level of the organizational structure. At FoodPro and MarinDev however, major changes in the macro structure occurred. To start, FoodPro moved from five units based on the type of product to a macro structure consisting out of two business units. Where before each of the units was responsible for both the production as well as all the service offered, in the new structure there is one business unit responsible for the production and maintenance of the produced equipment, and one business unit responsible for the offering of more advanced services. More specific, this business unit focuses on offering the clients solutions. At MarinDev a similar change in macro structure occurred as the business unit responsible for offering services was greatly expanded. This expansion was the result of moving beyond traditional life-cycle services towards enhanced technical services. Here, a number of people originally belonging to one of the two product focused business units moved towards the service unit leaving the two original units now mainly having to focus on production and sales.

In the two examples above a split between production and service can be seen. This split or disintegration, in which service activities became more independent, also occurred in other organizations. One example of this is MarinOff where a separation between production and sales (which includes service) now exists, whereas before these units were combined. “They separated that and one factually speaks about a plant (a plant is a production facility), and sales is a different world.” (MarinOff, 81). Another example of this can be seen at Hydra, where the service department was originally a part of the sales department but has changed to becoming an independent department.

Apart from changes in the production structure, the role of service also changed in the control structure of the organizations. For instance, in FoodPro every location had one managing director who almost always was the head of sales. Whereas before a vice-president service existed, who was lower in the hierarchy than the head of sales, nowadays they are of equal rank, meaning the influence of the service unit has grown here. The same growth of influence happened in MarinOff where the head of service now has a position in the board while before no service representative existed on the board. This same thing also happened in Hydra, where the service manager's role within the management team has increased. "In the past service was a part of the sales department ... so this service manager has become more active within his management team." (Hydra, 116).

### **An increased integration of the service department into product development processes**

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With the exception of ITAS, all of the organizations remained in control of at least the majority of their production. The section above describes how the service departments have become more independent of the production departments. This separation also creates an increased interdependence between the two of them. Where providing service first was only considered to be one of the activities happening in the production departments, now the providence of service is being done in a separate department. While mostly the service activities have become disintegrated of production activities, in the area of product development movements towards a higher degree of integration were found. The movements referred to involve an increased influence of the service department into product development processes and were found at Wasman, MarinOff, MarinDev, Hydra and Prins. As in these organizations service was usually already somehow involved in the product development processes, it is the moment from which service enters these trajectories which has changed: "Nowadays you much more often see professional services being involved in the project from the start of the first day in order to, in R&D, well just to score ..." (Prins, 112), "... in fact from the offering phase someone with service knowledge has to participate in the design process to ensure you can do your job well later." (MarinOff, 160). "(talking about a product development process) ... and you will also see that in a very early stage people from the service department are also involved in this kind of trajectories." (Hydra, 67). The three quotes above illustrate how service is now involved in the product development process very early on. This earlier engagement and the resulting higher influence of the service department is what we describe as an increased integration of the service department into the product development processes.

## **Growth by acquisitions**

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As mentioned in the section about changes in key partnerships, acquisition of other organizations is the alternative to collaboration when interested in the resources possessed by these organizations. In the interviewed organizations' acquisitions played a large role in their growth. Of the interviewed organizations there were both organizations which performed acquisitions as well as organizations which themselves have been acquired by different organizations. We limit our description of the impact of acquisitions on organization structure to those organizations which have been acquiring other parties themselves. This is done since for the organizations which have been acquired, we cannot determine to which extent the take-over by the other party was triggered by a servitization-strategy. The organizations that frequently and consciously have acquired other organizations over the last decade(s) are Inforte and ITAS. The effects of an acquisition on the organizational structure of an organization can differ tremendously based on the type of the acquired organization and the motivations to buy such an organization. Because of this, a generalization of how an acquisition affects the organizational structure of an organization is impossible. Therefore, two examples which provide insight into how acquisitions are related to changes in business model are given. The first example concerns the acquisition of an IT-organization in Germany by Inforte. This acquisition was made in order to obtain the IT-knowledge of this organization so as to enable the growth of the IT-consultancy services offered by Inforte. The second example is the acquisition of an entire consultancy department by ITAS. This acquisition served the development of a department focusing on providing consulting services. The two examples above demonstrate how a servitization-strategy can trigger the acquisition of other organizations, which leads to structural changes.

## **Centralization**

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Another theme, relating to the control structure of the organizations, concerns the centralization trend noticeable in the interviewed organizations. While in Hydra decentralization occurred, in ITAS, MarinOff, Inforte, FoodPro and MarinDev centralization took place. With the international expansion of the organizations and their growth via acquisition, standardization was increasingly used as a control mechanism:

“Because what you do not want is that all kinds of country specific processes come to exist, that is something you often do not want as a big organization and then you see if after an

acquisition you are able to standardize the type of service to make this service a European standard” (Inforte, 97).

“The second is that we can work on a global pricing strategy, so a machine or part you sell in Germany is offered in a similar manner in America, China or anywhere” (FoodPro, 18).

“Before the service offices could do their own thing, however now we are forced into standard processes more and more” (MarinOff, 63).

The quotes above illustrate how the control within the interviewed organizations has moved more towards a central level, with the local offices having a decreased amount of autonomy.

### **Geographical dispersion**

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The last theme discussed is the increased geographical dispersion of the organizations. Mind that while some of the respondents used the term ‘decentralization’ to describe this trend, we choose to use the term ‘dispersion’ since in the MST (de)centralization is used to describe the control structure and not the production structure (to which this trend belongs). The dispersion happened primarily in the commercial environment of the organizations and involves organizations being more spread out geographically. An example of this is MarinDev which originally worked with a pool of service-engineers stationed at one central location but moved on to the opening of service points in different countries instead: “Yes we are spread geographically to respond quicker to the demands of the customers” (MarinDev, 114). The motive behind this change is the ability to better respond to the customer demands, which is also made explicit by FoodPro: “We have to offer the customer a better service, a better package and we want to do that by being close to our customers” (FoodPro, 26). Although more service activities are being organized locally, this does not mean decentralization occurred (we are talking about the control structure here). This is shown by the following quote of Wasman, in which geographical spread increased but the control of activities remained at a central level: “The aftersales is organized locally but the vision and development is done by me” (Wasman, 21). The examples above show how the adoption of a servitization-strategy led to increased geographical dispersion among the organizations.

## **4.4 The relationship between changes in business model and changes in organizational structure**

### **4.4.1 Introduction**

Having described the most relevant changes occurring in both the business models and the organizational structures of the interviewed organizations we now describe how these changes relate to each other. Before doing this however, we reflect on the four formulated expectations.

### **4.4.2 The expectations**

Before collecting the data, several expectations about the relationship between organizational structure and more servitized business models were made explicit (2.5). Having collected and analyzed the data, we discuss whether our findings support or contradict these expectations.

**Expectation 1: The more an organization moves towards a more servitized business model, the more changes in organizational structure this requires.**

This expectation implies that for expanding to the offering of enhanced technical services less changes in organizational structure are needed than for expanding to the offering of business services. In order to investigate the expectation, we look at the changes which occurred with respect to the organizational structure and with respect to the offering of more advanced services. Looking at the left side of figure 4.1 Hydra, Wasman and MarinOff can be considered as similar in this respect as they have moved to the offering of enhanced technical services but are still pioneers when it comes to the offering of business services. In both of these three organizations no major changes in organizational structure were found. Moving more to the right are MarinDev and FoodPro which both offer, to a certain extent, business services. Both have had a significant change in organizational structure: MarinDev greatly expanded a business unit and FoodPro moved from five business units to two business units. Even further to the right of figure 4.1. are Prins, Inforte and ITAS, which all offer a wide range of business services which shape a vital part of their business. In all of these three organizations major changes in organizational structure occurred. For these organizations, the major changes are spread over a longer of period of time, which fits the fact that these organizations have been involved in servitization for several decades already. The previous descriptions support the expectation since those organizations which have expanded to an integration of business services in the core of their business have been involved in

transformation processes with large structural changes, whereas those organizations that only expanded to an integration of enhanced technical services had little significant changes in organizational structure.

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**Expectation 2: The more an organization moves towards a more servitized business model, the more it outsources its production processes.**

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Of all the interviewed organizations, only ITAS outsourced the majority of its production processes. Wasman did outsource the production of stationary waste compactors, however this is not considered to be their core product, since these are the refuse collection vehicles which they still produce themselves. As seen in figure 4.1, ITAS is considered to be the most servitized organization, therefore their outsourcing fits the expectation. The fact that all the other organizations are still in charge of production themselves does not support this expectation however. Looking at section 2.5, we see the reasoning behind the expectation was the idea that under a servitization-strategy production activities are no longer key activities. This idea however did not correspond with the input collected in the interviews, in which the value of production activities, even after the adoption of a servitization-strategy, was emphasized. A possible explanation for this, already mentioned in section 4.3.3., is that the production processes should not be outsourced because this leads to a loss of valuable intellectual property. Since all the organizations produce relatively complex products this intellectual property can be seen as a key resource, explaining why only little outsourcing of production took place.

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**Expectation 3: The more an organization moves towards a more servitized business model, the more it becomes decentralized.**

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In contrary to what was expected, see section 4.4.4, in most organizations mainly centralization processes have occurred. The only organization which became more decentralized is Hydra. Thus, our findings do not support this expectation. More about how centralization fits a more servitized business model is discussed in section 4.3.3.

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**Expectation 4: The more an organization moves towards a more servitized business model, the more integration between service and production activities occurs.**

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This expectation was based on the idea that a better integration between the production and the service department would lead to a freer flow of knowledge and hereby to more tailored solutions. Within the interviewed organizations however, the adoption of a servitization-

strategy led to the creation and growth of more independent departments. As a result, the production and service activities were performed more independent of each other, hereby contradicting this fourth expectation. Important to note is that these independent service departments were in fact capable of creating more tailored solutions. A possible explanation for this is that with the creation of these departments a change, from having departments needing to balance both production and service towards independent service departments which can focus on providing its customer the best solutions, came to exist. Where before service was only a small part of the production department receiving only limited attention, now service is seen as very important and has gotten a larger influence throughout the organizations.

#### **4.4.3 The found changes in organizational structure**

Having reflected on the expectations, in this section the relationship between changes in business model found and changes in organizational structure found is discussed. An important notion when discussing this relationship is that changes resulting from the adoption of a servitization-strategy do not happen independent of each other, but are in fact interrelated.

##### **The growth of (the) service (departments)**

The growth of (the) service (departments) fits the changes made in the business model since all these changes originate from the idea to offer more service(s). The growth in size is necessary to enable the creation of customer intimacy, the offering of more complete packages and the unburdening of customers. This is because these propositions require a shift in key activities towards more service-oriented tasks which focus on improving the customer relationship and on offering more (advanced) service(s). The role of human capital changes here as people are more and more assigned with tasks which involve service activities rather than production activities. The disintegration between the production and service departments relates to the offering of more complete packages, which include more advanced and more tailored services which are not directly related to the product and therefore do not require a tight integration between these two departments. Also, with a more value driven cost structure the increasing costs resulting from the growth of service can be justified as these service activities aim at the creation of extra value. Finally, the all-out increased importance of service throughout the business model and the resulting growth of service fits the increased influence of service in the control structure.

### **An increased integration of the service department into product development processes**

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The increased involvement of service (departments) into product development processes can be related to several different changes in the business model. First, the involvement leads to products with an increased serviceability, which fits the unburdening of the customer as it can improve the uptime of the equipment. The realization of this higher uptime can be seen as the offering of a service which can be enabled by the use of condition monitoring software. The option to enable condition monitoring is something the service department can ask for in the product development process and hereby is an example of how this increased influence supports the changes in business model mentioned above. Additional, the service department can use its increased influence in the product development processes to ensure the production of products which fit the increasing demands of the customer better, hereby creating value in the form of customer intimacy.

### **Growth by acquisitions**

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Since we already mentioned that acquisitions can have many different impacts on organizational structure, due to the unique circumstances of each acquisition, we now discuss how changes in business model relate to acquisitions. First, the two examples given in section 4.3.3. show how acquisitions can lead to knowledge needed to develop more advanced services. It is this development which can subsequently enable the offering of more complete packages. Acquisitions can also be made to acquire resources such as software and people experienced in performing service activities. Last, as servitization leads to an increased importance of the dealer and more need for collaboration, an acquisition can be a mean to decrease the dependency upon partners.

### **Centralization**

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The centralization trend can primarily be linked to the offering of more complete packages and the change in type of customer. Centralization is useful in order to offer the customer, which changed to being a person higher up the hierarchy of the customer's organization, the complete packages it wants. This is because offering a combination of products and services was found to be easier when these products and services are standardized and specified at a higher organizational level.



### **Geographical dispersion**

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The increased geographical dispersion of the organizations can be related to the focus on creating customer intimacy, the unburdening of customers and the intensified relationship with the dealers. First, geographical dispersion fits the creation of customer intimacy as being closer to a customer can help to make more customized offers. Second, geographical dispersion fits the unburdening of the customer since it allows the organization to respond quicker and more accurate to their customer's problems. A smaller distance to the customer can allow the offering of high availability services, hereby supporting a higher percentage of uptime. Additional, geographical dispersion may help organizations to become less reliant upon their dealer network. More geographical spread may increase the amount of control an organization has over its dealer(s). Last, being closer allows organizations to train their dealers better, which leads to a higher service quality for the end-users.

#### **4.4.4 A final word**

Having discussed how changes in organizational structure in the interviewed organizations relate to changes in business model showed how together these changes supported development towards becoming a more servitized organization. The changes described turned out to be very much interrelated. We noticed that changes in the different building blocks of the business model fit each other and together create a consistent whole. Changes in organizational structure complement the changed business models and hereby contribute to the realization of the changed value propositions. The changes in value proposition are crucial since they shape both changes in the other building blocks and changes in organizational structure. Important here is that these changes in value proposition are mostly driven by a stronger customer setting higher and different demands.

# Chapter 5: Discussion & Conclusion

## 5.1 Introduction

In this final chapter the research question is answered, after which the research quality, results, limitations and recommendations for further research are discussed.

## 5.2 Conclusion

The aim of this research were 1) to provide insight into the effects of a servitization-strategy on changes in business model and organizational structure and 2) to provide insight into the relationship between these changes. The following research question was formulated to aid reaching this aim:

*What are the effects of the adoption of a servitization-strategy on changes in business model and organizational structure and how do these changes relate to each other?*

The first element in the above research question relates to a description of the occurred changes. With regard to business model changes, the following was found: An increased focus on creating customer intimacy, offering more complete packages and unburdening the customer, an increased importance of the dealer, a different and stronger customer, a more intense relationship with both customers and dealers, a revenue model based on service fees, software as becoming a key resource, a changed role of human capital, improvement of the customer relationship and the offering of more advanced services becoming key activities and a larger need for collaboration with external parties. With regard to changes in organizational structure, the following five changes were identified: A growth of the service departments, an increased integration of the service departments into product development processes, growth by acquisitions, centralization and geographical dispersion.

The second element in the research question relates to describing the relationship between the changes in business model and organizational structure. To help in answering this, four expectations about this relationship were made explicit. These expectations led to four distinct findings about this relationship. First, the expansion from enhanced technical services towards offering business services showed to be accompanied by more significant changes in organizational structure than the expansion from traditional life-cycle services towards enhanced technical services, hereby supporting the idea that the more a business model

becomes servitized the more radical changes in organizational structure further development requires. Second, a more servitized business model was not found to be related to increased outsourcing of production activities. Third, in a more servitized business model centralization rather than decentralization was found to be more common. Fourth, more servitized business models were found to relate to the existence of more independent service departments. Here, more independent relates to the fact these services activities are performed in departments which are not directly involved in production activities.

Apart from the relationships captured in the expectations, we looked at how the changes in organizational structure found related to changes in business model. What was found with regard to these changes, which also holds for the changes captured in the expectations, is that they are greatly triggered by the changes in the value proposition of the organizations. It is these changes in value proposition which dominate the transformation of both the business model and the organizational structure. A very important thing to note here is the interrelatedness of the changes within the business model; changes in a specific building block do not happen independent of each other, but instead all fit and complement each other, hereby forming a business model with a high degree of internal consistency. It is also for this reason that the changes in organizational structure should be looked at from the perspective of the entire change of the business model rather than from the individual changes in the building blocks of the business model.

Taking all of the above into account we can say that when traditional manufacturing organizations start to transform into service providers it is the customer driven changes in value proposition which are crucial in determining how the business model and organizational structure are reshaped.

## **5.3 Discussion**

### **5.3.1 Introduction**

In this section the conducted research is reflected upon. In doing this we include notions referring the four general criteria for the evaluation of qualitative research as defined by Lincoln and Guba (1985): credibility, transferability, dependability and confirmability. First we start with a reflection on the results of this research, second we discuss what was done to ensure the quality of this research, third we discuss the limitations of this research and to conclude, we formulate recommendations for further research.

### **5.3.2 The results**

The results described in the previous chapter are based on the analysis of the eight interviewed organizations. Describing these changes in both business model and organizational structure as well as relating them to each other enabled us to provide an answer to the research question. While in the organizations similar changes occurred, they must always be seen from within the context of the individual organization. This context is needed to understand why certain changes were made. Since every organization is unique, no universal best options with regard to changes in business model or organizational structure exist. Because of this, the described results must not be seen as prescriptions of how the business models and organizational structures of organizations should be changed after the adoption of a servitization strategy. Instead, the results aim to increase the understanding of how certain changes in business model correspond with changes in organizational structure.

During the data analyses we saw both differences and similarities in the servitization-strategies of the interviewed organizations. We believe these similarities stem from the fact that all the organizations are or were traditional manufacturing organizations operating in a B2B market and focusing on products with a relatively long lifespan, and were therefore embedded in a relatively comparable context. The differences are believed to stem firstly from the fact that every organization has its unique story, but also from the fact the organizations are producing different products and operating in different industries. An influencing factor here, not directly relating to the type of product or industry, is the degree to which a product can be considered a commodity. We believe this factor has important implications when it comes to the changes made as the result of a servitization strategy, because we believe servitization becomes more relevant when a product is more

commoditized. This is because for commoditized goods services, rather than the products, enable differentiation and competitive advantage. Additional, for more commoditized goods the outsourcing of production is more logical as the production process does not lead to as much valuable intellectual capital as production processes of less commoditized products do.

The results of this research both contribute to the academic field by providing insight in the relationship between servitization, business model change, and organizational restructuring by showing concrete changes and describing how these concrete changes relate to each other. Additional, because these changes are rather concrete, the insight provided by this research can help practitioners form their servitization-strategy.

### **5.3.3 Ensuring the research quality**

During the research process several actions were made in order to ensure the trustworthiness of the research. First, a great deal of attention was paid to the establishment of both the theoretical and methodological frameworks. These frameworks served as a guide throughout the research enabling us to process and interpret the data in a proper way. Next to this, these frameworks showed the background of this research and the manner in which the used concepts in this study were approached. The extensive description of these two frameworks aimed to provide consistency within this study as well as to enable a repeat of this study within a similar context.

Second, feedback of the respondents was used in this research. After finishing the result section, the research was sent to the respondents with the question to provide feedback on the validity of the described results. The feedback of the respondents, mainly focused on the interpretation of the quotes, was used to provide extra context on the examples and quotes used. With the description of this extra context, a correct interpretation of these quotes has become more likely.

Other actions made to ensure the trustworthiness of this research involved the recording and transcription of the interviews, which enabled the coding to happen based on the exact formulations used in the interviews, and the explication of the used reasoning throughout this research.

A final note on the research quality involves the role of me as a researcher. Working on my master thesis independently, my only interest was to give an as accurate description of the explained changes.

#### **5.3.4 Limitations**

Even though a great deal of effort has been spent to ensure the quality of this research, several possible limitations should be taken into account.

First, a general limitation relates to the fact that while in the process of determining which changes in business model and organizational structure resulted from the adoption of a servitization-strategy some degree of subjectivity was involved. As in many organizations the change processes had multiple motivations, of which becoming more servitized was only one, those changes described in the result sector were only a subset of the many changes occurred. Apart from the use of statements from the participants, logical reasoning was used to determine which changes in organizational structure were likely to be the result of the adopted servitization-strategy. This reasoning process was exposed to subjectivity. Because of this, the readers of this paper should use their own judgment when interpretation the relationship between the changes described and their fit within servitization trend.

Second, in some of the interviews the respondent declared that, since the interviewed respondent was not directly involved in the execution of a servitization-strategy, another individual within the organization may have more relevant information. Due to a limited amount of time however, it was not possible to conduct extra interviews. Because of this, in some interviews the servitization story of the organizations was described with relatively little depth, leading to less accurate depictions of the role that servitization played within these organizations.

A third limitation relates to the retrospective nature of this research. A large number of the changes and/or developments described by the respondents happened relatively long ago (from years to even decades), creating a large space for memory biases. Because of this, some past events may have been recalled while others were forgotten. Additional, it might be hard to describe the ideas behind changes which happened relatively long ago. Possible occurrence of these kind of biases, see Schacter (1999) for a number of examples, should be taken into account.

#### **5.3.5 Recommendations**

The fact a number of limitations in this study exist does not vacate the value of this research. In contrary, these limitations provide us with valuable input for further research. For instance, a repetition of this study on a larger scale may yield very interesting results. In this repetition,

the larger number may lead to a larger number of found changes in business model and organizational structure, because the bigger size makes it easier to spot trends, painting a more complete picture. Additional, a more longitudinal research design may help as it can decrease the biases resulting from retrospective questions by collecting data at two or more periods of time. Apart from further qualitative studies, further quantitative studies might also be valuable since they can 1) help to determine the causal relationship between the three core concepts in this research, 2) investigate the role of industry type and 3) investigate the influence of the degree to which the sold products are commodities. We conclude with the notion that before moving to quantitative research, some further qualitative research on this topic should be done since this research area is relatively new and this report is only at the beginning of the exploration of the relationship between organizational design and the ever more common trend of servitization.

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# Appendix A: Interview guide (in Dutch)

Aandachtspunten:

- Tijdmanagement
- Aanhouden vragenschema (afvinken)
- Controleren antwoorden: reflectie + bevestiging
- BMC, SMM en parameteromschrijving paraat
- Focus op het verzamelen van RELEVANTE-informatie.

## **Inleiding interview**

### **Informatie over het onderzoek**

- Samenvatting (uitleggen begrippen servitization, business model en organisatiestructuur)
  - Servitization: De beweging waarin bedrijven aanbiedingen hebben waarbinnen service meer centraal staat.
  - Business model: De manier waarop een organisatie waarde creëert, vastlegt en overbrengt.
  - Organisatiestructuur: Hoe de activiteiten gegroepeerd en gelinkt zijn (op drie niveaus).
- Doel van het onderzoek en interview

### **Informatie over het interview**

- Semi-gestructureerd interview
- Lengte +- 60 minuten, uitloop mogelijk?
- Inhoud: organisatie en organisatiestructuur, servitization en business model changes, veranderingen organisatiestructuur, wederzijdse invloeden.

### **Vertrouwelijkheid**

- Bestemming resultaten, anonimiteit, vrijwillige deelname en beantwoording en toestemming beantwoording, opname.

## **Organisatiestructuur**

### **De organisatie**

- *Hoofdvraag: Hoe ziet de organisatiestructuur eruit?*
  - Hoe ziet het primaire proces eruit?
    - Welke afdelingen kent de organisatie
      - Welke teams zitten er binnen deze afdelingen?
      - Hoe zijn deze teams/afdelingen aan elkaar gekoppeld/ van elkaar afhankelijk?
    - Maken, voorbereiden en ondersteunen als activiteiten?
    - Hoeveel regulerend vermogen/verantwoordelijkheid hebben de afdelingen/ teams hier?
  - Hoe wordt de organisatie bestuurd?
    - Besluiten op strategisch, ontwerp en operationeel niveau.
    - Welke hiërarchische lagen zijn er te onderscheiden?
    - In hoeverre is er sprake van centralisatie of decentralisatie?
  - Hoe groot deel van de waardeketen beslaat de organisatie?
    - Wordt de productie en serviceverlening helemaal door de organisatie zelf gedaan?

## **Servitization & Business model changes**

- *Inleidende vraag: Zou u kunnen omschrijven welke rol servitization binnen uw organisatie speelt?*
  - Zijn de veranderingen gepland geweest? (aanwezigheid van een servitization-strategie)
  - Ontwikkeling over de afgelopen jaren? Hoe lang al aanwezig?
  
- *Hoofdvraag: Kunt u beschrijven hoe uw business model de afgelopen jaren veranderd is (als gevolg van de adoptie van een servitization-strategie) met betrekking tot...*
- 1. ... de manier waarop uw organisatie segmenteert naar bepaalde klantgroepen?**
  - a. Welke klantgroepen worden er binnen uw organisatie onderscheiden en welke zijn het meest belangrijk (geworden)?

- b. Welke veranderingen hebben hierin plaatsgevonden?
    - i. Herdefiniëring, toevoeging of eliminatie van bepaalde segmenten.
- 2. ... de manier waarop uw organisatie waarde biedt aan haar klanten?**
  - a. Hoe biedt uw organisatie haar klant waarde?
    - i. Welke problemen lost uw organisatie op?
    - ii. In welke behoeften voorziet uw organisatie?
    - iii. Wat typeert uw specifieke aanbod?
    - iv. Hoe zijn producten en diensten binnen het aanbod gecombineerd?
  - b. Welke veranderingen hebben hierin plaatsgevonden?
- 3. ... de manier waarop uw organisatie met haar klanten in contact staat?**
  - a. Hoe zien de communicatie-, distributie- en verkoopkanalen eruit?
  - b. Verlopen deze kanalen direct via uw bedrijf of via (één) partner(s)?
  - c. Welke veranderingen hebben hierin plaatsgevonden?
- 4. ... het type relatie die uw organisatie met haar klanten aan wil gaan?**
  - a. Is hoeverre is de relatie persoonlijk dan wel geautomatiseerd?
  - b. In hoeverre ligt de focus op het behoud van bestaande klanten versus het winnen van nieuwe klanten?
  - c. Hoe zijn deze relaties veranderd?
- 5. ... de manier waarop inkomsten worden gegenereerd?**
  - a. Hoe ziet het verdienmodel eruit?
    - i. Productverkoop, gebruikstoeslag, subscriptie, huren/leasen, licensing etc.
    - ii. Vaste of variabele inkomsten (eenmalige/continue betalingen)?
  - b. Wat is hierin veranderd?
- 6. ... wat uw organisatie definieert als haar key resources?**
  - a. Wat zijn de key resources van uw organisatie?
    - i. Zijn dit fysieke, financiële, intellectuele of menselijke middelen?
    - ii. Bezit de organisatie deze of worden ze geleased van (een) partner(s)?
  - b. Welke veranderingen hebben hier plaatsgevonden?
- 7. ... wat uw organisatie definieert als haar key activities?**
  - a. Wat zijn de belangrijkste activiteiten van uw organisatie?
    - i. Productie of service activiteiten?
  - b. Welke veranderingen hebben hier plaatsgevonden?

**8. ... wat uw organisatie definieert als haar key partnerships?**

- a. Wat zijn de belangrijkste samenwerkingspartners van uw organisatie?
- b. Wat zijn de redenen voor het aangaan van de samenwerkingsverbanden?
  - i. Motivaties: optimalisatie allocatie van middelen en activiteiten, risico- en onzekerheidsreductie of acquisitie bepaalde activiteiten of middelen?
- c. Welke veranderingen hebben hier plaatsgevonden?

**9. ... de wijze waarop uw organisatie kosten maakt?**

- a. Wat zijn de belangrijkste kosten?
  - i. Hoe zijn deze verbonden aan de key resources en key activities?
- b. In hoeverre ligt de focus van uw bedrijf op het minimaliseren van kosten versus het maximaliseren van waarde?

**Veranderingen organisatiestructuur**

- *Hoofdvraag: Kunt u beschrijven hoe de organisatiestructuur van uw bedrijf de afgelopen jaren veranderd is als gevolg van de adoptie van een servitization-strategie? (letten op samenhang tussen veranderingen)*
  - Verdere ontwikkelingen meer structurele veranderingen?
  - Outsourcing van de service-activiteiten?
  - Centralisatie versus decentralisatie?
  - Integratie van service- en productieactiviteiten?

**Afsluiting:**

**Vragen:**

- Heeft u het gevoel dat er iets nog niet aan bod is gekomen of wilt u verder nog iets kwijt?
- Heeft u nog verdere opmerkingen over of tips voor de structuur en/ of de inhoud van dit interview?

**Afronding:**

- Bedanken
- Overleg uitwisseling resultaten + verloop verder contact (opsturen transcript, opsturen onderzoek)

## Appendix B: Overview coding

|                      |                                     |   |   |
|----------------------|-------------------------------------|---|---|
| <b>Servitization</b> | Changes in business model           | Value proposition   | Creating customer intimacy                        |
|                      |                                     |   | Offering more complete packages                   |
|                      |                                     |   | Unburdening the customer                          |
|                      |                                     | Channels  | The increased importance of the dealer            |
|                      |                                     |   | A different type of customer                      |
|                      |                                     | Customer relationships  | A stronger customer                               |
|                      |                                     |   | An intensified customer relationship              |
|                      |                                     | Revenue streams   | Obtaining revenue based on service fees           |
|                      |                                     | Key resources   | Software as a key resource                        |
|                      |                                     |   | The changing role of human capital                |
|                      |                                     | Key activities  | Improving the customer relationships              |
|                      |                                     |   | A shift towards more advanced service activities  |
|                      |                                     | Key partnerships  | An intensified relationship with the dealers      |
|                      |                                     |   | A need for collaboration                          |
|                      |                                     | Cost structure  | Moving towards a more value driven cost structure |
|                      | Changes in organizational structure | The growth of (the) service (departments)   |   |
|                      |                                     | An increased integration of the service department into product development processes |   |
|                      |                                     | Growth by acquisitions  |   |
|                      |                                     | Centralization  |   |
|                      |                                     | Geographical dispersion   |   |