

ABSTRACT

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The purpose of this study is to find out the role of servitization in small and medium-sized manufacturing firms. The study contributes to the understanding of the importance of services in business today. Previous theoretical findings suggest there is an increasing focus on services within companies, as services provide a competitive advantage for companies while meeting customers' growing demands for higher quality and more diverse services. The empirical part of the research is conducted as a qualitative study, the data of which were collected from four interviews. The results show how the importance of services in small and medium-sized companies is widely recognized, even though companies mainly provide the base and intermediate services to their customers. However, many companies intend to provide services on a larger scale in the future. The importance of services for manufacturing companies will continue to increase, and companies should focus more and more on expanding their services.

TIIVISTELMÄ

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Tämän tutkielman tarkoituksena on selvittää palvelullistamisen roolia pienissä ja keskisuurissa teollisuusyrityksissä. Tutkielman avulla saadaan parempi käsitys palveluiden merkityksestä tämän päivän yritysten liiketoiminnassa. Aiemmat teoreettiset tutkimukset esittävät, että palveluiden tarjontaan keskitytään yrityksissä entistä enemmän, sillä palvelut tarjoavat kilpailuetua yrityksille samalla kun vastataan asiakkaiden kasvaviin vaatimuksiin laadukkaammasta ja monipuolisesta palvelusta. Tutkielman empiirinen osa on toteutettu laadullisena tutkimuksena, jonka data kerättiin neljästä haastattelusta. Tuloksien perusteella voidaan todeta, että palveluiden merkitys pienissä ja keskisuurissa yrityksissä tunnustetaan laajalti, vaikkakin yritykset tarjoavat pääosin perus- ja keskiasteen palveluita asiakkailleen. Useimmilla yrityksillä on kuitenkin aikomuksena tarjota palveluita entistä monipuolisemmin tulevaisuudessa. Palveluiden merkitys teollisuusyrityksissä tulee vain kasvamaan, minkä vuoksi yritysten tulisi keskittyä yhä enemmän palveluidensa laajentamiseen.

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1 INTRODUCTION

Companies in the manufacturing industry have always provided services, by delivering spare parts, fixing equipment, educating employees, or performing maintenance. However, due to the competitive markets, companies aim to discover new opportunities in the business where the focus is more on services. (Kowalkowski, Witell & Gustafsson, 2013) Manufacturing firms are significantly changing the way products and services are produced and marketed (Baines, Lightfoot, Benedettini & Kay, 2009a). Nowadays, services are more often value-adding factors for firms (Pawar, Beltagui & Riedel, 2009). Wise and Baumgartner (1999) note how manufacturing companies are transforming their offering from manufacturing to more valuable product-related services. Manufacturers are changing their focus from tangible goods to customer solutions by adding services to their providing while aiming to diverse opportunities for growth and increased returns (Matthyssens & Vandenbempt, 2008). The transition is called servitization, first defined by Vandermerwe and Rada (1988) in the late 1980s. Since then, the phenomenon has received increased attention from practitioners and scholars (Zhang & Banerji, 2017). This thesis explores the increased importance of services in manufacturing companies and how the companies are reacting to the servitization of manufacturing. This chapter introduces the thesis topic by clarifying the background of the study and presenting the research gap and research questions as well as the key definitions, research framework, and preliminary literature review. Lastly, the chapter presents the exclusions and limitations of the study and explains the structure of the thesis.

1.1 Background

For manufacturing firms, it is necessary to take action towards more innovative and highly evolved products and services and develop business from a pure manufacturing company to higher in the value chain. In advanced national economies, where the service sector has become significantly important, manufacturers cannot rely on their traditional strategies. Instead, they need to

evolve their offerings to be able to compete also in the future. (Neely, 2008; Cameron & Quinn, 2011) Besides, limited revenue growth, slow improvement, lowering margins, and decreased product lifecycle force companies to find new businesses while the progress of the markets, customers, and technologies create additional opportunities for businesses. As a result, more and more companies have started providing products and services, also called integrated solutions, for certain customers' needs. (Kowalkowski, Gebauer & Oliva, 2017b; Windahl, Andersson, Berggren & Nehler, 2004; Davies, 2004)

Many changes in business strategies have been notified, and companies elaborate more advanced services than before. The importance of services is growing, and the change is occurring globally in almost all industries. (Posselt, 2017) Services make a significant difference in companies' income and performance, and some companies get more than 50 percent of revenue from their services (Baines & Lightfoot, 2013). What comes to the services in the Finnish economy, the share of services has been increasing steadily at the same time as the share of manufacturing has been decreasing. Currently, services represent approximately 70 percent of gross value added. (Statistics Finland, 2019)

The transition from product-based to a service-based company is referred to be favorable as the process offers a choice for sustainable competitiveness. Also, it brings financial, strategic, and marketing benefits for firms who intend to get more value from the providings. (Kinnunen & Turunen, 2012; Posselt, 2017) Companies have realized that offering services in addition to products are an effective opportunity to increase differentiation, which leads to higher customer satisfaction and value for customers (Vargo & Lusch, 2004a). Successfully implemented services can also benefit companies' growth (Kowalkowski et al., 2017b). Overall, the various benefits of services and examples of successful transitions to service business encourage firms to change their focus to service growth strategies and to add services to their offering (Wise and Baumgartner, 1999; Kowalkowski et al., 2017b).

Even though there are often discussed the benefits of servitization, the servitization process is considered demanding, and companies often encounter failures while aiming to extend their service businesses. Transforming to the service business is not a simple process, and Gebauer, Fleisch, and Friedli (2005) state the transformation might lead to a 'service paradox' where manufacturing companies, who invest by extending and developing their services with higher costs, do not reach expected higher revenues. Additionally, in some cases, essential investments in the service business are not implemented in the companies (Gebauer & Fleisch, 2007). Companies recognize the change from products to services, but managers find it difficult to manage and redirect the shift. The transition requires new ways of conducting business, and only a few managers are motivated to focus on the resources expanding service business. (Kindström, 2010; Gebauer & Fleisch, 2007)

Servitization has received interest widely from scholars, business executives, and policymakers, and there have been published many studies of the phenomenon (Baines et al., 2009a). Although, most servitization studies focus on large corporations operating globally rather than small and medium-sized enterprises (SMEs) even if most of the companies are SMEs in developed countries (European Commission, 2019; Kowalkowski et al., 2013). For example, in Finland in 2016, over 99 percent of the enterprises were small and medium-sized (Statistics Finland, 2019). Besides, there is only a little knowledge of SMEs focusing on services (Kowalkowski et al., 2013), and the current understanding of servitization does not refer to all servitized firms (Valtakoski & Witell, 2018). For that reason, this study aims to fill the research gap by exploring servitization in small and medium-sized enterprises. Furthermore, the literature has pointed out the organizational culture related to servitization (Dubruc, Peillon & Farah, 2014), and the importance of technologies for services in manufacturing (Coreynen, Matthyssens & Van Bockhaven, 2017), which is why this study focuses on these concepts as well.

1.2 Research objectives and research questions

The main purpose of this thesis is to explore servitization and discover the role of the phenomenon in SMEs in manufacturing sector. In addition to the main research question, there are determined four sub questions which help to get familiarized with the phenomenon. The sub questions also support the analysis of the research findings and hence to answer the main research question. The first sub question aims to clarify the reasons for SMEs to servitize the company's business. The second sub question focuses on finding the different forms of servitization within the companies and how they vary between the SMEs. The purpose of the second sub question is also to find different phases of the servitization processes in the companies and recognize the possible similarities and differences there might exist. The third question aims to clarify the differences between the SMEs and how structural, cultural, and technological issues vary within the companies.

In the research, the aim is to get a deeper understanding of the phenomenon and how small and medium-sized enterprises focus on servitization in their businesses.

The main research question is:

“What is the role of servitization in the small and medium-sized manufacturing companies?”

The sub questions are:

1. *“What motivates SMEs to servitize their businesses?”*
2. *“What forms of service strategies are followed by the small and medium-sized manufacturing companies?”*
3. *“How do the organizational transitions to service businesses vary between the SMEs?”*

1.3 Key definitions

At the beginning of the research, it is essential to define the key concepts and definitions for a research (Baines et al., 2007). In the following, there are presented the key definitions related to this research.

Service vs. product

Services and products are related to the general discussion of servitization. The term 'product' is usually understood properly in common conversations, whereas understanding the term 'service' is more divergent. (Baines, Lightfoot, Peppard, Johnson, Tiwari, Shehab & Swink, 2009b) Rathmell (1966) defines products as tangible goods which can be seen or touched or perhaps even tasted, heard, or smelled. Goedkoop, van Halen, te Riele & Rommens (1999) state a product is a tangible commodity, which can be sold. Also, a product is capable of fulfilling customers' needs and 'falling on your toes'. According to Vargo and Lusch (2004a), services are competences, such as skills or knowledge through deeds, processes, and performances and beneficial for an entity itself or another. Grönroos (2011) determines 'service' as "as an activity or series of activities of a more or less intangible nature that normally, but not necessarily, take place in the interaction between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems". This study considers service as an activity which a manufacturer can perform in addition to its products the organization produces (Baines & Lightfoot, 2013). The term service is not used as a measure of performance in this thesis.

Product service-systems (PSS)

The concept of product-service systems (PSS) is an integrated combination of products and services that generates value in use. The concept enables to disengage economic success from material consumption, which results in the less environmental impact of economic activity. (Baines et al., 2007) Goedkoop et al. (1999) have defined one of the first formal definitions of product service-systems. According to the authors, product service-systems can be regarded as "a system of products, services, networks of 'players' and supporting infrastructure that

continuously strives to be competitive, satisfy customer needs and have a lower environmental impact than traditional business models”.

Servitization

Vandermerwe and Rada (1988) coined the term servitization as an organizational change from a product-centric business model to a more service-centric conception. The concept can be seen as a process from selling products to selling products and services, which creates value in use (Baines et al., 2009a). Servitization can be seen as a development shift implemented by some companies and various industries in which value is created by adding services to physical products, and thereby also competitive advantage can be created (Doni, Corvino & Martini, 2019). The process of servitization has received a high level of interest among researchers and various industries and businesses as some of the organizations have been able to achieve expected revenues, profits, and customer satisfaction by adding services to the service providing (Kowalkowski, Gebauer, Kamp & Parry, 2017a). In this paper, servitization is considered as “a transition in business model from products to PSS, where product and services are bundled to generate higher use-value, pricing is based on value, and capabilities support customer-dominant orientation” (Lightfoot, Baines & Smart, 2013).

Value-creation

Value can be defined as “improvement in a system, as determined by the system or by the system’s ability to adapt to an environment” (Maglio, Vargo, Caswell & Spohrer, 2009). However, Grönroos and Voima (2013) discuss service literature has no clear understanding of either value or value co-creation, but value creation applies customer’s creation of value-in-use whereas co-creation is “a function of interaction”. According to Vargo, Lusch, and Akaka (2010), value creation in a service-oriented approach is a process of integrating, applying, and transforming resources, which implies networks and requires participation and involvement of multiple actors.

Service-dominant logic

Vargo and Lusch (2004a) describe a service-dominant logic focuses on intangibility, exchange process, and relationships. It can be applied to all marketing offerings, also to the offerings which include tangible outputs. The service-dominant logic is more customer-oriented wherein value is created with the customer instead of rooted with the output. (Vargo & Lusch, 2004a) Green, Davies, and Ng (2017) describe how service-dominant logic suggests service “as the application of skills and knowledge by one entity for the benefit of another and that it is service, rather than utility”.

SME

Small and medium-sized enterprises (SMEs) are mainly defined by the number of employees, and either turnover or balance sheet total. Small enterprises should have less than 50 employees, have turnover or balance sheet total up to 10 million euros. In a medium-sized enterprise, staff headcount should be less than 250 employees and turnover up to 50 million euros or a balance sheet total up to 43 million euros. There are also defined micro-enterprises, which include less than ten employees, have turnover or balance sheet total up to two million euros (European Commission, 2019). However, this study focuses only on small and medium-sized enterprises.

1.4 Theoretical framework

This chapter presents the theoretical framework of the thesis. The research framework clarifies the theoretical perspectives of the study and how the key concepts and subjects are viewed in the thesis.

The research framework (see figure 1) visualizes the *servitization* concept as progress and links servitization to the main theories and concepts, which the paper describes more closely in chapters two, three, and four. The framework starts from the left, where it is pictured how *products* and *services* are combined, and they form

the basis for the servitization concept. Servitization comprises the benefits and challenges of the concept, which are discussed more in detail in chapter two.

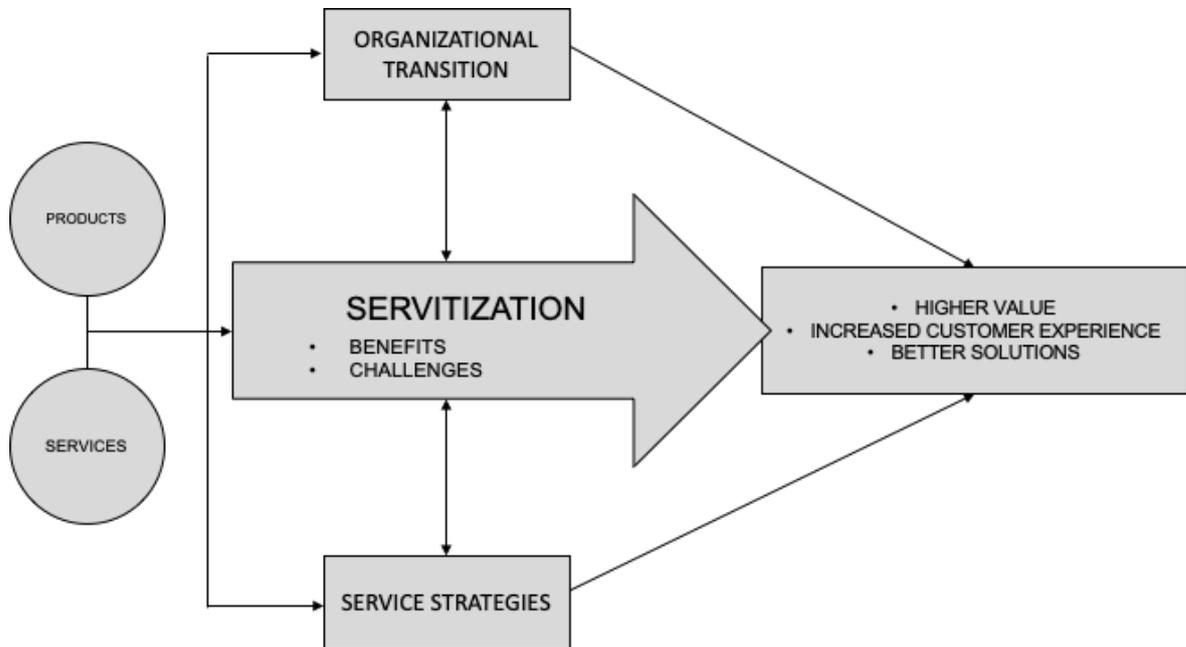


Figure 1. Theoretical framework of the thesis

The framework demonstrates how *organizational transition* refers to the servitization process when a company is changing its business towards more service-related mindset. Also, the figure demonstrates how the *service strategies* are linked to servitization as well as organizational transition. Finally, the servitization process is concluded with the possible outcomes of the shift: *higher value*, *increased customer experience*, and *better solutions*, which are affected by the organizational transition, servitization, and service strategies.

1.5 Preliminary literature review

The literature review provides a brief overview of the main literature and the key subjects of the thesis. This chapter focuses on the previous researches in academia related to the servitization, service business, product-service systems, and organizational transition in terms of servitization.

Since the early study by Vandermerwe and Rada (1988), several scholars have studied the servitization literature and the related concepts, and many of the studies have been published especially in the USA, followed by Western Europe and the United Kingdom (Baines et al., 2009a). Various scholars have examined the phenomenon, such as Oliva and Kallenberg (2003), who present the transition of manufacturer's offering from products to services and recognize the obstacles for a successful transition. Wise and Baumgartner (1999) examine the concept of manufacturing companies to "go downstream towards the customer" in their study, aiming to understand the implications of the phenomenon and possible revenue generation.

Various researchers explore the benefits and challenges the manufacturing firms are having when transforming their business to services, such as Mathieu (2001a), Slack (2005), and Gebauer and Friedli (2005). Also, Malleret (2006) discusses the benefits of creating services in a manufacturing firm, including differentiation, customer loyalty, increased and stabled turnover as well as corporate image. In a study by Baines, Lightfoot, Benedettini, Whitney, and Kay (2010), scholars examine service strategies and observe manufacturing companies consider them favorable due to customer focus and revenue growth. Additionally, Baines et al. (2010) find many companies are successful with their service strategies which require organizational change, but not as much as is often expected. Neely (2008) analyzes the firm data and points out the profitability and risks related to servitization strategies.

Recently the servitization literature has focused on two approaches of servitization: a goods-dominant logic and a service-dominant logic (Green et al., 2017). According to the findings by Green et al. (2017), the two themes are considered separate but not competing as in one situation, and one can be more suitable than others. The new service-dominant logic was initially introduced by Vargo and Lusch (2004a), which started notable discussions, inquiries, and evolvement of its specifics. A few years later, Vargo and Lusch (2008) simplified the emerged questions applying to S-D logic and improved the original issues set in the beginning.

Servitization literature relates to other researched concepts, for example, 'product-service systems' (PSS), which is studied by the number of authors (Baines et al., 2007; Manzini & Vezzoli, 2003; Goedkoop et al., 1999; Tukker, 2004; Mont, 2002). As several scholars have examined, also Baines et al. (2007) conclude product-service systems have the environmental and sustainability effects of servitization. Besides, the scholars find the Northern Europe origin concept concentrates on customer's needs and provides higher value to customers. Baines et al. (2007) also observe product-service systems require customer involvement and modifications in the organizational structure. In addition to product-service systems, Lightfoot et al. (2013) present four other research communities linked to servitization research: services marketing, service management, operations management, and service science, which constitutions and focuses continue to develop.

In the literature, various authors focus on the organizational structures and processes of servitized companies, for example, Galbraith (2002) and Gebauer, Friedli, and Fleisch (2006). Servitization literature has also noted a link between servitization and culture and emphasized a necessary need for a cultural shift. The issue occurs as consumers are no longer owning a product but rather fulfilling their demands. Mont (2000) determines reorientation requires a change in market engagement too, wherein time and resources are essential in improving the shift. Mathieu (2001a) argues that a service culture differs from traditional manufacturing culture, and service firms are usually structured differently compared to manufacturers.

1.6 Exclusions and limitations

This study explores servitization in the manufacturing industry and what kind of role servitization has in the manufacturing companies. This study also examines the different forms of servitization followed by companies in the manufacturing industry. The research is limited to the phenomenon in small and medium-sized enterprises to get more knowledge of the servitization and service strategies in the SMEs. The focus is on small and medium-sized enterprises that operate mainly in Finland,

excluding large companies outside the research as several researchers have explored studies of servitization and many other related concepts, but they have mostly focused on the large companies operating globally. For that reason, this study is limited only to SMEs conducting business within a more specific area. The research is made as a multiple case study comprising servitization and the maturity of the servitization phenomenon within companies.

The scope of this study focuses on servitization related to manufacturing firms. This thesis utilizes articles and books, which are relevant and central in servitization literature, and studies covering the transition from products to services. Also, this paper includes the literature referring to the possible benefits and challenges in the service business as well as servitization adoption. Additionally, organizational transformation to service business is notified, including publications of service strategies, organizational culture, and technological solutions related to servitization. The scope of the study aims to understand and analyze the role of servitization in the SMEs and what kinds of service strategies the small and medium-sized enterprises have rather than the performance of the case companies.

1.7 Structure of the thesis

The structure of this study consists of two parts: the theoretical part and the empirical part. The theoretical part is presented in chapters two, three, and four, and the empirical part is presented in chapters five and six. The final chapter seven provides discussion and conclusions of the thesis and also theoretical contributions and practical implications for the research. The research ends with the research limitations and the given suggestions for future research.

The first chapter focuses on the thesis topic and gives an overall picture of the thesis. The introduction describes the main concepts and definitions of the study and presents the research framework. The research framework clarifies the main subjects in the study and their relations, and it shows how literature and empirical part of the research are combined in terms of the research questions. Lastly, the

introduction clarifies the exclusions and limitations of the research. The second chapter provides more in-depth insight into the topic by describing servitization and the benefits and challenges of the phenomenon. Chapter three focuses on different levels of services and what kinds of service strategies companies can utilize. In chapter three, there are also discussed various forms of servitization. The fourth chapter explains the organizational transition to service business and common factors that are typically taken into consideration in the process, covering organizational structure, organizational culture, and technology and data.

The empirical part of the study starts in chapter five, which describes the research design, data collection methods, and how the research data is analyzed. The fifth chapter notes the reliability and validity of the research as well. Chapter six focuses on the empirical findings and explains the research results by describing the role of servitization in small and medium-sized enterprises. The seventh chapter presents the discussion of the thesis by analyzing the research questions and comparing the results to the knowledge of servitization, service strategies, and organizational transition to service business presented in the previous chapters. Additionally, the final chapter explains the theoretical contribution, practical implications, and provided research limitations and suggestions for future research.

2 SERVITIZATION

Servitization refers to a transformation in which manufacturing companies increasingly provide services that are closely linked to products (Baines & Lightfoot, 2013). Verstrepen and van Den Berg (1999) describe the term as a process wherein some extra service components are added to core products. Similarly, Martinez, Bastl, Kingston, and Evans (2010) consider servitization as a transformation process that enables a company to provide its product-service offerings. Nowadays, companies are offering product and service combinations, which are essential in customers' core operations. As a consequence, customers pay for advanced services based on their certain needs, which vary among the customers. (Cenamor, Rönnerberg Sjödin & Parida, 2017) Pawar et al. (2009) state that customers have started to pay for the value or the benefit the customers get by using the product instead of traditionally manufactured products. Besides servitization provides new and different opportunities for companies, and there already exist many beneficial servitization examples in the literature (Baines et al., 2009a).

Already in the early 1970s, Levitt (1972) argued all companies are in the service business, and the author described how plenty of new opportunities will exist when services get the same attention as products. Quinn, Doorley, and Paquette (1990) stated a few decades later, managers in manufacturing firms should change the way of thinking about how product and service activities are detached. The scholars also described how services are the key to making products possible and effective. Berry and Parasuraman (1991) argued, in turn, how manufacturing firms should be considered as service companies, and the quality of both services and goods should be managers' key interests. Overall, the service sector has been constantly increasing, and the service economy has become present in the business around the world. The service component is taking place in product-centric firms, and traditional manufacturers are moving closer to service businesses. As a result, the barrier between traditional manufacturers and service businesses is becoming more indistinct (Kindström & Kowalkowski, 2014).

Servitization has increased the interest of manufacturing companies to offer services for their customers, and according to Gemmel, Van Looy, and van Dierdonck (2013), there exist two key reasons for the change. The first reason refers to the change in how customers are nowadays more demanding as they are no longer pleased only with products. Customers demand services that meet their changing requirements. They are also willing to be sure the product can be trusted and that it satisfies the customer's needs. Secondly, Gemmel et al. (2013) state providing high-quality services for customers is a way to differentiate the firm's offering from competitors. Besides, differentiation enables a company to make their providings more tempting for customers. Previously, the competition existed between goods, especially on the features of the product whereas nowadays, goods are becoming similar and they are easy to copy on their own. Therefore, by making service offerings to vary from competitors, a firm can gain a lot of significant competitive advantage.

Servitization as a term is often referred to other contexts, such as services marketing, service operations, service science, industrial marketing, service management or operations management and more recently to product innovation and standardization as the process has seen more as a strategic option (Baines et al., 2009b; Coreynen et al., 2017). Also, Matthyssens and Vandenbempt (2008) explain how servitization is linked to commoditization, whereas Tukker (2004) states it is a way to build committed customer relationships.

2.1 Benefits of servitization

The benefits of servitization have gained significant interest in various industries since many businesses are aiming to utilize the opportunities from upgrading the company's service. In the manufacturing literature, academics and business practitioners agree how adding services to companies' offering create financial, strategic and marketing benefits (Mathieu, 2001a; Gebauer & Friedli, 2005) even though some scholars have presented miscellaneous findings between servitization and sustainability activities, performance and corporate social responsibility

disclosure (Baines et al., 2007; Doni et al., 2019; Neely, 2008). Next, the following sections present and describe the financial, strategic, and marketing benefits of servitization.

2.1.1 Financial benefits

In the literature, various scholars have indicated how product service strategies can provide financial opportunities for companies (Mathieu, 2001b). The key financial drivers mentioned in the servitization literature often refer to potential revenue and higher margins. For instance, compared to products, services are considered a better source for revenue as they are seen as more stable. (Gebauer & Friedli, 2005; Gebauer et al., 2006; Wise & Baumgartner, 1999) According to Slack (2005), an essential financial issue for including services in a firm's offering is increasing revenue as services have higher profits than products. Gebauer and Fleisch (2007) discuss how active commercialization of services can influence positively on revenue and increase it significantly. Similarly, Penttinen and Palmer (2007) mention increased revenues and margins relate to servitization, which can be achieved by utilizing customer knowledge and by developing customer satisfaction. Posselt (2017) also discusses higher margins as the financial benefit of servitization. Further, several scholars argue how by adding service components to physical goods, a firm can achieve higher profitability rather than offering products alone (Frambach, Wels-Lips & Gündlach, 1997).

While services are becoming more needed in the manufacturing industry, they are enabling better sales of goods (Brax, 2005). For example, Gebauer and Fleisch (2007) have suggested having more services in the company's offering refers to the benefit of the increase in the sales of goods. Besides, Malleret (2006) describes how services have financial benefits as when competing only on price, the combinations of product-services are less sensitive compared to products. Services also offer companies new opportunities for growth in saturated and steady markets (Gebauer & Fleisch, 2007).

In the servitization literature, researchers note services are a way to ease the effects of economic cycles with different cash flows (Brax, 2005; Oliva & Kallenberg, 2003). Malleret (2006) has similar views of the topic, and the scholar describes how adding services to the offering can be beneficial for firms. Also, according to Malleret, by developing services, a company can, for instance, increase and stabilize its turnover. The sales of products are usually transactions that occur no more than once a month or a year. Instead, sales of services bring more regular income, which stabilizes coming cash flows facilitating the disadvantageous economic cycles. Additionally, Wise and Baumgartner (1999) describe how service businesses require fewer assets than traditional product manufacturing, which makes offering services addition to products more attractive.

2.1.2 Strategic benefits

Previously in the manufacturing industry, services were considered as harmful necessities and costs, which had to be reduced. By degrees, services have increased their importance in business, and today they are reflected as necessary value-adding factors for firms and delivering strategic benefits. (Mathieu, 2001a; Pawar et al., 2009) Several authors propose strategic benefits relate to differentiation as services differentiate products, and thereby develop and improve competitive opportunities (Gebauer & Fleisch, 2007; Mathieu, 2001b). According to the study by Malleret (2006), differentiation enables having present customers, but it is also an effective way to get attention from new customers. Posselt (2017) discusses value creation and services and how the services enable value creation by transforming traditional and similar goods to customized products for customers.

Services are an important opportunity for a company to gain and improve sustainable competitive advantage. Due to the intangibility of services, they are considered strategically favorable in companies. Several scholars discuss creating new services is more effective since it takes less time compared to creating new products. (Gebauer et al., 2006; Oliva & Kallenberg, 2003) Mathieu (2001b) states services can benefit companies since they enable building industry barriers for

competitors. Furthermore, Brax (2005) notifies that adding services develops and increases growth opportunities for matured markets.

Mathieu (2001a) notes some authors have suggested how there have been achieved competitive equality with various manufacturing products. A strategy based on technological superiority is very challenging to maintain, likewise competing with low prices is considered as a demanding differentiation strategy as well. Therefore, companies should develop and implement a service strategy as it is referred to be a possible competitive and smart strategy for companies. However, companies are not able to maintain a competitive advantage by offering general services, but they should rather focus more on special and intense services. (Roscott & Parket, 1990; Mathieu, 2001a)

Services are considered as difficult to imitate as they are less visible and more labor dependent. As a result, there is less competition based only on the costs of a product, which eventually leads to better profitability. Although a few scholars note, if services and products are compound together in different ways, paralleling various complex offerings might become more challenging and unfavorable for customers. (Malleret, 2006; Oliva & Kallenberg, 2003) Gebauer et al. (2006) refer to a competitive strategy based on services as a strategic driver, and state services can enhance customer trust and hence be beneficial for companies.

2.1.3 Marketing benefits

The motives for adding services to the traditional offering of a manufacturing company is also seen to provide marketing benefits (Posselt, 2017). Brax (2005) suggests marketing drivers enhance the sale of goods and improve customer relationships by lengthening them. Also, product service combinations can be seen as a response to customer demand, which refers to customer-specific packages. On the other hand, services can be considered as marketing tools that affect and increase customer loyalty and customer satisfaction. However, services also improve the market offering and customer adoption for new products. Services enhance the customer's confidence and the supplier's credibility, which results in

increased first-time and repeat sales. Therefore, services have a positive effect on the company market share as well. (Mathieu, 2001a; Penttinen & Palmer, 2007; Roscitt & Parket, 1990)

Services can be beneficial for firms as they are seen as practices that obtain insights and changes in customers' requirements. Besides, services can affect the ability to offer improved and customized products and services based on customers' needs. Offering certain services refers to a way to develop and strengthen the company image in other fields, such as product quality and technological advances. (Baines et al., 2009a; Malleret, 2006) Gebauer, Fischer, and Fleisch (2010) discuss customer service affects positively both on product quality and quality reputation, which requires the right quality level of interaction between a buyer and a seller. Customer service can influence on increasing product offering, and they can appeal to customers as well (Gebauer & Fleisch, 2007).

Posselt (2017) notes the supplier-customer interaction, which is affected by the adoption of customer operations. Previously, physical goods were sold for customers, whereas nowadays servitized offerings create long-term contracts. The contracts are beneficial for companies by lengthening the duration of customer contact and by increasing the intensity (Posselt, 2017). Also, Evans and Laskin (1994) discuss the importance of customer relationships and describe if a firm provides quality services, the relationships between a customer and a company will develop and maintain more effectively. The scholars argue the companies that contact and listen to their customers are more likely to have contented customers and stronger relationships as well. Malleret (2006) agrees and describes how by developing additional services a firm can build relationships with customers and be easily contacted with them. As a result, customers will eventually be dependent on the supplier, and one transaction relationship turns into a long-term relationship. Therefore, the communication between a customer and a firm is essential because while losing contact, differentiating products becomes more difficult, which might result in a lower level of customer loyalty. (Evans & Laskin, 1994)

Oliva and Kallenberg (2003) notify customers are asking for more and more services, and thus, companies need to respond to the increasing demand. Mathieu (2001a) discusses five reasons why customers demand more services and refer to clients' required value, which is linked to the use and performance of systems. Customers demand solutions rather than products or services, and they want to take advantage of the supplier's core competencies and not only the product. Additionally, they are willing to have a whole global offering while they are also more keen to minimize the number of suppliers. Lastly, Mathieu (2001a) defines how clients ask for customized relationships.

2.2 Challenges of servitization

Numerous scholars and practitioners observe servitization challenges as more companies are aiming to utilize market opportunities by changing to a service strategy. However, the transition towards a more service-centric strategy can be difficult for manufacturers. The challenges can change the features of the company's strategy, organizational processes, structure, principles, and culture but also the relationships of customers and partners. (Baines & Lightfoot, 2014; Brax, 2005; Gebauer et al., 2006; Oliva & Kallenberg, 2003; Slack, 2005; Zhang & Banerji, 2017; Wise & Baumgartner, 1999) To overcome the companies' challenges, there are needed developed capabilities for new organizational requirements that occur when extending the business offering beyond traditional product offerings. Although companies' capabilities are not often fully elaborated because integrated solutions differ from traditional products, and they are provided by various organizational units. (Davies, Brady & Hobday, 2006; Wallin, Parida & Isaksson, 2015)

This thesis exploits a study of servitization challenges by Zhang and Banerji (2017). The authors gather broadly the current literature related to the phenomenon and explore the challenges of servitization. According to the researchers, the challenges affect negatively on the fulfillment of expected benefits and business performance improvement. In Zhang and Banerji's study (2017), the scholars recognize five different challenges when moving towards service business: organizational

structure, business model, development process, customer management, and risk management. In the following chapters, the five constructs are presented with a discussion of indicators related to each challenge.

2.2.1 Organizational structure

The change of manufacturers' business model towards servitization requires several new organizational structures, which are valuable in business transformation. One of the main challenges related to organizational structures is cultural challenges that refer to changing the mindsets of all the employees from traditional product-centric to service-centric mindset. (Davies et al., 2006; Martinez et al., 2010; Neely, 2008; Oliva & Kallenberg, 2003; Salonen, 2011) Dubruc et al. (2014) state how evaluating and encouraging the service culture is considered as a significant challenge for traditional manufacturers in servitization processes. Gebauer et al. (2006) argue the change of the employees' mindsets requires strong marketing inside a company, which encourages to understand the customers' benefits of a service. According to Zhang and Banerji (2017), the essential reason for the key challenge refers to the change of value creation that occurs via manufactured goods, service offerings, and service personnel. Therefore, manufacturers are required to understand the value of services and how the services should be sold, delivered, and billed at the core of the cultural transition (Oliva & Kallenberg, 2003). Mathieu (2001a) states a service strategy implementation is beneficial for manufacturers if the firm succeeds to broaden service culture with the product culture.

For manufacturers, it is necessary to have excellent communication, emphasize the importance of services, and increase service awareness among employees in a firm to develop a service-oriented culture (Kinnunen & Turunen, 2012). A service relationship requires communication between a firm and a customer during the entire service relationship as services are seen more as processes. Thus, a few communication tools support communication with customers, such as personal chat, newsletters, and questionnaires. (Brax, 2005; Gebauer et al., 2006) The level and quality of the provided services are highly associated with the skilled staff with knowledge and expertise, which affect customer satisfaction and eventually, the

entire business (Brax, 2005). Furthermore, inter-department collaboration is seen as one obstacle as creating and delivering the offering based on customers' needs might cause challenges in companies (Johnstone, Dainty & Wilkinson, 2009).

2.2.2 Business model

In the successful transformation towards service business, realigning the company's business model is a crucial factor, which can also be a powerful tool in structuring the firm's servitization practices (Parida et al., 2014; Palo, Åkesson & Löfberg, 2018). Effective business model implementation requires a manufacturer to create new capabilities while still managing existing ones, including service and manufacturing capabilities (Huikkola, Kohtamäki & Rabetino, 2016). Firms, however, recognize the transition, but the management is still unsure how to manage the transformation because there has to be renewed the firm's strategic direction. The strategic direction, instead, requires a service-based business model. (Kindström, 2010)

Value proposition creates obstacles for firms as value is delivered in collaboration with different parties. Thus, the change is demanding as it requires innovative thinking and new ways of working from both employees and customers. (Barnett, Parry, Saad, Newnes & Goh, 2013; Brax, 2005; Pawar et al., 2009) Zhang and Banerji (2017) define resource utilization, which relates to the business model, and it applies to workforce and materials leverage between departments as new resources are needed in the reconfiguration of internal structure. Costing and pricing mechanisms refer to the value created, and they are essential to redefine the company when changing to a service strategy. The practices indicate whether a firm is entered into a service-relationship and cooperating with its customers. (Malleret, 2006) Moreover, challenges occur in supplier collaboration when suppliers need to develop due to the transition. Further, several scholars discuss how there is required a new level of action with supporting networks, providers, and customers. (Barnett et al., 2013; Martinez et al., 2010; Oliva & Kallenberg, 2003; Parida, Rönnerberg Sjödin, Wincent & Kohtamäki, 2014)

2.2.3 Development process

Griffin (1997) argues processes are simpler for service firms compared to traditional goods firms. Although, Griffin discusses integrated development processes in service-oriented companies need to be linked with both services and products. Traditional product development includes various phases, such as idea generation, screening, prototyping, testing, manufacturing, and commercialization, which differ from service development and service business. When compared services to products, services are consumed as they are produced, and thus they cannot be stored. (Cooper & Edgett, 2003; MacDonald & Payne, 2006) In organizations, tools, methods, and techniques are beneficial in the development process, even if a lower level of maturity in a new product development process refers to service-based organizations. It might be a result of the recently increased application of tools to service development. (Baines et al., 2007; Griffin, 1997; Killen, Hunt & Kleinschmidt, 2008) Performance measurement is seen as essential in the service business as the processes should reach a certain level of performance in each part of the process. Thus, there are required modern ways of measurement as they differ between product and service-focused businesses (Mo, 2012; Zhang & Banerji, 2017). The final indicator of customer engagement creates obstacles for firms, as the final offering needs to meet the customers' requirements. Thereby, coherent cooperation with a company and a customer during the development process are seen beneficial. (Cooper & Edgett, 2003; Brax, 2005)

2.2.4 Customer management

Zhang and Banerji (2017) underline the importance of relationship and communication between a customer and a firm and discuss how in customer management, the focus is mainly on business customers. Matching customer needs is regarded as the first challenge in customer management as customer requirements are nowadays more complicated, and they differ between customers (Baines et al., 2009a; Cenamor et al., 2017). Besides, ownership transfer has been observed because the service provider maintains the ownership when selling the product for customers, which might result in unsatisfied customers as some

customers regard products emotionally meaningful when buying them (Baines et al., 2007; Neely, 2008).

According to Rabetino, Kohtamäki, and Gebauer (2017), customer management processes and practices are seen as necessities for companies when creating and preserving long-term relationships with customers. Effective long-term relationships with customers, in addition to a value co-production process, are relevant when gaining value through an entire product lifecycle (Bustinza, Vendrell-Herrero & Baines, 2017). Grönroos and Voima (2013) highlight the importance of the ability to recognize the customers' combinations of resources, processes, and outcomes, which can result in a shift to value co-creator. For that reason, employees have to understand their vital role as part-time marketers when communicating with customers. Rönnerberg Sjödin, Parida, and Wincent (2016) discuss the shift of roles and responsibilities of both providers and customers to more active, which, in turn, might create ambiguity in organizations. Also, in product-service systems, information sharing is relevant among stakeholders and partners to reduce information asymmetry with business partners. Besides, higher and correct information sharing enables better interaction with business partners and customers (Jayaraman, Ross & Agarwal, 2008; Reim, Parida & Örtqvist, 2015).

2.2.5 Risk management

Offering product-service systems causes increased risks for manufacturers as providing solutions requires engagement with customers and value co-creation. According to several scholars, risks multiply when manufacturing firms have to take operational responsibility in the customers' processes. (Benedettini, Neely & Swink, 2015; Nordin, Kindström, Kowalkowski & Rehme, 2011; Wallin et al., 2015) Service business companies need more communication and developed capabilities to build long-term relationships with customers, which increases the possibility of conflicts, disagreements, and opportunistic behavior (Kindström, 2010; Richter, Sadek & Steven, 2010).

Neely (2008) explores financial outcomes in the service business, and states at the start of transition services companies have higher investment needs. However, they might flatten possible financial returns even though the investments for increased service offerings are not a guarantee for higher expected returns (Gebauer et al., 2005; Neely, 2008). Additionally, transforming to a service strategy generates financial requirements in the early stages. Such as improving functional groups or services and additional human resource recruitments, which increases the possibility of bankruptcy. Furthermore, a company should take into account that when there are increased firm's service offerings, the chances for survival and performance in business cannot still be ensured. (Benedettini, Swink & Neely, 2017; Neely, 2008; Parida et al., 2014)

Even if various modifications and changes occur when expanding to service business, operational risks are considered as the key challenge when aiming to achieve successful transformation (Nordin et al., 2011; Reim et al., 2016). Also, Reim, Parida, and Rönnerberg Sjödin (2016) argue how especially operational risks emerge when providing integrated solutions. Instead, external risks refer to those common environmental factors in which the company operates, for instance, technology, globalization, regulation, capital market, and changes in demand and competition (Benedettini et al., 2015; Cabedo & Tirado, 2004). These risks arise from outside the company, so management has no direct control of them (Sheth & Sisodia, 2015).

3 SERVICE STRATEGIES

All companies are offering services in different degrees, but various scholars point out the significance of applying service strategies more actively. Additionally, firms can utilize and develop service strategies into several levels. (Mathieu, 2001b) Reim, Sjödin, and Parida (2019) define four unique servitization strategies in their research: service extension, service benchmarking, digitalization, and customer co-creation, which are executed by the service actors. The scholars also emphasize how service network actors operate in unique ways, and they have to react to the challenges by combining service strategies, such as to value creation with customers to be able to succeed in servitization. In the following chapters, there are introduced the different levels of services and presented the concept of product-service systems. Lastly, the chapter clarifies different forms of servitization.

3.1 Levels of services

Kohtamäki, Baines, Rabetino, and Bigdeli (2018) state the organization's service offering indicates the strength of the manufacturer's current service portfolio. It consists of the number of services the company provides and the company intensity to deliver services to their customers. The number of services refers to the extent of a service strategy in a company, and it gives several options for companies to provide services. The nature of service indicates if service is more as a narrow activity or whether it is making sure of the state and condition of a product. (Homburg, Fassnacht & Guenther, 2003; Kohtamäki et al., 2018)

Baines and Lightfoot (2013) define three types of services a manufacturer can offer: base services, intermediate services, and advanced services (see figure 2). The *base services* are considered as the first level wherein the focus is on the product provision. Further, the base services refer to the execution of production competence. Manufacturing companies can offer base services, such as product provision, spare part provision, or warranty. (Baines & Lightfoot, 2014; Baines, 2016) The second type of level of services is *intermediate services*, which cover wider activities. Intermediate services typically concentrate on the maintenance of

product condition. This level is based on the exploitation of production competences to preserve the condition of products. Intermediate services can be, for example, scheduled maintenance, technical helpdesk, repairs, customer training, and condition monitoring. (Baines & Lightfoot, 2014; Kohtamäki et al., 2018)

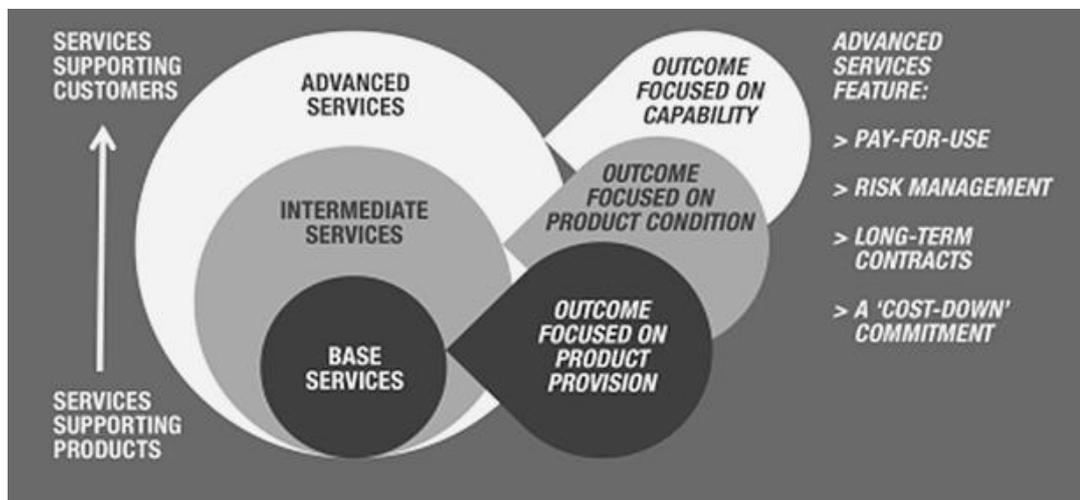


Figure 2. Types of services a manufacturer can offer (Baines, 2016)

Baines and Lightfoot (2014) define advanced services as the highest level of servitization types, wherein services support customers. Advanced services are the most interest type in servitization, which combines products and services to offer providings for customers. The advanced services usually include performance incentives, revenue payments structured around product usage, and long-term contracts. These facilitate the relationships between the different parties, and they are necessary for the customers' core business process. (Baines & Lightfoot, 2014) Furthermore, Baines (2016) states advanced services provide stable revenue and create new opportunities for companies since organizations can more easily get familiarized with customers' businesses and operations. Kohtamäki et al. (2018) define advanced services usually include higher risks than the base and intermediate services. Advanced services also increase the pressure to meet the customer's' demands if a customer is paying for long-term contracts. Table 1 presents the base, intermediate, and advanced services recognized in manufacturing companies.

Table 1. Categorization of product-services offered by a manufacturer (Baines & Lightfoot, 2014)

Type	Defined by	Organizational stretch	Examples of service offered
Base services	An outcome focused on product provision	Based on an execution of production competence (i.e. we know how to build it)	Product/equipment provision, spare part provision, warranty
Intermediate services	An outcome focused on maintenance of product condition	Based on exploitation of production competences to also maintain the condition of products (i.e. because we know how to build it we know how to repair it)	Scheduled maintenance, technical helpdesk, repair, overhaul, delivery to site, operator training, condition monitoring, in-field service
Advanced services	An outcome focused on capability delivered through performance of the product	Based on translation of production competences to also manage the products performance (i.e. because we know how to build it we know how to keep it operational)	Customer support agreement, risk and reward sharing contract, revenue-through-use contact

Baines (2016) argues a manufacturing firm embracing any service type is going through servitization. However, it is essential to recognize the current service offering in a company that can be assessed with three factors: a number of services offered, the depth of service offered, and if the services are base, intermediate or advanced services (Kohtamäki et al., 2018).

3.2 Product-service systems

The current literature proposes various terms for the servitization offering from which product-service systems have received a high level of interest (Kohtamäki et al., 2018). The product-service system is a special case of servitization, which focuses

on the 'sale of use' rather than the 'sale of product'. Thereby, a customer is paying for using the asset and not purchasing the product. The concept values asset utilization over ownership and provides a combination of products and services that offer value in use for customers. Besides, it sets the basis to achieve differentiation to the firm's competitors who are offering products at lower prices. (Baines et al., 2007)

The product-service system (PSS) concept is the Scandinavian origin, and it focuses on enhancing the social, economic, environmental, and industrial sustainability of servitization (Mont, 2002; Lightfoot et al., 2013). The product-service system results in lower environmental impacts than a traditional transaction wherein products are produced. Further, PSS is followed by the move of the responsibilities of ownership and the use of products to customers. Besides, asset utilization and environmental impact apply to data as well, and for instance, it is possible to enhance asset utilization with data, decrease total costs, or lower the environmental impact. (Baines et al., 2007)

Since the first formal definition of product-service systems by Goedkoop et al. (1999), many scholars have defined the concept focusing on the system where products and services are united to provide a user functionality and to reduce the environmental impact (Baines et al., 2007). One popular definition of PSS is defined by Brandstotter, Haberl, Knoth, Kopacek, and Kopacek (2003), which is presented as "a product service system consists of tangible products and intangible services, designed and combined so that they jointly are capable of fulfilling specific customer needs". Also, the scholars note the PSS aims to fulfill the goals of sustainable development, which means social, economic, and environmental needs.

As many people have used to regard products and services separate, recently there have been considered productization of services, in addition to the servitization of products. In this context, productization refers to progress in which a service component that consists of a product or a new service component marketed as a product. (Baines et al., 2007) Baines et al. (2007) discuss the process of converging these trends is considered as an offering: product-service systems (PSS) (see figure

3). A successful PSS requires designing at a systematic level with a customer perspective. Additionally, it implies early involvement with a customer and organizational structural changes by the provider. (Mont, 2002; Baines et al., 2007)

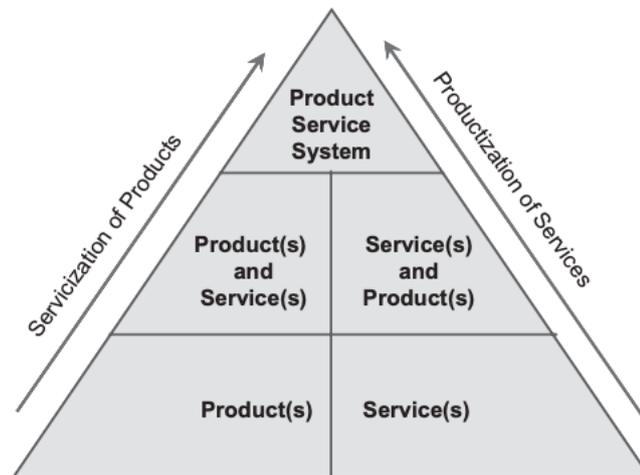


Figure 3. Evolution of the Product Service-System concept (Baines et al., 2007)

Mont (2000) discusses the benefits of PSS for companies and states services are also an opportunity to apply on growth strategy on innovation in a mature industry. Service components are a way to add and get a product of a higher value that can be differentiated more easily (Baines et al., 2007; Mont, 2000). Also, Mont (2000) discusses services increase customer relationships in a consequence of the increased contact with customers due to the information flow about the customers' preferences. Besides, service components improve the total value for the customers. On the other hand, PSS is beneficial for customers as they have more variety of offers on the market. Thereby, customers can get a higher quality with customized providing and more and higher value that is easier for firms to differentiate. (Mont, 2000)

3.3 Forms of servitization

In the field of servitization, different scholars have identified various service terms and definitions that are closely related and used to describe the service

differentiation, such as, service infusion, servitization, high-value solutions and transition from products to services (Davies, 2004; Kowalkowski, Kindström, Alejandro, Brege & Biggeman, 2012; Oliva & Kallenberg, 2003; Vandermerwe & Rada, 1988). Oliva and Kallenberg (2003) determine “product-service continuum” (figure 4) in which companies can be placed strategically in different ways from products with services as “adds-on” to tangible goods as “adds-on”. The framework provides desired outcomes for the customer with a customer-centric strategy and with changing aspects, and therefore it can be stated there exists several forms of servitization (Oliva & Kallenberg, 2003; Baines et al., 2009a).

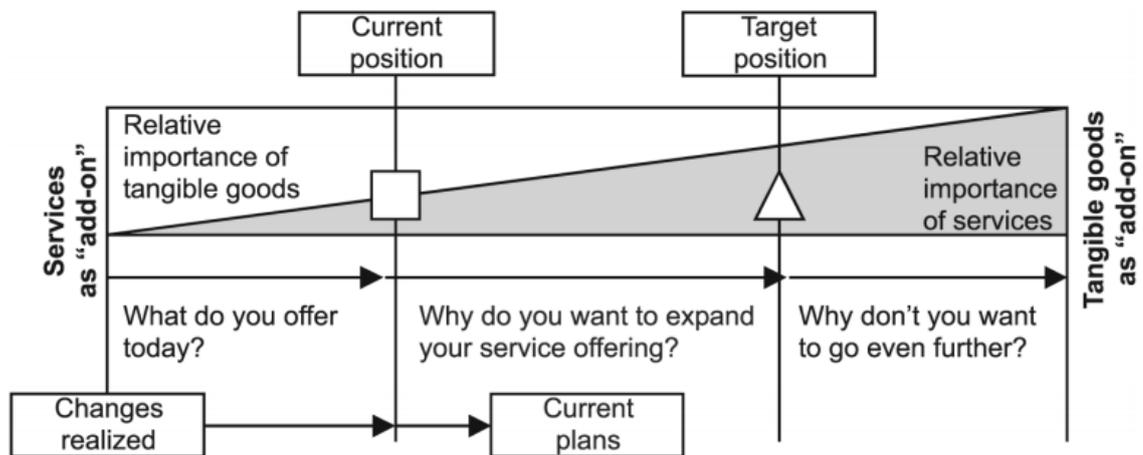


Figure 4. The product service continuum (Oliva & Kallenberg, 2003)

Gebauer and Friedli (2005) discuss a continuum to service providers from traditional product companies. The scholars describe at the first point of the continuum services are an opportunity to differentiate the offering in product marketing strategy where most of the revenue and profits come from the core products. Instead, services form only a little part of the revenue and customer satisfaction. Gebauer and Friedli (2008) note how in the next point, products are an add-on to services. At that point, value creation is formed mostly from services indicating a high service contribution where customer satisfaction is also on a high level. However, companies have to recognize their opportunities and challenges to be able to define their position in the continuum. Especially in the active process, companies should determine their position continually and little by little move towards service

dominance. (Gebauer, Bravo-Sanchez & Fleisch, 2008) Bustinza, Bigdeli, Baines, and Elliot (2015) notify how companies are pursuing forward along the continuum. Companies aim to provide advanced services that combine products and services tightly through performance-based contracts and value-added services.

The literature on manufacturing proposes product manufacturing to add services to core products. Although, instead, the literature on marketing suggests moving from goods-centered dominant logic to service-centered dominant logic (Oliva & Kallenberg, 2003; Vargo & Lusch, 2004a). Green et al. (2017) point out servitization literature covers two themes: a goods-dominant (G-D) logic and service-dominant (S-D) logic. The first type considers servitization as an extension of manufacturing research and services as an add-on to products. Additionally, if the number of attributes of services increases, more complexity will exist. In the second type, the mindset is changed to service-dominant (S-D) logic from the manufacturing perspective. The service-dominant logic concentrates on the co-created value achieved by the customer when utilizing a physical product, and thus, the focus is more on customers' context. (Green et al., 2017; Vargo & Lusch, 2008)

4 ORGANIZATIONAL TRANSITION TO SERVICE BUSINESS

Several companies have added services to the company's product-focused providings and aim closer to the service business. In service business development, companies are required to consider several issues to achieve desired and successful outcomes, which also affect the servitization adoption within manufacturing companies. (Bustinza et al., 2015; Baines, Bigdeli, Bustinza, Shi, Baldwin & Ridgway, 2017) The following chapters present three concepts related to the transition towards service business, including organizational structure, organizational culture, and technology and data.

4.1 Organizational structure

In addition to various other issues, companies are required to consider the organizational structure in their service business development to achieve desired and successful outcomes (Bustinza et al., 2015). However, the delivery systems of services differ a lot from the production systems (Baines & Lightfoot, 2013), and as a result, many companies have difficulties in the transition (Galbraith, 2002). Galbraith (2002) argues the difficulties emerge from the organizational challenges and the requirements to develop a customer-centric component or components and integrate it with the organization's product-based structure. Oliva and Kallenberg (2003) notify a separate service organization as one of the key factors for managing service offerings and increasing service revenues. In turn, Gebauer et al. (2006) point out companies having decentralized service organization with specific responsibilities, functions, and coordination link to the success of a company and its service strategy. Fliess and Lexutt (2019) suggest a separate service organization is beneficial when the servitization process is more advanced since the suitable organizational structure depends on the maturity of the servitization process. However, the scholars argue efficient communication and information sharing are essential in successful servitization regardless of the way the service business is structured in the organization.

Managers planning on a transition must consider the firm's current structure of the business functions and the integration of the service functions. Bustinza et al. (2015) discuss possible approaches for the issues and define that firms could either create a new business function to control all service practices or to process all particular services. An option could also be outsourcing some of the services or managing service operations with current structures, and hence handling both products and services. (Bustinza et al., 2015) Gebauer and Friedli (2005) argue if managers recognize the issue is in a structural change as when transforming the organizational business, the key activity is to focus and invest in human resources. The scholars discuss how thereby, a firm can maintain the service quality by preventing the increase of current employees' work effort. Gebauer and Friedli (2005) also suggest managers could hire more employees to work on services or free employees to participate in cultural change as employees have an understanding of the firm's essential structures and processes.

4.2 Organizational culture

The literature recognizes the importance of organizational culture in the transition beyond product offerings towards more a relationship-oriented service culture, and various scholars recognize the change of organizational culture necessary in the transformation towards more a service-oriented strategy (Gebauer & Fleisch, 2007; Homburg et al., 2003; Dubruc et al., 2014). Fliess and Lexutt (2019) also discuss it is generally identified that the transition to service business requires a cultural reorientation. The scholars state service-related organizational culture facilitates the servitization processes by resulting in successful outcomes, and the importance of organizational culture is especially emphasized for the advanced servitization strategies. Palo et al. (2018) describe servitization modifies the organizational culture in a manufacturing company by developing a service culture within an organization, as well as in a business model. Overall, the culture is a crucial organizational factor to accomplish a successful service-oriented strategy even if the business outcomes usually rely strongly on the management (Homburg et al., 2003; Neu & Brown, 2005; Gebauer, Edvardsson & Bjurko, 2010).

Schein (2010) defines the organizational culture of a group as “a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”. The culture relates to the symbolic two-way process, and hence, it can be determined as a performative activity. Culture is conceived both as a cultural process and the result of that process, and it also presents the core of an organization and can sustain advantages. (Barney, 1986; McCalman & Potter, 2015) Gebauer et al. (2006) argue that for manufacturing companies, it would be beneficial to create a service culture to support service-related goals if the firm aims to change its focus towards service business. The values of a traditional manufacturing company differ from a typical service company values, as they include, such as innovation, customization and the beliefs that the flexibility and variety create profits (Bowen, Siehl & Schneider, 1989), and there can be referred to encounter of separate values and norms regarded as a dominant culture and counterculture (Gebauer et al., 2006).

4.2.1 Managing organizational culture

The cultural issues are generally agreed to be complex, difficult to understand, part of everyday conversations, or placed deeper in the core of an organization, which is why transforming the culture is even more challenging (Alvesson & Sveningsson; 2008; Schein, 2009). Alvesson and Sveningsson (2008) identify three views for managing organizational culture. The first view indicates that managers can change the culture if they have skills, knowledge, and resources to utilize. The second view emphasizes the difficulties in cultural change as there exist various beliefs, values, and different structures, which are hard to affect. The third view instead points out the culture cannot be managed or only with a little effect. Therefore, several different views relate to the issue of cultural change required in the servitization transition.

Managing organizational culture can be difficult for the leaders because organizations develop and change over time, and the members of an organization typically consider announced change displeasing (McCalman & Potter, 2015; Schein, 2009). Gebauer et al. (2006) note manufacturers should take into account that the service culture requires continuous development in a manufacturing firm, and the managerial challenges usually refer to developing a service culture. Managers have to balance both the manufacturing values and service values rather than focusing only on one value. For that reason, Baines et al. (2009a) state a different service organization could be helpful in the transition to service business. Also, according to Baines et al. (2009a), by managing the values successfully, the organization can achieve a more solid competitive advantage that is challenging to imitate by competitors.

Carnall (2007) notes cultural changes should be regarded as chances to develop people and their skills as education of the members of an organization are beneficial in the change process. Further, Gebauer and Friedli (2005) discuss the importance of training and empowerment of employees in providing services so they can be efficient and active. Palo et al. (2018) state employees working closely with customers is a significant asset for succeeding in the servitization process as they know customers' demands, and they have a better knowledge of how to create value. Therefore, companies should provide employees the resources to transform their ideas into innovative service offerings. Also, organizations should educate employees to learn economic reasons behind the changes in the ways of operating, so they can accept the new processes told by leaders. An organization would also benefit if a change process started with a formal education even though it might take a lot of time and effort. (Alvesson & Sveningsson, 2008; Carnall, 2007; Schein, 2009)

Extending to service business requires new managerial service awareness. Managers need to change employees' way of thinking from services as an add-on to services as "value-added" practices. (Gebauer et al., 2006) Management has to also control organizational culture, which can be effected through a hiring process when the values of the employees get into the organization (Hofstede, Neuijen,

Ohayv & Sanders, 1990). Alvesson and Sveningsson (2008) notify the organization should hire new employees who are willing to achieve the same cultural values and assumptions as the organizations. Thereby, organizations can affect servitization by hiring employees who have the willingness and ability to work with services. Fliess and Lexutt (2019) argue companies should take into account the service-related skills and competencies in new recruitments since, in that way, a company can succeed in its service business transition. Besides, Baines et al. (2009a) discuss how having suitable people in the service dimensions and developing a service-oriented environment are essential for successful outcomes.

4.3 Technology and data in servitization

Industries have to adapt to various changes that transform the way businesses evolve, manufacture, and provide products. Further, the changes affect particularly on business models in organizations. (Frank, Dalenogare & Ayala, 2019a) In the field of technology, changes in information and communication have had positive effects on work by creating new working practices and new business models, especially with data capture and information processing. The development of technology has improved the already existing products and services and created new ones that simultaneously enhance customers' lives. (Alvesson & Sveningsson, 2008; Neely, 2008; Baines & Lightfoot, 2013) Various scholars discuss digital servitization business models and emphasize how digitalization supports successful servitization in manufacturing companies. (Kohtamäki, Parida, Oghazi, Gebauer, & Baines, 2019; Fliess & Lexutt, 2019) The scholars state digitalization develops new possibilities for services, platforms, intelligent products, and business models, and explain how digitalization modifies the business models of solution providers.

Kusiak (2017) states how manufacturing continually develops while it gets automated and more managed with computer programs. Manufacturing production is utilizing more technologies and other related concepts, and thus there has emerged, for example, a new form of production called smart manufacturing. Smart manufacturing provides new opportunities for companies in the manufacturing field

based on available technologies and systems which can react the difficult situations in real-time. (Kusiak, 2017; Kang, Lee, Choi, Kim, Park, Son, Kim & Noh, 2016)

According to Frank, Mendes, Ayala, and Ghezzi (2019b), product companies and their business models are today changed, especially by two concepts. Firstly, they are affected by servitization, which refers to demand-pull innovation trajectories as customers are expecting more and more services within the product purchases and even value. Also, studies indicate how, for example, information and communication technologies facilitate servitization by permitting different service interactions. (Martinez, Neely, Velu, Leinster-Evans & Bisessar, 2017) Secondly, Frank et al. (2019b) state Industry 4.0 is a current trend affecting companies, also considered as the fourth industrial revolution, and seen as a new industrial scenario. Industry 4.0 produces digital solutions with new technologies, such as cloud services and big data that enable more effective interactions with customers than before. With modern technology, machines and devices can be connected with more flexibility, and therefore, customers can be served based on their diverse requirements. (Frank et al., 2019b; Wei, Song & Wang, 2017)

Frank et al. (2019a) aim to define the fourth industrial revolution and provide a theoretical framework for understanding the concept and the digital technologies related to it (see figure 5).

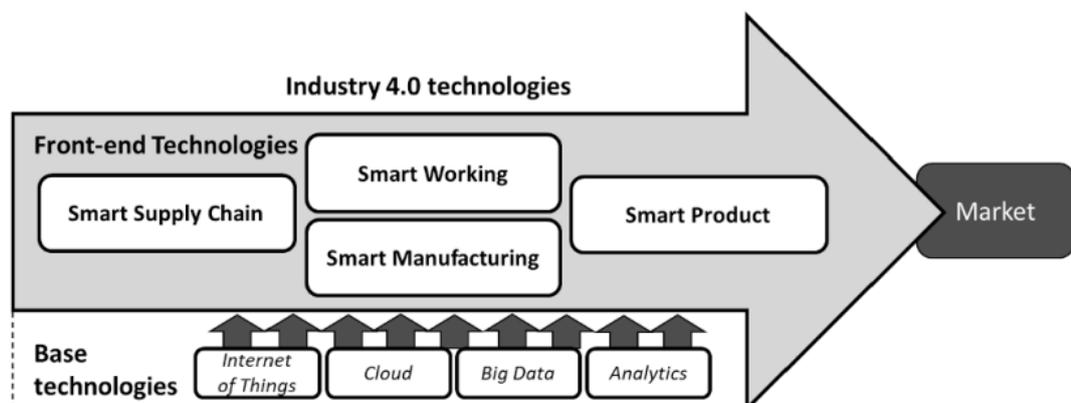


Figure 5. Theoretical framework of Industry 4.0 technologies (Frank et al., 2019a)

Frank et al. (2019a) suggest the Industry 4.0 includes four dimensions: smart manufacturing, smart product, smart supply chain, and smart working, which are named as 'front-end technologies' as they refer to operational and market requirements. In the first layer, smart manufacturing is seen as the core dimension to which other dimensions are connected. The four dimensions are subsidized by 'base technologies', including the Internet of Things (IoT), cloud services, big data, and analytics, forming the second layer of the framework. The base technologies support the first layer with technologies that allocate connectivity and intelligence for a company. (Frank et al., 2019a) In the following, there are presented and described each base technology one at a time.

Internet of Things

Internet of Things (IoT) was first noted in 1999 to characterize the interconnection of physical devices to collect data and information, communicate, and interact (Ashton, 2009). In the concept, the basic idea is the wireless scenario as presence of *things* or *objects* (e.g., tags, sensors, actuators, Radio Frequency Identification (RFID), mobile phones) through unique addressing schemes communicate with each other and act together to achieve common goals (Giusto, Iera, Morabito & Atzori, 2010). Internet of Things is receiving interest widely from practitioners and academics as it is seen to provide plenty of opportunities for servitized business models and service-oriented providings beyond the traditional offerings (Suppatvech, Godsell & Day, 2019).

Cloud

Cloud services make on-demand network access to a shared pool of resources possible, such as networks, servers, applications, and services, which require little effort by management or service provider interaction (Mell & Grance, 2010). The technology stores and retrieves data differently while also having different supporters for data exchange (Yu, Xu & Lu, 2015). Wang, Törngren, and Onori (2015) describe how cloud manufacturing refers not only to storing data, software applications, and virtual machines but also physical resources. They enable secure, compliant manufacturing services over the Internet of Things, for example, machine

tools, work-cells, and robots. Additionally, Frank et al. (2019a) discuss cloud services offer simple access to services and information.

Big Data

Addo-Tenkorang and Helo (2016) state Big Data can be defined as “fast-growing amount of data from various sources that increasingly poses a challenge to industrial organizations and also presents them with a complex range of valuable-use, storage and analysis issues”. The scholars also identify several Big Data characteristics: (a) Volume, (b) Velocity, (c) Variety, (d) Verification, and (e) Value, which can be noted as the ‘5Vs’. The key issue for a manufacturer is how the data can be exploited after the Volume, Velocity, and Variety are enhanced while struggling with Verification in the process in a way that value-adding creation is possible (Opresnik & Taisch, 2015). Later on, Sivarajah, Kamal, Irani, and Weerakkody (2017) have added two big data characteristics to ‘5Vs’: visualization and variability. Overall, Big Data and servitization can create opportunities for companies if they enable to manage the rapidly increasing amount of data and information. Opresnik and Taisch (2015) discuss how in the context of servitization value creation is changing from services to data generation.

Analytics

Frank et al. (2019a) state Analytics as the fourth technology enabling the fourth industrial revolution by being the key factor with big data to enable advanced applications while the intelligence of the system requires the capacity of analyzing with advanced techniques (analytics). Analytics, such as data mining and machine learning, makes advanced prediction possible and recognizes future events affecting production in advance, but also prevents possible performance issues. (Frank et al., 2019a; Lee, Kao & Yang, 2014) Therefore with big data, analytics can be beneficial for an organization by facilitating the production and activities related to decision-making in all extents of an industrial business (Frank et al., 2019a).

Frank et al. (2019b) describe associating business with the novel technologies has advantages. For example, the technologies applied to the fourth industrial revolution provide companies a better understanding of what value indicates for customers by

gaining the data of the customers' behavior and usage of products where the data collection is enabled with analytics, such as the Internet of things and big data. In addition, technologies make providing value easier for customers due to their high demands and changing requirements. (Frank et al., 2019b) However, Wei et al. (2017) discuss how, in a modern economy full of interactions the information technology, digitalization, and a high amount of data amend the competition more challenging among manufacturers. Also, Kowalkowski, Windahl, Kindström, and Gebauer (2015) state how technologies modify the competition between companies in these days as technologies enable sales, deployment, post-deployment, and processes and they make smart services possible. In such a context, competitive advantage is getting more and more difficult to find. Therefore, Frank et al. (2019b) argue that companies should focus both on service innovations and new technologies. In their article, the scholars introduce a framework from the business model innovation view that combines the two key trends affecting businesses these days: Servitization and Industry 4.0 (see figure 6).

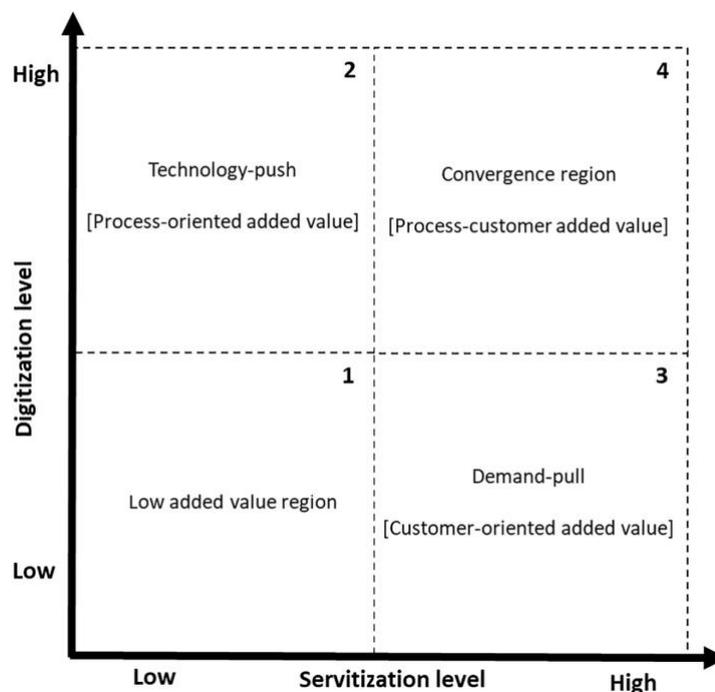


Figure 6. Innovation trajectories for Industry 4.0 and Servitization (Frank et al., 2019b)

Frank et al. (2019b) provide a framework for innovation trajectories where the concepts are considered as (i) *digitization level*, covering the implementation of technological tools within the Industry 4.0. Thus, it applies to a technology-push innovation trajectory wherein value is added mostly in internal processes, such as cost reduction, flexibility, and productivity (Figure 6: from Quadrant 1 to 2) (Frank et al., 2019b). Several scholars discuss how technologies may have positive effects on the efficiency of the provision of services by including the technologies in the products. The utilized technologies can be, for example, maintenance via sensors and remote monitoring. (Wunderlich, Heinonen, Ostrom, Patricio, Sousa, Voss & Lemmink, 2015) However, some studies suggest changes in industry contextual variables, such as in technology maturity, might result in inverse servitization and decrease the level of servitization maturity of a manufacturer (Sousa & da Silveira, 2017). The second factor of the presented framework is (ii) *servitization level*, referring to the importance of servitization in the company and how widely the company is providing services. The level is referring to the demand-pull innovation trajectory in which the customers are in the center of the value proposition, such as customer loyalty and market expansion (Figure 6: from Quadrant 1 to 3). (Frank et al., 2019b)

5 RESEARCH METHODOLOGY

This chapter presents the empirical part of the research. Firstly, the chapter determines the research design and data collection methods, which are followed by the data analysis methods of the research. Finally, the chapter introduces the reliability and validity of the research.

5.1 Research design

The empirical part of the study is conducted in a qualitative way aiming to answer the research questions defined in chapter one. The qualitative research provides more detailed information about the role of servitization in the SMEs. The qualitative method enables to gain a deeper insight into service strategies and detailed knowledge of the companies' behavior, practices, and processes as qualitative research examine a phenomenon from the insiders' perspectives (Lapan, Quartaroli & Riemer, 2012). Qualitative research is appropriate to describe a phenomenon or event or to understand a particular activity (Tuomi & Sarajärvi, 2018). Besides, the research analyzes contexts and develops descriptions instead of focusing on numbers to resulting in meaning (Lapan et al., 2012). This empirical part of the study aims to explore the companies' approaches to service business and examine the role of servitization in the case companies. Accordingly, qualitative research is chosen based on the research topic, research questions, and the objective of this study.

The research is conducted as a case study, including companies from several stages of the servitization process. Yin (2014) describes a case study as empirical research that explores a modern phenomenon in-depth and in real-life context thoroughly. Yin explains a case study occurs particularly when the boundaries between a phenomenon and context are not apparent. Furthermore, case studies are essential means for theory development, and several scholars have conducted case study researches as a method in their studies, also to foster scientific understanding of the servitization transition and the included organizational changes (Gebauer et al., 2006; Posselt, 2017). However, as the study covers multiple cases,

it is possible to get more specific qualitative information with a broader extract on the topic compared to focusing on one single case study. A multiple case study offers a way to explore various cases by comparing the similarities and differences within the cases and to understand them (Baxter & Jack, 2008). Thus, the multiple case study method applies well to this research and the aims of the study.

This research is executed by interviewing employees from different small and medium-sized enterprises. The aim was to participate in companies that offer different kinds of services based on the information on the companies' homepages to get more variety on the research companies and to include as diverse manufacturing small and medium-sized enterprises as possible. The firms contacted are searched via the Amadeus database by limiting the research options of the company size, turnover, balance sheet, and status (active companies). Besides, the purpose was to contact, and interview companies located in the Uusimaa area to enable face-to-face interviews.

Table 2. Company profiles (Amadeus Database)

Case company	Operating revenue (Turnover) EUR	Staff	Year of incorporation
Alpha	2,0 M	10 – 19	1980 – 1985
Beta	2,0 M	10 – 19	2005 – 2010
Delta	6,0 M	20 – 49	1995 – 2000
Gamma	5,7 M	50 – 99	2005 – 2010

The case company profiles are summarized in table 2, which cover each case company's operating revenue, the amount of staff, and the year of incorporation. The data in table 2 is collected from Amadeus Database, and it is based on the

available information of the year 2018. The information of the companies is limited since not all interviewees wanted to provide recognizable information about their company.

5.2 Data collection methods

The data collection for the empirical part of the thesis is collected from the interviews of the four case companies. For data collection methods, interviews were preferred to include all aspects of the phenomenon and to get a comprehensive understanding of the topic more in detail. The interview questions are set based on the literature review and the research framework to answer research questions. The empirical part includes the same topics as the theoretical part of the thesis but more from the perspectives of the manufacturing companies.

The purpose of the interviews is to get a good comprehension of the topic by choosing the interviewees based on a few criteria. Due to the research topic, the aim was to interview general managers of each company. However, in a company Delta, the interviewee was not a general manager but a director of the company business, and thus appropriate for the interview as well. With the interviews, it is possible to understand more in detail the operational level of the companies relating to service business. Overall, the aim was to view how central servitization is in small and medium-sized enterprises and how the companies are approaching the service business.

All the interviews were conducted as phone interviews due to the busy schedules and summer holidays of interviewees. Phone interviews are typically considered beneficial as they can be arranged easily. They also offer flexibility as they can be postponed if needed. (Ikonen, 2017) All four interviews were conducted during the same week in July 2019. None of the interviewees were able to hear the answers of other interviewees for the interview questions. Three of the interviewees wanted to receive the interview questions in Finnish before the actual interview. The interviewees of the case companies are presented in table 3, which shows the

interviewee's position in a case company and the method of the interview. Also, table 3 shows the duration of each phone interview. Each one of the interviews was conducted in Finnish.

Table 3. Interviewees of the case companies

Case company	Interviewee position	Interview method	Duration
Alpha	General manager	Phone	1 hour
Beta	General manager	Phone	42 min
Delta	Director	Phone	38 min
Gamma	General manager	Phone	42 min

The interview questions presented to the interviewees are introduced in appendix 1. The questions were formed based on the research topic, the research questions, the framework of the thesis, and the literature review. The interview questions were divided into three categories based on the topics presented in the theoretical part of the thesis. The interview questions were conducted by utilizing a semi-structured interview method, wherein participants are using their own words rather than answering "yes or no" type of answers enabling open discussion and in-depth understanding of the phenomenon. Therefore, a semi-structured interview follows a certain list of interview questions, but still ensures flexibility within the interview. (Longhurst, 2010) The interviewees were also able to answer the open interview questions, as the interviews were made as phone interviews.

5.3 Data analysis methods

The data analyzed in this study is collected from four small and medium-sized enterprises. The data analysis method in this study is content analysis referring to a research technique, which makes new insights and improves understanding of the

phenomenon (Krippendorff, 2018). Additionally, content analysis is appropriate for this study as it can be used with qualitative data (Elo & Kyngäs, 2008). The theoretical part of the thesis provides the basis for the empirical part and the empirical analysis. The purpose is to analyze the key literature of the phenomenon and the empirical part and discuss the main differences and similarities between the interviewees' answers. The idea is to focus on the actual content that has come up in the interviews rather than what are the exact text forms phrased by the interviewees.

The empirical analysis consists of several themes presented previously in the literature review and forms the basis of the interview questions. The data analysis in the study and the points of view of the case companies were explored by using these three themes.

- Servitization
- Service strategies
- Organizational transition to service business

All the interviews were recorded based on the willingness of the interviewees. After all the interviews were made, the data from the four interviews were typed up to a text form. Thereby, the data from the interviews was also able to be rechecked, which strengthened the data analysis of the research findings. Also, all the interviews were translated into English for the empirical findings chapter because all the four interviews were conducted in Finnish.

5.4 Reliability and validity

Yin (2014) stresses case study design should be considered with different critical conditions: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability. With these four aspects, quality control can be taken into account when conducting a case study.

Reliability corresponds to dependability, which refers there is consistency in the measurement of the targeted variables (Lapan, et al., 2012). In qualitative research, it is important the people, from whom the information is collected, have a lot of knowledge and experience of the phenomenon (Tuomi & Sarajärvi, 2018). In this thesis, reliability is increased as all of the interviewees have worked for many years in high positions in their companies, and the interviewees have a wide knowledge of their firm and the industry the company is operating. Besides, the interviewees have a high understanding of the company practices and processes, which provides value for the research even though their roles differ between the companies. However, the case company names are not published in this study, which might affect positively the interviewees when answering the interview questions.

In the study, all the interviews are recorded, which improves the reliability of the findings and analysis of the research. However, it has to be taken into consideration that the interviewees can be affected by their busy schedules. The interviewees might understand the themes and questions differently as the interview situations are always unique, which might affect the quality of the answers by the interviewees, and thus the outcomes. Also, the interviewees had tight schedules and high workload, especially due to the ongoing summer holidays, so the interest and motivation to answer the presented interview questions might be influenced depending on the current situation of each interviewee in their company. This issue was minimized by letting the interviewees decide the best possible time and day for the interview based on their schedules.

As mentioned, validity can be divided into construct, internal, and external validity. Lapan et al. (2012) parallel internal validity to credibility, which refers to the reliance that a scholar has his/her intervention caused the change in the dependent variable. All the interviews were not concluded within similar surroundings so there cannot be sure the interviewees had equal situations to answer the research questions. Instead, Lapan et al. (2012) equate external validity to transferability. The scholars describe how external validity implies that the research outcomes can be generalized to other samples from the same population. There are interviewed only four companies in this study, which does not provide an exact view of the

phenomenon in SMEs as most firms in Finland are small or medium-sized companies. However, the firms represent different kinds of companies as they are operating in different sectors, which provide slightly generalized outcomes for the study. According to Yin (2014), construct validity refers to recognizing correct operational instruments for the concepts being explored. In this study, the provided data from the firms contribute to the validity of the research and based on the conclusions the data reflects the role of servitization in the SMEs.

In chapter six, the main empirical findings of the research are presented and discussed. Additionally, the chapter follows the three themes and sets the findings based on the different topics. In the empirical findings should be taken into consideration that the case companies focus on different kinds of industries, which affect the findings as well as the analysis of the interview questions.

6 EMPIRICAL FINDINGS

Next, this chapter presents the empirical findings of the research from the interviews conducted in four case companies. The purpose of the empirical findings is to introduce the role of servitization and how the case companies are executing service business. This chapter is divided into three themes, which are presented previously in the theoretical part of the thesis. The first theme is servitization, which covers servitization and the benefits and challenges of servitization. It is followed by the service strategies that explore levels of services, product-service systems, and forms of servitization of the case companies. The final theme refers to the organizational transition to a service business that investigates the organizational structure and organizational culture in the case companies, but also how the companies are utilizing technology and data in their businesses.

6.1 Servitization

According to the four interviews, the importance of the services has been recognized in all case companies. The companies understand the meaning of services for their businesses and how critical services are for business development. The interviewees stress providing services for their customers is crucial for fulfilling diverse customers' needs, and based on some case companies, the share of services offered to customers has been increasing in recent years. Additionally, the firms note how it is hard to separate a product and a service from each other and tell the differences between them. Some of the case companies consider products and services together as their products include a lot of other practices and processes, such as support and analyzes. According to the case companies, firms benefit from services, and they, for example, improve their businesses and customers relationships. However, the challenges in the service business are also apparent for the case companies. Based on one case company, the challenges related to servitization occur, especially when aiming to get new customers for the company.

6.1.1 Servitization in case companies

Services can be considered as a significant factor in the company Alpha as the general manager of the company discusses services cover a third of their yearly turnover which is approximately 700 000 - 800 000 euros per year. In the interview, the general manager of Alpha notifies how some people could claim that everything the company sells is services. Additionally, the general manager of the company points out how services can be seen almost as necessary options for smaller companies as the competitive situation differs between the small and large firms. The general manager of the company Beta emphasizes the importance of services in the interview slightly more compared to the company Alpha. In the company Beta, services are seen as absolute necessities in the business as they enable sales and the manufacture of products in the company. According to the general manager of Beta, the meaning of services is enormous for the company's business, but it is challenging to estimate how much services form of the company's turnover. Hence, the company Beta is unable to tell how the firm's products and services distribute when considering the turnover of the case company.

“Let's say that those services enable our sales and thereby enable us to manufacture our products so that without our services we couldn't do business.”

(Case company Beta, 2019)

Based on the interview with the director of the company Delta, the products and services are combined entities, and therefore, the firm cannot confirm any specific amount of the share of the services in the same way as the case company Beta. From the Delta's point of view, the price of a product includes all costs from both the products and the services, which makes evaluating the shares of services and products difficult. However, based on the interview with the company director, services are crucial for Delta's business and generally in their industry. According to the interview with the general manager of the company Gamma, their firm is a service company wherein the services form 100 percent of the company turnover, which is why the company differs from the other case companies. The company has no certain products at its stock all along, which could be sold if a customer asked

for specific products. As a consequence, the company Gamma is manufacturing all its products based on the customers' requests and their specifications.

As presented earlier, services are primary necessities in all of the case companies, and each company reflects they need to have services in their offering. However, the interviews indicate that not all of the companies have always provided services, and the service providing develop differently in the case companies. For instance, the company Alpha has been moving towards the service business by degrees as a result of the customers' changing demands. The general manager of the company stresses that providing services has even become a part of their brand since customers know and trust that the company will manage the required orders from start to finish. Also, the general manager of the company Beta discusses the company has in some ways always offered services, but recently the need for offering services has been sharpened and become more critical. For that reason, the company focuses currently more on services.

“In the last six to seven years, it has become clear that services are essential as otherwise you will not trade for customers there. Customers are actually just one person organizations out there at the customer's end, so they need that particular service or product they want it in one place.” (Case company Beta, 2019)

The director of the firm Delta discusses how the firm has been selling products and services since the company founded. In turn, the case company Gamma refers itself nowadays as a service provider, but the company has not always been offering merely services. In the interview, the general manager reveals how previously the company provided only specific products, but very marginally. For many years now, the company has been manufacturing products because some years ago no other company offered similar products and services, especially in Finland. As a result, customers started to purchase certain products and services from the company Gamma rather than buying them from far away.

6.1.2 The benefits of servitization in case companies

Company Beta describes the benefits of services and explains how providing different kinds of services has improved the company business. The general manager of the company discusses services are not the core business of the company but instead actively supporting and boosting the overall sales and the sales of the products. The general manager of the company Alpha explains how services have better margins than products, but the general manager cannot confirm that services have improved the company's business overall or financially, as some of the company's competitors operate successfully without offering any services. Although, the company Alpha states the company might be in a better position in the market due to the company's service providings. Besides, the general manager of the company notes there are nowadays more customers who require to complete the offers entirely. The company Alpha considers the customers' requests might affect positively on the company's business as the firm can serve the customers by managing the necessary work adequately.

The company Delta and Gamma point out similar views of the service business. The companies explain how service offerings are favorable when expanding the company's business and aiming to get new customers, even outside Finland. The director of the Delta company stresses the small markets in Finland and how the importance of services is emphasized, especially when the company is new in the markets, and the customers are not familiar with the business and its providings. Thereby, the company has to differentiate its offerings from competitors with its services. The general manager of the company Gamma has identical views of their business, and the company points out the significance of services in the markets and the benefits of services when differentiating the company offerings. The company Gamma discusses how the firm would not succeed if the company was competing only with the price of a product because manufacturing a product alone in Finland would be a lot more expensive compared to the countries with a low-priced workforce. According to the Gamma general manager, the cost structure is entirely different when paralleling the Finnish companies and Finnish workforce to low-cost labor. Therefore, the companies must have all the other aspects on such a high level that the customers think it is worth to pay a little extra to get more value

than when making purchases from the countries somewhere far away. Besides, the general manager emphasizes how in such a context, unique service offerings are making vast differences in the meaningful aspects for customers.

“We have been able to deliver what the customer wants; high quality, and within the time the customer needs it. That is certainly one of the cornerstones of why our customers buy from us... of course then these other things have to be on such a high level so that the customer thinks it's worth paying a little more.” (Case company Gamma, 2019)

The case companies state services affect customer relationships, and services can influence the relationships positively if a company succeeds in the ordered work. The company Delta director explains the firm will get new subscriptions when the company has managed in work well. The solid customer relationships refer also strongly to the trust between the company and its customer and, for example, the director of Delta, notes the customers make new and more complex purchase orders when a company finishes its requests as promised.

“If you do your job well, then you will get the next order. After all, it always starts with small issues, and then when the confidence grows, you get caught up in the bigger jobs.” (Case company Delta, 2019)

The company Gamma has similar views of the benefits as the general manager discusses how the main factor, and the base for their business, are the larger customers who have been their customers for many years. The general manager of the company mentions the company is no longer only a provider for its customers as the company and the customer are rather partners who cooperate when the customer is facing changes or difficulties. For that reason, the long-term collaborations with the current customers are beneficial for the case company as they make changing the supplier more complicated and laborious. According to the general manager of the company, this is especially the case when the company is providing more complex and challenging products and services.

“For customers, that a sort of a threshold that the customer goes to talk to another vendor rises when the thing is more challenging and complex what we do for the customer.” (Case company Gamma, 2019)

The same way Beta’s general manager discusses services affect the customer relationships, and the customers return when they need to make new purchases or orders. Similarly, with the services affecting the business and company turnover, the general manager of Alpha explains it may be that the company is in a better situation in the market than without offering services. Although, the company Alpha cannot entirely suggest the services affect positively on the company’s customer relationships.

6.1.3 The challenges of servitization in case companies

The director of Delta discusses the challenges in service business when competing, and how it is difficult for the company to make the customer understand that the product includes much more than the product alone since customers usually look only at the price of a product. The company Delta explains such cases occur typically in situations where the company has an opportunity to discuss the company offerings and mainly in new customer relationships.

“Price is always for the customer what they are looking at, and what matters. It is always a challenge for us when we are competing and, in a situation, where we can even talk about getting the customer to understand what it contains more than the product. Especially in new relationships.” (Case company Delta, 2019)

The general manager of the company Gamma emphasizes the challenges referring to the development of the company business because the firm’s corporate customers are continually improving their businesses. Therefore, the company has to be better prepared to face the new challenges their customers are having. Also, for that reason, the company needs to have updated means and tools for fixing the customers’ changing problems. The company Gamma mentions their challenges often relate to new investments in the machines and the expertise of the employees.

According to the director of Delta, the company has identical issues, especially because they used to have the staff in one location, whereas nowadays their employees are located globally in different time zones. Thus, employee management has become more challenging for the company executives as it is complicated to manage and allocate both the knowledge and expertise within the firm.

The general manager of Beta emphasizes the challenges that relate to the company's new employees. Beta discusses it is vital that the new employees understand their job tasks so that the required processes operate systematically and work properly. The company Beta's general manager stresses the employees' roles, especially in a smaller company where an employee can have several different job tasks. The company Gamma has similar views of the challenges when hiring new employees as they have to know how to handle customers and manage customer relationships. Besides, all the employees must be familiar with the products the company is manufacturing and when the new products are released. Therefore, also the general manager of Gamma highlights the importance of the internal systems in the company and emphasizes high-level system management. However, the challenge for the company is particularly to change the employees' way to operate and make them utilize the company's internal systems to enable more effective management of the business processes.

“Currently, the purpose is to teach people that everything has to be documented and there should be some paper or mark of what has been agreed.” (Case company Gamma, 2019)

The company Alpha states the issue in the service business is to find new skilled professionals to work in a company, and to be able to conduct the business more efficiently around the clock. The general manager explains how the skilled workers are already having jobs in other companies, which is the reason that Alpha has to hire young future potential and educate them as much is needed. Based on the interview, the challenge is also to find employees who are willing to work outside regular working hours. The Alpha general manager describes the environment has

changed because nowadays employees want to spend more and more time with their families and friends. In consequence, the company finds it challenging to serve customers around the clock due to the lack of flexible and proficient employees. The issue also relates to the fact that customers are busier than before, and they want to focus on their main businesses. The customers realize how costly it is if some of the company's processes are not working correctly, and hence, the company Alpha should be prepared for the customer's requirements and fix their problems as quickly as needed. Alpha states it is challenging as they have to repair what the customer requires even if the customers were located further away, even outside Finland. The general manager states development, new ways to work are needed and describes how cooperation or technology could be helpful in their situation.

“To be able to produce the functions 24/7 is a challenge, and another one is that how we handle the job tasks that are far away, so that how could it get more rational. It should be improved - new ideas are required.” (Case company Alpha, 2019)

Even though the case companies are small, the interviewees highlight the role of communication in the firms. For example, the company Beta discusses the importance of communication in their firm, which is improved by having all the documents available for everyone when needed. Thereby, it is easier for every employee to follow the manufacturing processes and how each project is proceeding. Similarly, with the company Beta, the company Gamma utilizes an internal system due to the challenges in communication. The interview indicates the firm aims to have all the information about the products and customers documented in one system to improve communication within the company.

6.2 Service strategies

According to the interviews, the case companies have various views of the service business and the development of service strategies. The companies discuss the service levels and which of the three service levels each company is executing at

the moment. A few case companies notify the aim to reach higher levels of services at some point in the company future. Additionally, the case companies describe the product-service systems and how the companies' providings are more and more combinations of the products and services. Based on the interviews, the case companies have different forms of servitization and several approaches to service business. Furthermore, the companies differ how much they focus on the development of servitization in the companies.

6.2.1 Levels of services in case companies

Company Beta general manager discusses the different levels of services and how the firm offers base and intermediate services. The company, for example, manufactures, assembles, and installs products for their customers. However, the company Beta has no advanced level services because they have, for instance, no leasing contracts or annual contracts for their customers. Alternatively, company Alpha has mostly the base services in its offering while having some intermediate services but not precisely the advanced services. The director of the case company Delta discusses the firm has base services in addition to the intermediate services, as they offer maintenance and training, for instance. Furthermore, the director explains the company provides advanced services too, at least in their payment terms. Delta also has several cooperation agreements with their clients that usually relate to the products the company offers. Overall, company Delta refers their business has no clear focus on specific service level as they provide different services on varying degrees. According to the case company Gamma, the company has mostly intermediate services and advanced services. In the interview, the company describes the services are listed rather traditionally, but explains the firm offers contracts for their customers where the firm delivers typically customized products for the clients based on their stock balances. Thereby, the customers can be sure they always have specific products available.

In general discussion, some companies refer to the awareness to reach a higher level of services in the future. Company Alpha discusses there are nowadays more requests from customers that apply to the advanced services, and the highest

service level. The general manager of Beta company instead, has a different view of service levels as the company has not got any requisitions or orders compromising the highest level of services. However, the Beta considers the issue might be that the company is not offering particular services because it is not the main issue to consider for the company at the moment. The Gamma company explains the aim is to reach higher levels of services, but currently, they are pleased with their providings, so the company focuses on increasing the services and diversity of the firm offering. Although the general manager of Gamma highlights, the company needs to have high-quality services and knowledge of what the customers desire.

Even though some of the case companies aim to achieve the highest service level, there occur different kinds of challenges. The interviewee from the company Alpha describes a few challenges the company has faced when reaching higher service levels. The general manager stresses how the company cannot decide for their customers that they outsource a project and its responsibilities. For a customer, it is imperative to be able to manage its employees and projects to be thoroughly sure each project can be finished within the agreed time, especially if it is a part of the company's essential business practices. Thereby, the project leaders can recognize if the employees working in the project are not able to work normally due to personal reasons, for example, or if the project is not proceeding as planned. However, Alpha's general manager emphasizes how the customers know whom to contact if someday they want to outsource a part of their business. But, for the case company Alpha, it is essential that the request comes from the customer.

"I can't decide for them... it would be just disrespectful, and it would be something like that they would think you wouldn't understand their place at all if I said you were doing it in this way." (Case company Alpha, 2019)

According to the case company, it would be rude to offer the possibility to take control of the customer's project and not realize how vital it is for a customer to be able to manage its projects. Therefore, one of the difficulties is to understand how significant the role the case company can get from its customers and where does

the limit exist. In the interview, the general manager of Alpha describes how would not probably want to outsource a project either if was managing an identical situation. For the Alpha general manager, it is essential to be able to manage everything within a project, especially if something is about to go wrong.

6.2.2 Product-service systems in case companies

The interviewee from the company Alpha explains it is difficult to tell the difference between a product and a service, but typically it can be stated that everything the company does is a mixture of different things. The general manager describes how the firm has some customers who are asking for specific products or spare parts, but it is not happening very often as it is not the company's main business. For the most part, instead, the company Alpha provides varied combinations of different kinds of services and products, which are developed and sold in the company. Additionally, the Beta company states that the company usually offers both products and services to the customers. The general manager of company Beta discusses how the company rarely sells products alone, and if they do, it is very marginal.

In addition to the companies Alpha and Beta, the Delta company has customers who only order certain products. However, the director of the company notes services are usually added to products when the made products get more and more complicated as there are more product planning and analysis, and as effortless products require no development or individual planning with a customer. Therefore, there are offered more various package deals for customers which include specific services. The company Gamma brings up the issue of several opinions about the differences between a product and a service. The interviewee of Gamma states how their business is intangible, but in the end the outcome is always a concrete product where service and a product are tightly combined.

6.2.3 Forms of servitization in case companies

When in the interviews, the companies were required to determine whether they are a product, a service, or a solution provider, the answers varied mainly between the

service and solution provider. The interviewee of company Beta strongly emphasizes that the firm is a solution provider or is at least powerfully pursuing to become. The company Gamma has identical views, and the general manager states the company is at the moment a service provider, but the firm aims to start providing solutions for their customers. The company has already put more effort and resources on the services, and their idea is to sell services that include development and implementation of the solutions if the customers require them.

The director of the company Delta defines their company more as a solution provider. The Delta company director explains products are solutions for the business, and further describes how the service business includes the products. The director of the company also believes the business is very similar in many companies both in Finland and internationally. Therefore, the company considers if a company provides only simple products, the business is probably not going to succeed. The Alpha company, in turn, describes how in their company the services are in the middle of the activities, around which everything forms. The company sells the products as a side element of services, and thus, the Alpha defines the firm as a service provider.

Based on the interviews, the service strategies differ between the case companies. The Alpha company has no precise plan for the service strategies, but as previously presented, the company is interested in higher margins of services. For the company, however, it is more important the customers are listened and promoting the growth of the company so that products are not forcibly sold to the customers because the company does not want to operate in that way. The general manager also discusses the company's purpose is to reach the highest level of services and hence maintenance contracts to get a more significant role in the client's company. Although the company has no future long-term strategies, so the business instead focuses on managing one day at a time. Director of the Delta points out how the firm has operations nowadays worldwide, which has enabled as a result of the services and solutions the company provides. Compared to the company Alpha, Delta observes new strategies but similarly emphasizes that the business starts from the clients even though the firm discovers new plans continually.

“...of course, they (new strategies) are observed in our company, but yes, they start from our customers, whatever we have at that time.” (Case company Delta, 2019)

In the interview, Gamma stresses the purpose is to focus more on advanced business. However, the general manager notes that the company is already providing intelligent and challenging operations so that it currently does not need to develop the business even further. There are reviewed the business strategy in the firm each year, so if in the markets will exist new significant business opportunities, the company will react, but otherwise, it will continue its business the same. According to the interview with the general manager of Beta, the company aims to develop its service strategies as services support the main business. For the third level of services, the general manager has not come up to any services to reach the level. However, the general manager discusses the new employees of the company might have new service and development ideas. Beta also considers that probably in two to three years, the company might have more advanced services in their offering.

6.3 Organizational transition to service business

The transitions to service business have variabilities between the case companies as they have different positions in the issues relating to organizational transition in servitization. Some case companies have focused on hiring more service-focused employees and teaching them the needed skills for being able to operate in all the operation levels in the firm whereas the others aim to increase the amount of the service processes within the company. The case companies focus on improving the service culture among the employees, and in the interviews, the companies emphasize the importance of culture, especially as smaller companies do not have many employees. According to the interviewees, technology and data are not in the center of the businesses even though some of the companies would be interested in utilizing more technological possibilities.

6.3.1 Organizational structure of case companies

For the Alpha company, the main issues in the organizational structure relate to the changes in the company employees. The general manager explains the company has new younger workers as some of the old employees have already retired. The general manager describes the change as a slow, calm transition towards more service-focused business as all the employees are nowadays more than just traditional workers. Therefore, there should note when hiring that the new employees are helpful and get along with people. Besides, the employees must be giving a proper image of the company. In the interview, the company Alpha discusses the employees' willingness to serve customers and how it has developed in the company. The general manager also describes the firm emphasizes the desire to serve more than before.

The Delta company director discusses how the company has nowadays more partners abroad, which manage the company projects and aftersales. The company has increased the number of partners globally, and the director states the company's purpose is to raise the number of partners also in the future, but only outside of Finland. Additionally, the director of the company explains how all the company employees are involved in the service processes. Based on the company Gamma interview, the company has focused more on the service providing to meet customer demands as customers have been asking more services. The general manager of company Gamma describes their corporate customers ask typically more services as they might not have the needed knowledge to conduct processes in their firm, or they cannot find any staff for a project. So, for that reason, Gamma has increased its service providings, especially planning services, which support the company's main business.

"We have added more design services due to the increased inquiries from customers that could you design for this and help in doing this and that in order to meet the customer's challenge right from the start." (Case company Gamma, 2019)

Based on the interviews, the Beta company has changed its organizational structure most of the case companies. In the company, each person used to have their projects, and the employees were responsible for them from start to finish. The projects could last from three weeks to four months, so it was challenging for the employees to change the mindset after each project and start selling and planning on a new project. However, nowadays, the company Beta specializes their employees for their tasks, and the company has separately, for instance, sales and purchase departments as well as manufacturing. As a result, the company can develop its business more professional. Furthermore, even if the employees have their specialties in the company, most of them are required to operate with services and offer and sell them to the project.

6.3.2 Organizational culture in case companies

When it comes to the organizational culture, the company Alpha stresses its importance and how it can be observed both inside and outside of the company. The general manager explains the management reviews culture as the way the employees work and talk to the customers. Therefore, the manager continually asks whether there is still something the employees need to be able to work as it is required. Within the Alpha company, culture refers to an open and comfortable atmosphere and as a result, employees are willing to come to work and enjoy their time there at all times. The general manager describes how employees need to have exciting work tasks and proper equipment to utilize. All these issues combined create culture, which can be detected eventually in customer companies. Additionally, Alpha states how culture has to be built in the company as it is not developing correctly by itself.

“If you do not consider it at all I do not really think it will be very well created... but yes, we have been created culture quite purposefully, or now at least for the time being when I have been.” (Case company Alpha, 2019)

The interviewee from Delta refers to the combination of words, which includes the company values. The company emphasizes the meaning of the determined values

as the company is conducting business worldwide. Director discusses how employees have to get along with each other, ask help, and assist when needed. Similarly, with the company Alpha, the Delta director explains how culture affects the offered services as well. In the company Gamma interview, the general manager refers to the importance of responsibility, service capability, and desire to serve in the business. Every employee needs to understand that their outcomes have to be top quality, and they have to complete the required tasks in promised time periods. The general manager of the company discusses how all the issues apply to culture and they have to be taught to new employees, so they know what is important and how and what are their responsibilities.

When discussed the interviewees' role in the organizational culture, most of them describe their particular roles as leaders. For example, company Alpha general manager stresses the leader position and explains how everyone is looking at the leader's way of working every day. However, the general manager aims to serve the employees and customers as well as possible even if having a busy day, and thereby influence positively on the company's employees. As a result, the employees are more likely to follow the leader's behavior and his/her way to talk to other employees, customers, or suppliers. Then the employees are more willing to work and get hired to the company but also cooperate with the firm. Lastly, the Alpha's general manager notes that culture is the critical issue which can definitely be influenced.

Additionally, Beta and Delta's general managers point out the leader's role referring to organizational culture. The general manager of Beta discusses how the leader's role is to make sure the organization develops so it is able to produce high-level services that support the business. The director of Delta company highlights the leader is an example but also explains the role of the leader in their company has slightly changed during the years. The director states the responsibilities have decentralized to other managers who are working under the director's authority in the company.

6.3.3 Technology and data in case companies

The company Alpha general manager discusses how the company utilizes technology by having the documents in the cloud so that the customers can review them when needed. Some of the technologies relate to the products and automatic remote monitoring of devices, and the company has little data collection as well. Alpha describes the company has not come up with new ideas which could include technology and benefit the customers. The general manager of the company describes how different salespeople contact the manager and aim to sell new systems. Although the general manager considers 99 % of the cases, the systems would not advantage the company customers, so there has not been the use of certain kinds of products. The customers are also typically larger companies who have many employees. On that account, they are among the first ones to observe and utilize the newest technologies to get their processes working. The Delta director considers the same and states the customers are aware of what is available in the markets, and thereby they suggest the new ideas to Delta company as well. The company Beta notes in the interview how the firm has its documentation in the cloud, which improves the processes because the information is available whenever required.

According to the general manager of Gamma, the company utilizes technologies in the manufacturing process, but the actual products do not contain any technology or data. The technological issues, such as big data, affect more on the company's customers than the firm. However, Gamma utilizes some technologies, such as IT-department in the cloud, documentation system and emails, so that all the files can be accessed when needed. Besides, the company invests in new technologies to get new capacity as well as service capability if a company sees there is a specific customer need. Thus, it is a way to provide better services and grow the business overall.

“Our investments refer to improving our service capability and our service coverage in some ways... a small company, we are not going to invest unless we have a clear vision of some of these customer-driven customer needs, which we can then better meet with that new investment, and provide a better service and

see the opportunity for us to grow our own business.” (Case company Gamma, 2019)

Director of Delta states the customers are not willing to pay for the extra technological parts for the products as they are not bringing any value for them even if some of the larger customers have tested some products. Although, there are utilized a cloud system “drive” as a tool in sales and projects. Delta will also have a new ERP system later this year, which will create more value for the projects from the customer’s perspective.

7 DISCUSSION AND CONCLUSION

The main purpose of the research was to examine the role of servitization in small and medium-sized companies and understand the phenomenon in the manufacturing industry. The research aims to understand servitization and how central it is in the SMEs in Finland. The objective was to understand what motivates companies to servitize their businesses and if the companies follow different kinds of forms of service strategies in the manufacturing industry. Also, the focus was on organizational transitions to service businesses and if they vary between the SMEs. In this final chapter of the thesis, the theoretical part and the empirical parts of the study are combined. The possible similarities and differences between the empirical and theoretical parts are identified and analyzed by reviewing the research findings. Simultaneously, the chapter aims to answer the research questions of the thesis. Thus, this part of the study recognizes the connecting factors between both parts of the thesis and emphasizes new possible findings of the research. Additionally, this chapter discusses the research contributions, implications, and research limitations. Lastly, the chapter provides suggestions for future research.

7.1 Summary of the research findings

In this chapter, the results of the research findings are reviewed by answering the research questions. Every answer takes into consideration the relevant aspects of the research questions. Thus, each answer attempts to form an overall view of the topic. First, in this chapter, the research findings for each sub questions will be presented, which is followed by the findings for the main research question as the determined sub questions support the main research question. The main research question and the sub questions are represented in table 4.

Table 4. The main research question and the sub questions of the study

The main research question:	What is the role of servitization in the small and medium-sized manufacturing companies?
The sub questions:	<ul style="list-style-type: none"> • What motivates SMEs to servitize their businesses? • What forms of service strategies are followed by the small and medium-sized manufacturing companies? • How do the organizational transitions to service businesses vary between the SMEs?

What motivates SMEs to servitize their businesses?

Servitization applies to a transition wherein companies increasingly provide services that closely link to products (Baines & Lightfoot, 2013), which seem relevant and easily observed in the case companies. Nowadays, for manufacturing companies, it is essential to provide services to their customers. The service sector is becoming more important in companies, and the companies are making changes in the service business. Traditional manufacturing companies are becoming closer to service businesses, and the barrier between them is getting more indistinct (Kindström & Kowalkowski, 2014). Instead of the traditionally manufactured products, customers have started to focus on the value or the benefit each customer gets by using a product (Pawar et al., 2009). Various product and service combinations are favorable to offer in a firm as customers have varying and differing needs (Cenamor et al., 2017). Therefore, servitization provides many opportunities for companies since they can develop different kinds of services which support the main business of the firm (Baines et al., 2009a).

The interest in servitization and service business can be notified based on the research findings. All of the case companies have increased their number of services and are more focused on offering services. The case companies also emphasize their customers have required more and more services so the change can be underlined. As presented in the theoretical part of the study, there are two key reasons for the increase in services (Gemmel et al., 2013). The first reason relates to the customers and how they are more demanding these days because they are no longer pleased with products alone. Besides, customers' requirements are changing continually, which increases the need for companies to modify their offerings. However, the findings indicate that the customers are more keen to order all they want from one manufacturer, including products and services, which increases the interest in the service business in a company. Also, the research findings emphasize the need to answer to customers' changing demands, which also affects the made investments in the company. For example, one case company has to develop its business simultaneously as its customers, and thereby answer to customer demands and offer services they require.

The second issue in the theoretical part refers to high-quality services and how services enable companies to differentiate their offerings from competitors. With services, companies can make their offering more desirable for the customer. (Gemmel et al., 2013) One interviewee describes how the company can compete on the grounds of the services as the firm would not succeed if it were manufacturing only simple products. Based on the interview, competing only with the products would difficult for the company due to the countries with low-cost labor. However, the companies have realized that services provide opportunities to expand businesses and to compete in other ways than product features alone.

The theory introduces the benefits in service business covering financial, strategic, and marketing benefits for a firm (Mathieu, 2001a; Gebauer & Friedli, 2005). The benefits have received a significant interest among industries since businesses have utilized service opportunities. Based on the findings, all case companies recognize some benefits of service business even though the firms are not able to identify the benefits as extensively as in theory. According to the interviewees, the

servitization benefits relate to company sales and differentiation. Some of the case companies describe they might be in a better position in the market due to the services. Service business affects positively on customer relationships while also providing new business opportunities for the firms. Overall, the financial, strategic, and marketing benefits of servitization are relevant in all four case companies as it becomes evident that services are favorable in the firms.

The theoretical part presents the challenges when transforming the business towards more services and how the servitization challenges have negative impacts on the fulfillment of expected benefits and the business performance improvement (Zhang & Banerji, 2017). The theory proposes how companies might face challenges referring to strategy, organizational processes, structure, and customer relationships. However, the challenges of servitization described in the interviews vary a lot in the case companies, and there can be recognized the same challenges discussed previously in theory. The challenges mentioned in the interviews relate to, such as organizational structure, business model, and customer management. The key emerging challenge in case companies relates to changing the employees' way to operate. Additionally, communication and the management of the employees seem to be an issue, especially when the company is operating outside Finland.

According to the theory and the research findings, the small and medium-sized manufacturing firms are motivated to servitize their business for a few main reasons. Companies move towards services to meet the customers' changing requirements to succeed in business. Also, companies are interested in the service business since it enables differentiation company's offering from the competitors when regarding both the case company interviews and the theory (Gemmet et al., 2013). Overall, services can be stated to be favorable as they gain enormous advantages for the firms by increasing an essential competitive advantage for the businesses.

What forms of service strategies are followed by the small and medium-sized manufacturing firms?

The theory part of the thesis reviews three different service levels a manufacturing company can offer (Baines & Lightfoot, 2013). The highest type of services is advanced services, which typically include performance incentives, revenue payments structured around product usage, and long-term contracts (Baines & Lightfoot, 2014). The intermediate services form the second type of services, which covers broader activities and usually focuses on the maintenance of product condition. The lowest and the first level of the model is the base services wherein the focus is on the product provision. (Baines & Lightfoot, 2014) According to the interviews, there are provided all three service levels for case company customers. Although, some case companies offer only base and intermediate services but not the advanced level services. However, one interviewee describes how the firm has all three service levels in its offering. In turn, the findings from one interview focus mostly on the two highest levels, and thereby, they differ slightly more from three other case companies.

The interview findings show some companies have the purpose of achieving higher service levels. Although, one case company explains it has no aim to achieve higher levels of services because the firm is currently pleased with their providing. Although, the company explains they are required to have services with high quality but also knowledge, so they understand what their customers desire. Based on the theory and the interview findings, the case companies recognize their service offering well, which is also described to be essential in theory (Kohtamäki et al., 2018).

The theory of product-service systems applies to the 'sale of use' instead of the 'sale of product' (Baines et al., 2007). The PSS theory highlights how the customer pays for the use of an asset instead of buying an actual product. In the interviews, the companies discuss they provide combinations of products and services but not in a way that a customer is paying only for the use of manufactured products. In turn, companies are offering more often products and services rather than product

utilization. The evolution of the product service-system concept (Baines et al., 2007) provides a relevant concept for the issue where the stages of the case companies can be easily observed. Based on the presented model and the interview findings, the companies are focusing mainly on either the services and products or products and services. The case companies state they sell very rarely only products or product sales is very marginal. Thereby, it can be evaluated the findings do not fully support the PSS concept of customers paying only for the use of a product. However, the findings refer strongly to the product service-system concept (Baines et al., 2007) defined in theory, and thus also the servitization of products towards product-service systems.

The PSS theory emphasizes the purpose to achieve sustainable development goals, including social, economic, and environmental needs (Brandstotter et al., 2003). Although, the interview findings do not refer to the sustainable development, and the interviews did not emphasize any social, economic, and environmental issues relating to the PSS concept. Instead, the interviewees mentioned the need to offer products and services together to enable the increased value and differentiation to other companies, which is highlighted in theory (Baines et al., 2007; Mont, 2000).

Both the theoretical and empirical findings evaluate the goal to evolve service strategies in the companies. An interviewee describes the company plans to expand the offering while aiming to become a solution provider wherein the importance of services is high. The theory highlights the “product-service continuum” (Oliva & Kallenberg, 2003) that presents the continuum towards tangible goods as “add-on”. The findings observe some of the case companies have identified future strategies, but they are not pursuing determinedly to reach the next level on the continuum. The case companies instead move and develop as businesses based on their customers’ requirements as the companies highlight the need to listen to their customers’ demands. Thus, the empirical findings emphasize the aim to reach their target positions but notify the challenges relating to the development. The theoretical part states similar views and impresses how companies need to identify their opportunities and challenges so they can to define their position in the continuum.

The active processes should also include the constant determination of the firm's position where the firm is slowly moving towards service dominance. (Gebauer et al., 2008)

There should be observed that one interviewee noted their company has currently no ideas of the possible advanced services, in which the goods would be as "add-on" to services. Although, mostly all of the case companies have purposes of developing their service offering and operating more in an advanced way. All case companies provide product and service combinations, but some of the case companies have more tendency to target higher service levels and improve the current service strategies extensively. Based on the findings from the theoretical and empirical parts, manufacturers have various forms of service strategies. The empirical findings indicate there are not as diverse service strategies as in the theoretical part, but the importance of services and the service strategies have been notified in the manufacturing firms.

How do the organizational transitions to service businesses vary between the SMEs?

According to the theoretical part of the thesis, the delivery systems of services is a lot different compared to delivering products (Baines & Lightfoot, 2013). Therefore, the theoretical findings state that the organizational structure should be taken into account when developing a service business and aiming to achieve desired and successful outcomes (Bustinza et al., 2015). The case companies state the issues in their organizational structures relate to changes in the service business. The companies explain how in these days all employees are part of service processes, working with services and responsible for the company's service business. Usually, the structural issues refer to hiring new employees and employee management to make sure the organizational structures are supporting the service business and the main business of the company.

The findings indicate the structural issues are considered in the case companies, but the theoretical part findings are not relevant in the case companies. For example,

the theory observes a new business function, outsourcing (Bustinza et al., 2015) and individual service organization as optional approaches for managing service offerings and increasing service revenues (Oliva & Kallenberg, 2003). However, they are not mentioned as suitable options in case companies as the company sizes, and the number of employees seems to affect the businesses a lot. The interviews support more the theory of decentralized service organization (Gebauer et al., 2006) where the employees have their responsibilities, functions and coordination. Thereby, the company can succeed and implement its service strategy. However, there have to be notified that one interviewee discusses that the company has customers far away and suggests cooperation could be useful. Thus, it can be concluded that outsourcing could be an option in some cases, especially if the travel times of the employees are getting too long when a customer needs a quick repair service, for instance.

The theoretical part of the thesis highlights the importance of organizational culture (Gebauer & Fleisch, 2007; Homburg et al., 2003; Dubruc et al., 2014). Further, theory reviews how modifications in the organizational culture are considered necessary in servitization as service business creates a service culture (Palo et al., 2018). Based on the interviews with the case companies, the significance of organizational culture is highlighted as well, and how the small aspects in a firm shape the company culture. However, the case companies can be considered to be more prone to cultural changes due to their small sizes. When the company hires a new employee, it is crucial how the new member adapts to the current culture and the ways to operate within the company. Thus, some of the case companies stress the meaning of new employees and the importance of the hiring process. Based on the findings, there are similar views of how management can influence company culture through a hiring process and hire employees who are more willing to serve customers (Hofstede et al., 1990). The made interviews also pointed out how the culture affects the service level and eventually the firm's customers, which is supported by the theoretical part of the study (Gebauer et al., 2006).

However, the interview findings indicate the managers consider the culture can be affected and developed as it is not improving by itself. Identical views have noted in

theory (Alvesson & Sveningsson, 2008), which states the managers can modify the firm culture if the management has skills, knowledge, and resources. In the interviews, it became clear how the interviewees consider they can affect the culture as being the leaders of their company. One interviewee points out how the aim has been to build company culture. The interviewees also discuss their role as leaders referring to organizational culture and how they have to lead by example. Overall, the similar views of culture between the theory and the empirical findings can be confirmed as both findings emphasize how major cultural issues are in the companies.

According to the interviews, technology and data do not have a significant role in the small and medium-sized manufacturing companies even if two trends influence the manufacturing companies: servitization and Industry 4.0 (Frank et al., 2019b). Based on the interviews, the companies are utilizing technology in manufacturing processes, which are improving and getting more automated (Kusiak, 2017). Mostly, the companies utilize technology in their documentation, so all documents are readily available for everyone. However, one interviewee points out how big data is concerning more their customers rather than their own business.

Based on the findings, technological opportunities do not apply to the case companies' businesses as much as the theory indicates. The issue might occur as the case companies have to be entirely sure about the new investments due to their small sizes compared to large firms. Although, a case company states the investment decisions are mostly dependent on the customers who are not willing to pay for extra technological parts.

All in all, manufacturing companies mention various issues relating to servitization, which are affected when moving the business slowly towards the service business. It can be concluded that the case companies are considering organizational structures in their businesses and how they should be modified to improve the overall business and the services. The organizational culture is also in a significant part of all companies, even though cultural management slightly differs between the firms, especially if the company has employees in many locations. Instead, the

utilization of technology and data does not change a lot between the companies as technology and data influence on firms' businesses and servitization only a little.

What is the role of servitization in the small and medium-sized manufacturing companies?

Based on the research findings, the role of servitization in small and medium-sized manufacturing companies can be stated to be well recognized. According to the interviews, the case companies exploit services diversely by offering various services to their customers. The interviewees emphasize services are necessary for their businesses since the companies can sell their manufactured products, and thus conduct their main businesses. Thereby, the companies are also able to focus on their key activities. However, the interview findings indicate the benefits of services promote the general interest in services, but they are not the primary issue for offering more advanced services. Instead, the main contributing factor affecting to servitize business are customers' requirements and demands, and what kinds of services they are willing to purchase. Thus, the customers drive all processes and aspects of the companies' businesses.

Based on the findings, the challenges among the case companies vary between the firms. The challenges apply mainly to communication within a firm, long distances, training of new employees, and the lack of skilled employees who are willing to work flexible working hours. Although the interview findings show the challenges do not directly prevent the companies from offering services. The challenges are more as factors retarding the service processes and making them more complicated, and thus, they are not affecting the motivation to servitize business.

The findings highlight the small and medium-sized manufacturing companies' service strategies and how they have developed in the case companies. Most of the case companies have current service strategies, and they are also aiming to improve them. In turn, some companies focus on their business activities more day to day basis and do not have a long-term strategy. Services have still an essential role in the company business. Although, most case companies plan to offer more

advanced service strategies in the future, which refers to how SMEs have a general understanding of the increased importance of services and service business. Besides, the companies are already offering product and services combinations to their customers, and thus moving slowly towards product-service systems. The service strategies differ between the SMEs, even though services are having a huge role as they are supporting the main businesses.

The research findings prove the role of servitization is apparent in the SMEs as the companies are considering services, for example, when hiring new employees and so that all employees are part of service processes. Interviewees state the cultural issues are also taken into account in the service context, so employees know what kind of behavior is expected from them. Interviews also show the interviewees realize their role as leaders and how their behavior influences employees and eventually the offered services and customers.

In table 5, there are summarized the main research results of the theoretical and empirical parts of the thesis.

Table 5. Summary of theoretical and empirical research results.

Research question	Theoretical results	Empirical results	Theoretical & empirical results
What motivates SMEs to servitize their businesses?	<ul style="list-style-type: none"> -Clear insights of how servitization provides financial benefits for companies, such as increased revenues and margins -The strategic benefits: creating services is efficient as it takes less time than manufacturing products 	<ul style="list-style-type: none"> -Inadequate recognition of benefits of servitization within the case companies compared to theoretical results 	<ul style="list-style-type: none"> -A lot of new business opportunities will exist when focusing on services -Services are the key factor for making products more valuable for customers -Providing services is a way to differentiate the companies' offering from its competitors -Services have positive effects on customer relationships

<p>What forms of service strategies are followed by the small and medium-sized manufacturing firms?</p>	<ul style="list-style-type: none"> -Advanced services are clearly the most interest types of servitization -The idea of 'sale of use' rather than 'sale of product' -Determining the company position in the product-service continuum through performance-based contracts and value-added services -The significance of service-dominant logic 	<ul style="list-style-type: none"> -Companies are mainly focusing on base and intermediate services rather than advanced services -Difficulties to reach higher service levels -Not recognizing the product-service continuum neither pursuing continually forward -Not emphasizing any social, economic, or environmental issues relating to the PSS concept -Lack of clear and long-term service strategies for the future 	<ul style="list-style-type: none"> -Different types of services as well as service strategies are recognized in the companies -Considering products and services usually combined together -The aim to improve service strategies
<p>How do the organizational transitions to service businesses vary between the SMEs?</p>	<ul style="list-style-type: none"> -Considering a separate service organization as a key issue to offer services and increase service revenues 	<ul style="list-style-type: none"> -Discussion of cooperation and having partners within the service business -Technology and data are only little emphasized in the transition to service business, and the possible advantages are not utilized in the case companies 	<ul style="list-style-type: none"> -Taking organizational structure into account in the organizational transition to service business -The importance of organizational culture is notified
<p>What is the role of servitization in the small and medium-sized manufacturing companies?</p>	<ul style="list-style-type: none"> -The importance of services for business development is recognized -Companies understand providing different services is crucial as customers are more demanding in these days -The share of services in the companies is increasing -Services are modifying small and medium-sized manufacturing companies' businesses 		

Overall, it can be stated that the companies are considering services widely in their business behaviors and practices. Case companies take services into account when

developing the business and when planning new services for customers. On the other hand, customers are, in turn, expecting high-quality services from companies. Thereby, services are currently modifying small and medium-sized manufacturing companies' businesses. Based on the research findings, service will affect the business also in the future, and their role in manufacturing firms will keep increasing.

7.2 Theoretical contribution

As previously mentioned in the thesis, most studies related to servitization focus on large corporations, which are operating globally. There are not many studies that focus on small and medium-sized enterprises in the manufacturing industry, and therefore, there is more a research gap in the knowledge of what is the role of servitization in small and medium-sized manufacturing companies. Also, there are not many types of research of the phenomenon focusing on the Nordic countries. This research aims to combine the current literature and the concepts of servitization, service strategies, and transition to service business in organizations. The study aims to form a general understanding of the role of servitization by focusing on small and medium-sized manufacturing companies. Servitization can be recognized in the case companies as the companies utilize services in their businesses and the services foster and modify the companies' businesses.

Servitization has gained a lot of interest in recent years by scholars as well as practitioners. The empirical findings indicate that the importance of servitization is increasing significantly in manufacturing companies, which supports the theoretical findings. Besides, the empirical results have a lot of similarities with the theoretical part, which indicates how well the importance and the role of a service business are recognized in the SMEs. Therefore, it can be stated that the current literature is corresponding with the empirical results even if the existing theory is mainly focusing on large companies.

7.3 Practical implications

This research aims to study servitization in the small and medium-sized manufacturing companies and compare the existing theory to what is the role of service business in the organizations. The thesis analyzes how well manufacturing companies are utilizing servitization and taking advantage of services, which can also be utilized in other SMEs. The analysis indicates the small and medium-sized companies are focusing more and more on services, and the importance of service business is only increasing. Also, the findings suggest for other small and medium-sized manufacturing companies, how it would be beneficial to note services in their businesses and include services to their offerings. In that way, companies can serve their customers better and give them excellent customer experiences. Besides, companies should concentrate on how they expand services within their companies and how they provide more diverse services for their customers.

The analysis provides supporting information on manufacturing companies, and it emphasizes how the importance of service business is increasing. Also, the analysis notifies the existing similarities and differences between the companies. The insights can be utilized in diverse organizations when exploring the possible approaches for service business in companies. All in all, servitization is a significant phenomenon to explore in organizations. The servitization researches offer essential knowledge of the topic.

7.4 Research limitations and future research

In the thesis, there are unavoidable limitations due to qualitative research. There were four case companies interviewed for this study, which provided quite extensive insights into the topic. Although, the number of interviews does not provide generalizable results of the phenomenon, and for that reason, the data can be considered limited. Also, the research data can be seen restricted since most of the companies are SMEs in Finland and Europe, and the data represents only a small part of the companies.

In future studies, there could be made more comprehensive interviews for the companies and include a higher number of small and medium-sized companies for the study. As a result, it could get more insights into the phenomenon. Thus, there could appear more useful and relevant data about the role of servitization when having more interviewees compared to what this research data brought up. In that case, it would also be possible to get more generalized findings of the phenomenon. Alternatively, the study could be reconducted in other countries, for example, in other Nordic countries or Europe. Then, there could be made a comparison between SMEs in different regions and investigate the results and possible differences. A favorable option could also be to conduct the interviews as face-to-face interviews since there were used only phone interviews in this study. With face-to-face interviews, there could be increased the trust between the interviewer and interview, which could improve the outcomes of the interviews and the in-depth analysis.

One interesting perspective to study could be to focus on other types of industries and compare the gathered data between both the different industries and companies within the specific industries. Additionally, it would be fascinating to explore issues, which have enabled SMEs to succeed in their servitization processes, and further how the companies have been able to achieve competency for service business compared to other companies. Besides, there could be explored the efficient arrangements for the SMEs in different phases of servitization processes.

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APPENDICES

Appendix 1. Interview questions

1. Background

Could you shortly describe your background?

What is your position in the company and your work tasks at the moment?

Theoretical framework	Research sub questions	Interview questions						
2. Servitization	What motivates SMEs to servitize their businesses?	<p>-How much services and products form of the company turnover/revenue at the moment?</p> <p>-What do you see as the key benefits in service business?</p> <p>-What do you see as the key challenges in service business? (Have your profits increased? Competition improved? Customer relationships changed?)</p>						
3. Service strategies	What forms of service strategies are followed by the small and medium-sized manufacturing companies?	<p>-Do you see your company as a product, service or solution provider?</p> <p>-Do you provide base, intermediate or advanced services?</p> <div data-bbox="853 1433 1548 1848" style="border: 1px solid black; padding: 10px; margin: 10px 0;">  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 5px;">Advanced services</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Customer support agreement, risk and reward sharing contract, revenue-through-use contract, pay-per-use, leasing </td> </tr> <tr> <td style="text-align: center; padding: 5px;">Intermediate services</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Scheduled maintenance, technical help-desk, repair, overhaul, delivery to site, operator training, condition monitoring, in-field service </td> </tr> <tr> <td style="text-align: center; padding: 5px;">Base services</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> • Product/equipment provision, spare part provision, warranty </td> </tr> </table> </div> <p>-Do you provide combined products and services so that they are together fulfilling specific customers' needs?</p>	Advanced services	<ul style="list-style-type: none"> • Customer support agreement, risk and reward sharing contract, revenue-through-use contract, pay-per-use, leasing 	Intermediate services	<ul style="list-style-type: none"> • Scheduled maintenance, technical help-desk, repair, overhaul, delivery to site, operator training, condition monitoring, in-field service 	Base services	<ul style="list-style-type: none"> • Product/equipment provision, spare part provision, warranty
Advanced services	<ul style="list-style-type: none"> • Customer support agreement, risk and reward sharing contract, revenue-through-use contract, pay-per-use, leasing 							
Intermediate services	<ul style="list-style-type: none"> • Scheduled maintenance, technical help-desk, repair, overhaul, delivery to site, operator training, condition monitoring, in-field service 							
Base services	<ul style="list-style-type: none"> • Product/equipment provision, spare part provision, warranty 							

		<ul style="list-style-type: none"> -To what extent has your company developed its service strategies? -Have you planned to change your service offerings in the future? Why?
<p>4. Organizational transition to service business</p>	<p>How do the organizational transitions to service businesses vary between the SMEs?</p>	<ul style="list-style-type: none"> -Has your organization changed to provide more services in recent years? What have been the changes? -In your opinion, what is the role of organizational culture in service business? -Have you developed a service culture? (-Do you have a separate organization handling service offering?) -Which technologies are you utilizing at the moment (IoT, Cloud, Big Data, Analytics)? -In which processes are you using technology at the moment? How? -What benefits has technology brought to the business? -Have you planned to invest in new technologies related to services in the near future?

5. Future prospects

How do you see the company future in service business?

Do you have any comments or anything to add?