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Organizational change in servitization journeys

A qualitative research into how Dutch manufacturing SMEs ´servitize´

Master: Organizational Design and Development

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Preface

With this report I take the final step in finishing my Master Business Administration in the direction of Organizational Design and Development at the Radboud University and I would like to thank everybody who supported me along this ´journey´. First of all I want to thank my supervisor, Dr. Ir. Hans Schaffers. I want to thank him for introducing me to the very interesting trend of servitization, I have learned a lot about this subject and I am glad to have had the opportunity to write my master thesis on this subject. Furthermore I would like to thank him for his support, feedback and patience as my supervisor. I also want to thank Prof. dr. Kristina Lauche for her support and feedback and Ir. Eric Joustra for introducing me (and driving me) to two of the researched organizations. And of course I want to express my gratitude to the organizations that cooperated with this research project and all the respondents that took the time to cooperate. Last but certainly not least, I want to thank my parents and sister for their uplifting words and support.

I wish all readers pleasure reading this report.

Michiel Oostrum

Abstract

Research aim: The main research aim is to understand the implications of servitization for organizational change. This thesis aims to present empirical insight in what servitization journeys for Dutch industrial SMEs entail, gain insight in the nature of organizational change with servitization, discover a direction of a growth path in servitization journeys, find out crucial events and activities in a servitization process and gain insights in how Dutch industrial SMEs organize their servitization journey.

Approach: A combination of inductive and deductive research in which findings in scientific literature are discussed and four servitization cases are studied and compared. Qualitative data was gathered through conducting interviews and collecting and analyzing background documents.

Findings: Two detailed descriptions of servitization journeys of Dutch industrial SMEs are presented. The servitization transition appears to be incremental, consisting of both continuous emergent change and episodic change encompassing several phases, where change is organized in a controlled manner. Growth paths as identified in literature make sense but with critical side notes. Besides, multiple change organizations (which are change/intervention teams) appear to be of use with servitization.

Theoretical implications: The thesis provides empirical insight in servitization journeys of Dutch industrial SMEs. It identifies and discusses growth paths for servitization, explores factors influencing the course of servitization journeys and verifies and extends seven critical success factors for servitization. It analyzes the process of organizational change associated with servitization, identifies what sort of organizational change (emergent or episodic) takes place with servitization and explores what change organizations (which are change/intervention teams) organizations use with servitization.

Practical implications: The thesis provides insight in growth paths for servitization, provides insight in important activities associated with servitization, explains how organizations can gradually develop and why they develop gradually with servitization and provides insight in how organizations can organize servitization by giving insight what change organization (which are change/intervention teams) are used with servitization.

Keywords: Servitization, service growth, organizational change, change process, manufacturing

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Chapter 1. Introduction

1.1 Subject introduction

It is a trend in the world of manufacturing. Manufacturing organizations are moving from being solely product manufacturers to becoming service providers. Heavy competition, demand of customers, declining margins (Oliva and Kallenberg, 2003; Neely, 2007; Perona, Saccani and Bacchetti, 2017) and emerging opportunities supported by new technologies (Porter and Heppelmann, 2015; Dinges et al., 2015) push manufacturing organizations into the direction of service provision (Vandermerwe and Rada, 1988).

Even though this trend is not new, it is happening more and more and fits very good in the current time period of Industry 4.0 as well. Revolutionary technologies are arising such as robotics, additive manufacturing and Internet of Things. Gradually a digital transformation is taking place in industry and there is pressure for the global economy to change towards more sustainable forms (Spring and Araujo, 2017; Jonker, Stegeman and Faber, 2016). New (digital) technologies such as the Internet of Things and smart connected products enable new forms of service provision, in which data plays a very big role (Porter & Heppelmann, 2015; Kowalkowski et al., 2017). And there is also a rise in demand for more sustainable forms of economy, in which sustainability of product-life cycles plays a more important role, as well as the function that is delivered by a product rather than the product itself (Tukker, 2015; Spring and Araujo, 2017). The growth of services in manufacturing organizations and especially in the form of advanced services such as ´products as a service´ goes hand in hand with these developments. Recent examples of organizations actively participating in these developments can therefore be found in Philips that is selling light as a service with its Pay per Lux model and Xerox where customers pay per printed paper instead of buying a complete printer.

This trend, in which organizations add value to their core offerings by offering services is called servitization (Vandermerwe and Rada, 1988). To be more specific, the term servitization refers to the transformational processes whereby an organization shifts from a product-centric to a service-centric business model and logic (Kowalkowski et al., 2017, p. 8). These transformational processes entail organizational changes in which organizations have to align themselves with their new strategic orientation (Alghisi and Saccani, 2015). In this ´journey´ of organizational changes many challenges present themselves to the organizations, their customers and their employees and managers.

1.2 Problem statement and research question

1.2.1 Problems in practice

Although servitization potentially brings great opportunities and advantages, it also brings great challenges. Engaging in servitization and the accompanying transition from a product manufacturing organization towards becoming a service provider is complicated and complex and many organizations struggle with the transition. It even appears that manufacturing organizations with a service business have a greater risk of bankruptcy due to the internal risks that come with servitization (Benedittini, Neely and Swink, 2015). A lot of organizations that engage in the servitization transition meet difficulties along their road and do not know how to transform their organization in order to exploit the opportunities of servitization (Baines et al., 2017). Besides, there are few tools or roadmaps that can aid in this process and both academic literature and consultancy reports cover only parts of the existing problems and knowledge gaps. More insights are needed to make the servitization transition clearer and easier to handle.

1.2.2 Knowledge gap

As the popularity of servitization is growing in practice and the struggles of organizations get recognized, the popularity of the subject is also growing in academics. With over 180 publications each year in the last couple of years, one could say that a lot of research is being conducted towards service growth in manufacturing organizations (Kowalkowski, Gebauer & Oliva, 2017). However, Kowalkowski, Gebauer, and Oliva (2017) claim that the current research is only marginally useful in moving the field forward as most studies examine similar issues rather than discover new knowledge.

As chapter 2 will clarify, there still is a lack of papers that describe servitization journeys, the changes and challenges that come with servitization and that prescribe how a manufacturing organization should ´servitize´ (Baines et al., 2017; Perona, Saccani and Bacchetti 2017). Research on servitization pathways, factors influencing the servitization process, change processes and internal conditions for ´servitizing´ is still underdeveloped. To this can be added that the challenges of SMEs in servitization are rather overlooked by research. This means that there is still a lack of knowledge on how organizations can successfully ´servitize´ and transform into a service provider. Besides, surprisingly enough, the combination of organizational change literature and servitization literature is made rarely, which means that questions such as ``What sort of organizational change is taking place with servitization?´´ and ``How is the change or are the changes organized?´´ remain unanswered.

1.2.3 Research objective

The above mentioned gap and questions are the focus of this research project. With this thesis the servitization (process) of Dutch manufacturing SMEs is studied in terms of organizational change,

with servitization being ``*the transformational processes whereby an organization shifts from a product-centric to a service-centric business model and logic´´* (Kowalkowski et al., 2017, p. 8). The aim of the research is to understand the implications of servitization for organizational change. This implies to find out what servitization journeys of Dutch industrial SMEs entail, gain insight in the nature of the changes that are associated with servitization, discover a direction of growth paths in servitization journeys, find out what crucial events and activities are in a servitization process and gain insights in how Dutch industrial SMEs organize their servitization journey. This in order to contribute to existing literature on servitization and organizational change (see also section 1.4 discussing the scientific relevance of this thesis).

1.2.4 Research question

Since the focus of the research is quite broad and the research aims at gaining insights in several coherent aspects, a focused research question is used. In order to further specify the research, specific topics of research are mentioned below the research question. The research question is as follows:

"How do organizations conduct the organizational change process of servitization?"

With this research question the focus of the research is on the process of servitization, with which the 'how' of the change process is studied (Pettigrew, 1988 in Baines et al., 2017). Aspects of this research question that are studied with this research are twofold:

1. What do servitization journeys for (Dutch) SME's look like?

With this descriptive sub-question it is looked at whether certain phases or patterns can be identified in servitization processes, whether changes or phases in these process are continuous or episodic, what events or activities play an important role in the process and whether these occur in a certain pattern and how organizations organize (changes in) such a servitization process.

2. Why are servitization journeys (for Dutch SME's) structured in specific phases or patterns?

With this explorative question it is looked at the causes and reasons for the course followed by servitization journeys and which factors are influencing the course of a servitization journey.

1.3 Approach

As the research is primarily explorative and aimed at gaining understanding, it is qualitative in nature. It is carried out as a combination of inductive research, aimed at contributing to theory based on observations, and deductive research, as far as existing theories and insights form the starting point.

Existing theoretical insights on servitization and the corresponding organizational transition are examined and where possible extended with new insights. Underexplored topics are approached with an open view in order to explore these topics and gather new insights. To gather new insights also theories from organizational change literature are used. Therefore, at first a literature study has been conducted to provide the research with a theoretical background and in order to find potential answers to the research questions and identify what gaps still exist. A part of the theoretical chapter is also used to construct interview guides and part of the literature was of use for the analysis of the data. With regard to the empirical research four cases, organizations that engage(d) in servitization, have been studied. Two cases were studied in depth by conducting multiple interviews and studying some documents and two were interviewed only once. The in depth studied cases were used to make descriptions of their servitization process and compare both processes, which yielded interesting findings. The two cases that were interviewed once were used to compare the findings with. From the findings conclusions were drawn and recommendations for future research provided.

1.4 Relevance

As is mentioned in the problem statement there is only limited empirical insight available in the transition of organizations with servitization and even less with regard to SMEs. This master thesis will contribute to servitization literature by addressing the research gap described in the problem statement and will do so by gaining insights in what servitization transitions look like, pathways organizations follow with servitization, how organizations organize the changes that come with servitization, what activities play an important role in a servitization transition and factors influencing the course of servitization journeys. Besides, with this research the connection between servitization and organizational change literature is made, which is surprisingly enough rare. This will enhance understanding of servitization by showing whether and why servitization consists of continuous emergent change, episodic change or maybe a combination of both and it will give insights in how organizations organize change with servitization with regard to change organizations (change/intervention teams).

Besides, the findings of this research are intended to be of use to managers and organizations in their preparation or execution of a servitization process. The demand for answers and assistance is growing in practice. More and more organizations are orientating themselves about this subject and see the importance of service growth. PA Consulting for example interviewed 60 industrial engineering companies in Europe and found out that 75% of these organizations expect that the delivering of services will become significantly more important in their business within the next five years (PA Consulting, 2018). But how to make the servitization transition successfully still remains a big challenge, as appears from business reports, academic literature and events and meetings held

by both people from practice and academics. More insights from practice are needed to make the servitization transition clearer and easier to handle. This master thesis therefore also has practical relevance by providing such insights.

1.5 Thesis Outline

This section, concludes the introduction of this master thesis. Hereafter follows chapter 2, the literature review of this research project. In this chapter literature that is relevant for this research project is presented. Here the subject servitization is introduced and explained, it is elaborated upon literature regarding the servitization transition in specific and relevant scientific literature on organizational change is presented. The discussion of the literature and a conceptual framework guiding this research project can also be found in this chapter. Chapter 3 is the methodology chapter. Here it is elaborated upon the research approach, the research design, the data collection methods, the data analysis, the research ethics and the research quality. After the methodology the findings of the research are presented and analyzed in chapter 4. The final chapter of this research report is chapter 5, with the conclusion and discussion.

Chapter 2. Literature analysis

2.1 Introduction

In this chapter the theoretical background for this master thesis is presented by means of an analysis of relevant academic literature. This literature study in part already contributes to answering the research questions of this research and supports the empirical research presented in chapter 4 in order to provide a final answer to the research questions. At first, in section 2.2 an introduction to servitization is provided in which is explained what servitization entails, explaining the multiple product-service combinations in servitization and discussing the drivers underlying servitization. Then, in section 2.3, is zoomed in on the servitization transition. Here it is examined what is already known about the transition organizations are undergoing with servitization and what such a ´journey´ of organizational changes might look like. A conceptualization of the transition is presented, the sorts of transitions are described and also a growth model and pathway for servitization are discussed. The section ends with elaborating upon the capability achievement strategies organizations can use, challenges which organizations face in their servitization journey and critical success factors for servitization. Thereafter, section 2.4 discusses organizational change literature, since servitization entails organizational change. Here a definition for organizational change is provided, continuous emergent change and episodic change are discussed and the change organizations for organizing organizational change are presented. The chapter ends with section 2.5 bringing together the theories and insights in order to conclude how the research questions can be answered and what further empirical insights are needed. Also a conceptual framework is presented.

2.2 Servitization

In this first section of chapter 2, an introduction to servitization is presented. The phenomenon of servitization is described and explained, the product-service continuum is presented, product-service offerings are discussed and the drivers for servitization are described.

2.2.1 What is servitization

In 1988 Vandermerwe and Rada were the first to describe and acknowledge the movement of manufacturing organizations towards the provision of services. Back then, they already noticed that organizations started adding services to their core offerings with the aim to create more value and keep customers so that they could increase their competitive advantage. They saw that organizations initially made a choice between being a product manufacturer or service provider but that these organizations later moved towards the offering of products in combination with product related services. Eventually, these organizations started offering bundles of goods, services, support, self-

service and knowledge. Vandermerwe and Rada defined this movement as ´the servitization of business´(Vandermerwe & Rada, 1988).

Nowadays scholars also talk about ´service growth´ in organizations (Kowalkowski, Gebauer and Oliva, 2017) and the provision or selling of ´product-service combinations´ (European Union, 2018) and ´product-service systems´ (Neely, 2008; Baines et al., 2007, 2009). These product-service combinations or systems are like the bundles presented by Vandermerwe and Rada (1988) and can be defined as integrated combinations of products and services that deliver value in use (Baines et al., 2007; Neely, 2008). Manufacturing organizations start offering these combinations/bundles of products and services and therefore become, at least for a part, service providers instead of just product manufacturers. Simply said, manufacturing organizations add services to their business offerings. However, to be able to add services to their offerings and become a service provider the organization has to change. In the latest literature, this transformation is called servitization: ``*the transformational process whereby an organization shifts from a product-centric to a service-centric business model and logic´´* (Kowalkowski et al., 2017, p. 8).

2.2.2 Product-service continuum

Oliva and Kallenberg (2003) structured the servitization transition (from product manufacturer to service provider) along a product-service continuum (figure 1). Manufacturing organizations move along this continuum by incorporating more services and by doing so they develop from being a pure-product manufacturer towards a pure-service provider. On the beginning of the continuum services are considered as add-ons to the products and on the end part of the continuum products are considered as being the add-ons to the services (Gebauer and Friedli, 2005). Moving forward along the continuum means an increase of the value and importance of services in the business offering and a decrease of the value and importance of products.
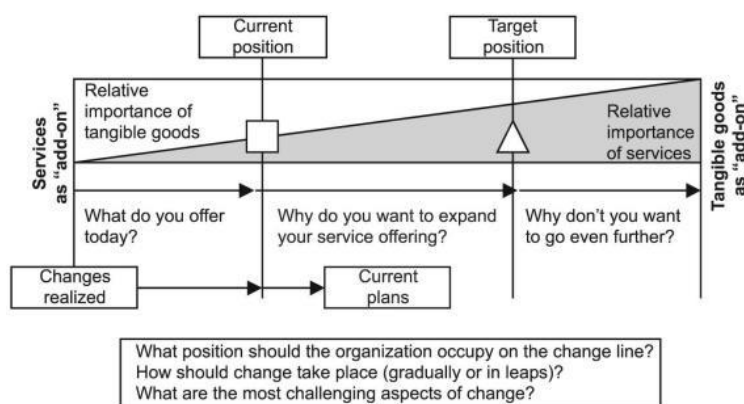

Figure 1. Product service continuum of Oliva and Kallenberg (2003)

2.2.3 Archetypes of product-service combinations

Within the scope of servitization and along the product-service continuum several levels and gradations have been identified. Tukker (2004) came up with multiple product-service system business models that all have a place on the product-service continuum. He made a distinction between three categories of product-service systems, which one could also see as three different levels within servitization. Product-oriented services, use-oriented services and result-oriented services. With product-oriented services, the manufacturer adds extra services to its products, such as maintenance, spare parts, consultancy and training. The business model is however still based on selling products. With the use-oriented services, the ownership of the product remains with the manufacturer, the customer pays to use the product. As for example with the tires of Michelin, where people can pay per driven kilometer. This business model entails that the manufacturer offers good functioning products as a service. However, the product still plays a central role in the offering. With the result-oriented services this changes. Here the manufacturer agrees with its customer on a result, how the result will be delivered is up to the manufacturer, as is the case with the Philips lighting as a service. The result, the outcome, is central and the product that can be used is not. As is visible in figure 2, with a product-oriented business model the organization is still mainly product manufacturer but with additional product-related services. With use-oriented business model the organization moves towards being a service provider, since the importance and value of services increases further. With result-oriented business models the organization is a complete service provider. This resembles with the business model typologies that Atos Consulting (2011) present in their report. They argue that within the scope of being a pure product manufacturer or pure service provider organizations can be active as a product manufacturer, a value added manufacturer, a full service provider and an integrated solutions provider.
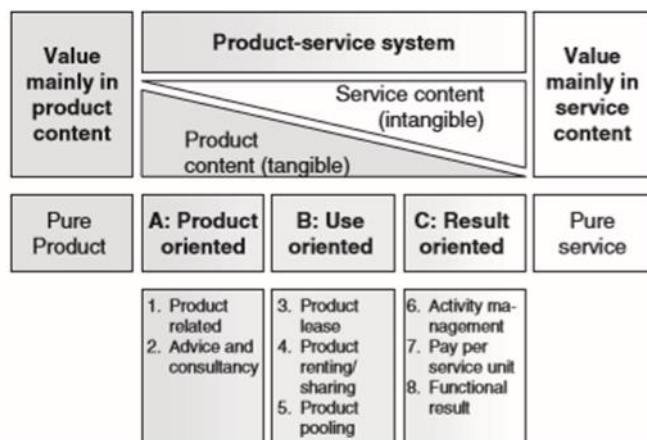

Figure 2. Eight archetypes of product service systems by Tukker (2004)

Parida et al. (2014) came up with a different categorization of business model categories, based on their factor analysis. However, they argue that their categories fit into the scale as Tukker (2004) designed it. The four business categories they found are add-on customer services, maintenance and product support services, R&D-oriented services and finally functional and operational services (Parida et al., 2014).

Another concept to describe levels in servitization exists too. Urmetzer, Neely and Martinez (2016) talk about different service provision levels and present it in the form of a service staircase, which they adapted from Turunen (2012, in Urmetzer, Neely and Martinez, 2016). According to them, the service provision levels are (from low to high): manufacturing, after sales, maintenance, solutions and process outsourcing (figure 4). The higher the service provision level, the higher the complexity of the service provision and the closer the relationship between provider and customer. Besides, the levels are interdependent. In order to offer maintenance for example, spare parts are needed too. And by offering solutions, maintenance is a service that is required as well. This reveals the insight that previous steps or levels remain of great importance for making new steps within the development process of servitization. The offering of the organization expands in terms of (new) products and services and therefore increases in complexity.
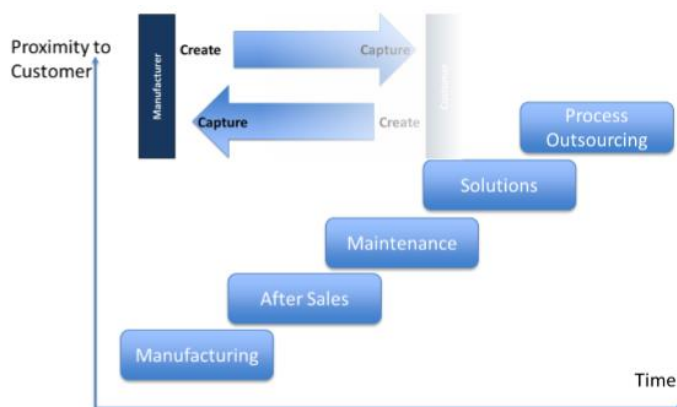
Figure 3. The service staircase from the article of Urmetzer, Neely and Martinez (2016)

This shows that there are multiple levels and gradations in the provision of services and that manufacturers can go very far in the delivery of services. Organizations can remain very product-centric or can transform and become completely service-oriented. What such a transition can look like is discussed in section 2.3.

2.2.4 Drivers of servitization

More and more manufacturing organizations start with offering services and by doing this they engage in a form of servitization. But why would manufacturers do that? Why would they start

adding services to their offerings? Why would they go even further and engage in the complex servitization transition to become a full service provider?

By adding services to their offerings manufacturing organizations can create, capture and therefore offer more value (Tukker, 2004; Urmetzer, Martinez and Neely, 2016). Furthermore, by creating more value for customers through services, a closer relationship with customers can be established (Tukker, 2004; Urmetzer, Martinez and Neely, 2016). The more an organization does for a customer, the better it has to understand the customer and its work process. By providing product training, the organization should know what the customer uses the product for. By repairing or improving products, the organization should know why the product breaks down. There will be a lot more interaction between the manufacturer and the customer and the manufacturer will receive more feedback on the product throughout its lifetime, which offers opportunities for additional services. In this way, the customer offers value for the product manufacturer as well, through purchasing the services and through new (product) information and data (Urmetzer, Martinez and Neely, 2016). Next to that, with service contracts organizations can secure a long term relationship with the customer which implies regular interaction. Service provider and customer help each other by sharing as much as relevant information with each other to enable the best quality (EU report, 2018).

The creation and capturing of value is something that is achieved with servitization, this on itself is however not a direct driver. Reasons for creating and capturing more value are the drivers. Baines and his colleagues summarized three sets of incentives that drive companies to servitize and adopt a service strategy (Baines et al., 2009). First of all, companies can have financial incentives, which involve higher profit margins and stability of income. Normally services contain a higher profit margin than products. Besides, by engaging in a long relationship with customers through service contracts, manufacturing organizations can count on a stable income for the length of the contract instead of a single transaction fee with the sale of a product. Secondly manufacturers can have strategic incentives. These involve service differentiation and competitive advantage. By offering services and more value, manufacturing organizations can differentiate themselves from competitors which only sell products. By offering a product-service combination, the manufacturer can offer a ´full package´ which can be very interesting for customers. The third reason to engage in servitization is marketing purposes. Through services and its corresponding service contracts manufacturers aim to bond with customers and enter into a longer and closer relationship with customers and like this keep competition out. Besides, a closer relationship can help to sell more products or services. Servitization can help to leverage access to clients (EU report, 2018).

Neely (2008) adds the environmental incentive to these three incentives, because servitization can cause a change in resource and product usage (which might also fit somewhere under the three incentives mentioned above). Especially when manufacturing organizations retain ownership of the product and offer the product or the function of the product as a service, the quality and the state of the product will be taken more into account throughout the life cycle of the product. In such a case, the focus switches from maximum product sales towards maximum customer satisfaction (Tukker, 2015). Because of this sustainable trait, servitization also regularly appears in sustainability topics (Tukker, 2004, 2015; Spring and Araujo, 2017).

Next to these four categories of drivers a distinction is made between offensive reasons and defensive reasons to participate in servitization (Baines and Shi, 2015; EU report, 2018). This means that some organizations use a servitization strategy to develop themselves, grow and gain market share, while others use a servitization strategy to defend their position and market share. Bohm, Eggert and Thiesbrummel (2017) for example state that often organizations with deteriorating performance choose for a service strategy.

2.3 The servitization process

As mentioned earlier, servitization is ``*the transformational process whereby an organization shifts from a product-centric to a service-centric business model and logic´´* (Kowalkowski et al., 2017, p. 8). This means that in order to start providing services and become a service provider, manufacturing organizations have to change. The writers of the Atos Consulting business report stated the following regarding the servitization transition: ``in order to be successful an organization must not only adapt its proposition from product-centric to a product-service system, it also needs to redesign its business model and organization´´ (Atos Consulting, 2011, p. 10). The organization has to align itself with its new strategic orientation. This means that internally the organization has to align its service portfolio and internal organization with the strategic plans. Externally it should align the strategy with the customer and the service supplier network (Alghisi and Saccani, 2015). This makes clear that servitization can be considered as an organization-wide change process. However, the transition and the steps that organizations take during their journey are not very much discussed in extant literature. Insights in how organizations undergo a servitization journey, what steps they take, what phases their change process contain and how they organize their transition are useful insights in increasing the understanding of servitization. This can provide a completer picture of servitization, which can ease the transition and facilitate the understanding of challenges and enablers of servitization. Therefore, pathways and insights that exist regarding the servitization journey are presented here in this section. In the end of this section also challenges and success factors of servitization are discussed.

2.3.1 Conceptualization of servitization transition

The process of servitization is often conceptualized as moving along the product-service continuum, as described earlier in section 2.2 (see figure 1). It is moving from being a product manufacturer towards becoming an integrated solution provider (Atos Consulting, 2011; Oliva and Kallenberg, 2003; Tukker, 2004). As such, along this continuum one can place multiple business models ranging from product manufacturer to service provider, such as the different types of product service business models that are explained in section 2.2.3. Here is assumed however, that organizations aim for developing into a full service/solution provider when they engage in servitization and therefore move towards the complete right side of the product-service continuum.

2.3.2 The transition

Most scholars agree on the point that a servitization transition implies a major change that cannot be achieved in one go. They argue that servitization entails a gradual and sequential transition in which the complete organization is taken along to become a full service provider (Oliva and Kallenberg, 2003; Atos Consulting, 2011). Perona, Saccani and Bacchetti (2017) call such an approach the incremental approach and this concept of servitization is often proposed in servitization transition models in literature and also of frequent occurrence in cases on how organizations ´servitize´ (Perona, Saccani and Bacchetti, 2017). However, next to such a gradual and incremental approach there is also a radical approach to ´servitize´. This radical approach did receive less attention in literature, but is a way how organizations move towards service growth as well, as it appears from multiple case studies from Perona, Saccani and Bacchetti (2017) and the European Union (EU report, 2018). In that case the organization changes its business model and organizational structure in a disruptive way to become a service provider (Perona, Saccani and Bacchetti, 2017, p. 7).

2.3.3 Incremental transition

As is mentioned above the incremental approach for servitization is mentioned most often in literature. Oliva and Kallenberg (2003) and Atos Consulting (2011) provide the most detailed information on a gradual servitization transition. However, also articles of for example Tukker (2004), Parida et al. (2014) and Urmetzer, Neely and Martinez (2016) assume a gradual transition, although these articles do not focus on a growth path for servitization. Tukker (2004) and Parida et al. (2014) assume a gradual transition by moving gradually along the product-service continuum from product-oriented business models on the left towards service-oriented business models on the right of the continuum. Urmetzer, Neely and Martinez (2016) argue that organizations move up the service-staircase by moving from lower service levels such as after sales services towards higher service levels such as solutions.

Atos Consulting (2011) wrote a report based on the same line of thinking, in which organizations move gradually from business model to business model. They developed a prescriptive maturity model with a growth path based on extensive literature study and empirical research, in which also attention is paid to how an organization should align the organization during the transition. The Atos Consulting maturity model prescribes that organizations move from being a product manufacturer, towards a value added manufacturer, towards a full service provider and ending as an integrated solutions provider (Atos Consulting, 2011). During each step forward, which can be seen as steps forward on the product-service continuum, the organization needs to realign the organization with the new business model and strategy in order to succeed (Atos Consulting, 2011; Alghisi and Saccani, 2015). According to the Atos Consulting report, five organizational elements need to be aligned to the new business model: the performance metrics (KPI's), management and organization, processes, people and culture and information.
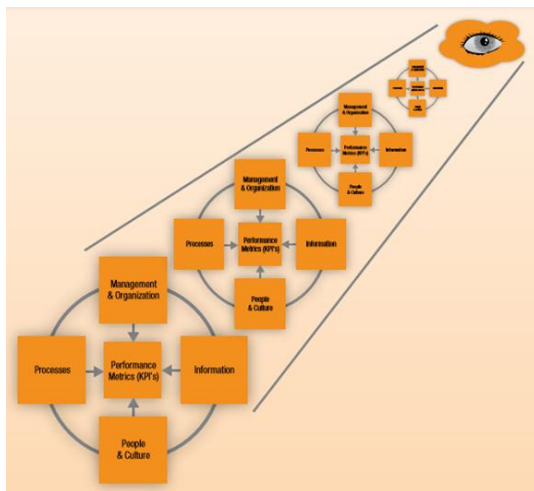
Figure 4. The Atos Consulting (2011) servitization maturity model

The article of Oliva and Kallenberg (2003) is probably the best-known article on the servitization transition and it is often used as basis or inspiration for other articles such as the ones mentioned above. Oliva and Kallenberg (2003) also talk about an incremental servitization transition. They describe the transition process in four sequential steps, in which the organization develops new capabilities to address new development needs.
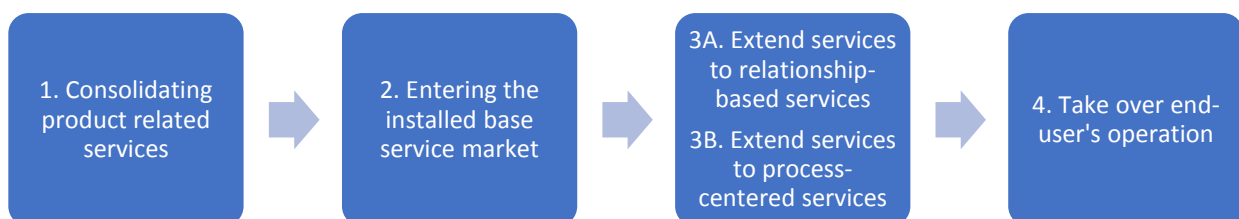
Figure 5. Four servitization transition steps proposed by Oliva and Kallenberg (2003)

The first step is that the organization should consolidate the product-related services, with the aim to improve the services and sell more products. The services will be monitored more closely and a better image of the service possibilities will arise, as does a reputation as service provider for customers. Then, secondly, the organization should enter the installed base service market. In this stage the organization will start to exploit the service opportunities that arise. To do this several organizational changes have to take place. The organizational culture has to change from product-oriented to service-oriented, in the new culture people require a different mindset that is based on service provision. Furthermore the infrastructure has to be adjusted, in order to be able to perform the services in the best way. The service organization is taking shape in this stage, in which attention is paid towards the functioning of the organizations. After that the organization can start expanding the service offering and service market they serve. By doing this credibility inside the organization will increase and outside the organization the reputation as a service provider will grow too. Then, in the third stage the organization can extend the services towards relationship-based services and / or towards process-based services. This cannot happen at the same time, but should happen after each other, is what Oliva and Kallenberg (2003) argue. This means that the organization can change the focus of the customer from transaction-based towards relationship-based, in which for example maintenance services are very important. On the other side the organization can also choose to change the focus of the customer from product efficacy towards product efficiency, which means more services will be provided on the process of the customer in the form of advice and consult for example. Eventually, in the fourth and last stage the step an organization could take is taking over the customers´ operations, so that the customer will be completely unburdened.

With regard to a gradual transition it is argued that the first steps in servitization are the easiest to take. However, as services become more important and advanced it becomes more difficult for organizations. The higher the service provision level, the higher the complexity of the service provision and the closer the relationship between provider and customer (Urmetzer, Neely and Martinez, 2016). Atos Consulting even states that the first step is 'relatively easy', the second step is 'relatively difficult' and that the last step 'seems impossible' (Atos Consulting, 2011).

2.3.4 Critique on product-service continuum and gradualism of transition

The above described models presume a linear, gradual and smooth transition with clear steps in business models to eventually become an integrated solutions provider. However, this is recently being questioned by several authors. Kowalkowski et al. (2012) state in their article that servitization is not as gradual and smooth as other authors state. According to them, the transition is multifaceted and the service growth does not have to be very linear towards extensive integrated services. Furthermore organizations have multiple offerings with which they experiment. Next to offering

advanced services, organizations can still offer basic services as well as products so that customers still have choice in what fits their requirements best (Windahl and Lakemond, 2010; Perona, Saccani and Bacchetti, 2017). Perona, Saccani and Bacchetti (2017) give an example of this, by stating that Rolls Royce years after introducing their famous 'power by the hour' still offered their traditional transactional purchase options next to their new offerings. This means that an organization can be active on multiple positions along the product-service continuum, because they often offer different product-service systems to different customer segments (Kowalkowski et al., 2015). Lastly, the servitization transition and the development and offering of services is said to consist out of provisional steps of experimenting and trial and error (Kowalkowski, Gebauer and Oliva, 2017; Perona, Saccani and Bacchetti, 2017), which means that organizations add and remove service offerings. Organizations can therefore also make steps backwards on the continuum, which they call deservitization (Kowalkowski et al., 2017; Valtakoski, 2017).
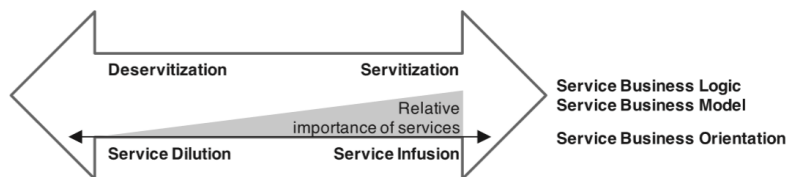
Figure 6. Servitization and deservitization (Kowalkowski et al., 2017)

2.3.5 Radical and mixed transition

According to Perona, Saccani and Bacchetti (2017) radical transforming with servitization is achieved through changing business model and the organizational elements in a disruptive manner and not by moving towards service or solution provision in a progressive manner. In several cases this is also achieved by acquiring other (service)organizations, in order to incorporate the necessary knowledge and capabilities. By acquiring these requirements the organization does not have to develop these themselves which saves a lot of time. A combination of both incremental and radical approaches is possible as well, the so-called mixed approach. Organizations can for example first develop capabilities and competencies in an incremental manner and connect to that the acquisition of another organization (Perona, Saccani and Bacchetti, 2017). An example of this is IBM. IBM developed itself from a computer manufacturer into a corporate consulting organization, based on the competencies and resources that the organization already had and developed. However, to improve further it bought out the consultancy firm Price Waterhouse Cooper. After that the organization transformed into a high-tech software organization by acquiring other organizations (Perona, Saccani and Bacchetti, 2017).

2.3.6 Capability achievement strategy

Based on the discussion of transition strategies above, it appears that the way of achieving new capabilities, competences and knowledge affects whether a servitization journey is incremental or radical. It appears that an incremental transition is associated with organizations achieving their capabilities mainly through developing them themselves and that a radical transition is only possible through acquiring the capabilities from outside the organization or having the required capabilities already aboard. In this context Perona, Saccani and Bacchetti (2017) mention three strategies how organizations can achieve the capabilities needed, being: internal development, external acquisitions and partnering with other organizations. They observed these strategies in the servitization journeys of some big multinational companies but did not describe them in depth. For this research project it is relevant to investigate what strategies Dutch SME's are using in order to achieve the required capabilities and also where exactly in the process of servitization and why. The strategy for achieving capabilities might have a considerable impact on how the servitization journey of organizations is structured and organized.

2.3.7 Challenges

In engaging in a process of servitization organizations have to overcome serveral specific challenges that arise during their journey. Already quite some research is done towards this subject and especially literature reviews provide structured insights in what challenges organizations face during their servitization journey. Table 1 presents the five categories of servitization challenges of four different literature review articles. As can be seen, they have a lot in common. Some of the challenges are elaborated upon in more detail below the table.

Table 1. Challenges with servitization

Martinez et al., 2010	Kinnunen and Turunen, 2012	Alghisi and Saccani, 2015	Zhang and Banerji, 2017
1. Strategic alignment	1. Defining a service strategy	1. Company strategy	1. Business model
2. Internal processes and capabilities	2. Establishing a customer-centric organizational configuration	2. Company internal organization	2. Organizational structure
3. Embedded product-service culture	3. Creating a service-oriented organizational culture	3. Customers	3. Customer management
4. Delivery of integrated offering	4. Creating and developing market-oriented services	4. Service portfolio offering	4. Development process
5. Supplier relationships	5. Managing service knowledge and communication	5. Service network	5. Risk management

As the table shows manufacturing organizations face challenges in building and aligning their new service strategy and business models. Organizations for example often have difficulties with getting a clear sense of what direction to go (Oliva and Kallenberg, 2003). Furthermore, it is difficult to decide on beforehand on how far to go in offering services (Vandermerwe and Rada, 1988). Then, when the strategy is built, it is case to achieve internal consistency on the strategy in the organization (Alghisi and Saccani, 2015). The strategy has to be known and understood in the whole organization (Martinez et al., 2010). Then, the organization has to build its structures to support the new strategy. Also this brings challenges. How should the organization be designed? What structure supports the strategy best? Clear is that the internal organization should be aligned with the strategy (Alghisi and Saccani, 2015). This goes hand in hand with the need for new processes and capabilities. For example for the design and the delivery of services new capabilities are needed (Alghisi and Saccani, 2015). These have to be developed or acquired from other organizations. New processes need to be set up, since the delivery and sales of services is very different from manufacturing and selling goods. For example pricing and contracting with services is very different than with products (Oliva and Kallenberg, 2003). And therefore also the organizational culture has to change from product-oriented

to service-oriented (Martinez et al., 2010; Alghisi and Saccani, 2015). A change in mindset is needed (Alghisi and Saccani, 2015) which appears to be very difficult (Martinez et al., 2010). A manufacturing culture appears to hinder successful provision of services (Martinez et al., 2010). Lastly, customer and supplier management brings important challenges as well, since the relationships in the value chain will change (Vandermerwe and Rada, 1988). With providing services the organization has to develop a closer relationship with its customers for example (Martinez et al., 2010; EU report, 2018), something the organization is not used to.

It appears that servitization is difficult, something also Atos Consulting (2011) emphasize in their article. According to them many organizations do not understand that the transition touches and changes the whole organization. Besides, the complexity of the changes appears to increase when an the organization comes further in servitization. The last steps and phases are significantly more difficult than the first steps and phases (Atos Consulting, 2011). Furthermore, an important and famous servitization challenge is the so-called ´service paradox´. Many manufacturing organizations have difficulties with exploiting the financial benefits of extending their service business according to Gebauer, Fleisch and Friedli (2005). Many organizations appear to find it difficult to charge for and monetize on services (EU report, 2018). After doing substantial investments in the extension of the service business of the organization, many manufacturers fail to generate the expected higher returns (Gebauer, Fleisch and Friedli, 2005; Neely 2008). Besides, it is argued that it will take time to generate substantial revenues, which can be a risk (Oliva and Kallenberg, 2003).

2.3.8 Critical Success Factors

Next to the aforementioned challenges, also several factors that influence the success of a servitization journey are already explored and described in extant literature. Through both empirical research and reviewing extensive literature Martinez et al. (2016) came up with seven critical success factors in the transition to services:

1. Assess the market and internal readiness
2. Create the right strategic and cultural context
3. Build the structures and governance for services
4. Dedicate the resources for creating and delivering new services
5. Proactively manage engagement and trust
6. Develop and embed service processes
7. Optimize services and communicate best practices

These seven factors affect the transition that comes with the adoption of servitization strategies the strongest (Martinez et al., 2016). The seven factors are found with exploratory research by Martinez

and colleagues in an earlier study (Martinez et al., in Martinez et al., 2016) and have then been compared with existing literature by Martinez et al. (2016). Therefore important factors found in previous articles are included in this list. Such as for example the five factors found by Gebauer, Fleisch and Friedli (2005), that are considered necessary to overcome the service paradox. Looking at the order of the factors one could think these factors have a certain sequence in a servitization process, but this is not stated in the article. With this research will be looked whether these factors appear in the researched servitization journeys of this research and if they appear in certain phases or not.

2.4 Servitization and organizational change

As presented in the previous section, it is clear that that transition consists of organizational change and that this transition can be either incremental, radical or a mixture of both and that several phases including certain organizational changes can be passed during the transition. However, the link between the servitization transition and organizational change literature is made rarely. It is therefore not known whether change in a servitization process is emergent and continuous or episodic, whether certain change programs are needed in moving towards a new servitization phase and how the different changes in the journey are organized. Therefore, in this section is explained what organizational change is, that a distinction can be made between continuous emergent and episodic change and change organizations, which represent intervention/change teams for certain organizational change programs, are presented.

2.4.1 What is organizational change

The general idea of change is when an object of change passes from state ´A´ to state ´B´ (Quattrone & Hopper, 2001). An object might for example gain or lose identifiable features. Van de Ven and Poole define organizational change as: ``an empirical observation of difference in form, quality, or state over time in an organizational entity´´. The entity can then for example be an individuals´ job, a work group, an organizational strategy, a program, a product or the overall organization (Van de Ven and Poole, 1995, p. 512). A change process then refers to a progression of change events (Van de Ven and Poole, 1995, p. 512), which is the case with servitization.

Tsoukas and Chia (2002) emphasize that change is dynamic and entails motion, as did Weick and Quinn (1999) by opting for using the term 'changing' instead of 'change'. Tsoukas and Chia even state that the perspective of stability in change is not right and opt for a perspective of ongoing change. According to them, change is always taking place and is the normal condition of (organizational) life. They define change as "the reweaving of actor's webs of beliefs and habits of action to accommodate new experiences obtained through interactions" (Tsoukas and Chia, 2002, p. 567). People are

continuously learning and adapting and as Tsoukas and Chia state: "change is inherent in human action and organizations are sites of continuously evolving human action" (Tsoukas and Chia, 2002, p. 567). They argue that organization is a way to order and steer human action into a desired direction through generalizing and institutionalizing cognitive representations, by doing this structure is created in the form of a discursive template. However, the generalizations in the structure may be not as stable as looks. The stability can be compromised through interactions with the outside world and interactions of people with their own thoughts, people might find out new things, learn or think differently and deviate from the institutionalized cognitive categories. Hence, it is also a pattern that emerges from change. It is the steering of change and by doing that it is also generating change. Therefore, they state, organization is both the planning of change and the emerging pattern of change, which they call 'organizational becoming' (Tsoukas and Chia, 2002).

Tsoukas and Chia (2002) thus argue that change is continuous and that planned change is part of it, since the intended change is interpreted by people and immediately adjusted through continuous change. This makes sense, but blurs the distinction between a more radical planned change and a more incremental emergent change that scholars made previous to the article of Tsoukas and Chia. This distinction might help in understanding certain changes better and can therefore be of use with looking at a servitization processes. Tsoukas and Chia (2002) argue that the distinction is also a matter of perspective, whether is looked at change from more far, or from more close. These perspectives are discussed now and after that the distinction between continuous emergent change and episodic planned change is explained.

2.4.2 Looking at organizational change

One can look at change from different perspectives. From far, a macro level perspective or from close, a micro level perspective (Weick and Quinn, 1999). Tsoukas and Chia state that in literature change is often approached from a macro level perspective, which they call a synoptic account. From this perspective change is viewed as "an accomplished event whose key features and variations, and causal antecedents and consequences, need to be explored and described" (Tsoukas and Chia, 2002, p. 570). The change is approached from outside and often presented in the form of a stage model, in which the stages describe the state of the changing entity in different moments in time. With this perspective however, the micro-processes and open-endedness, as well as the fluid character of change are being overlooked. Tsoukas and Chia (2002), therefore call to look at change with a performative account, a more micro level perspective, in which human agency over time is taken into account. In this way it is possible to look more closely at the emergence and the accomplishment of change, accepting the ongoing and dynamic nature of change. Both perspectives are important and have their function. Performative accounts can be of use with trying to understand the actual

changes and synoptic accounts can help to notice patterns in change and to make sense of the complexity of the change (Tsoukas and Chia, 2002).

2.4.3 Continuous emergent change

Continuous emergent change is change that takes place continuously because of the constant learning and adapting of people to local and environmental conditions (Tsoukas and Chia, 2002; Schein, 2002). According to Orlikowski emergent changes can be seen as ``accommodations to and experiments with the everyday contingencies, breakdowns, exceptions, opportunities and unintended consequences´´ (Orlikowski, 1996, p. 65). Characteristics of such changes are that the changes are ongoing, are followed up by other changes and that there are no a priori intentions for the changes (Orlikowski, 1996). As such emergent changes are not initiated by change agents, but people in the organization such as managers have to recognize and make sense of the changes and its dynamics instead (Weick and Quinn, 1999). They can do this through freezing the continuous change in order to see the emerging pattern and make sense of it. When this is done, the emerging pattern can be rebalanced into the desired direction after which it can be unfrozen and the continuous change can resume (Weick and Quinn, 1999).

2.4.4 Episodic change

Scholars as Gersick (1991), Tushman and Romanelli (1985) and Schein (2002) argue that during incremental continuous changes, the organization always moves towards a so called equilibrium. Schein (2002) refers to the forces in the field that find a balance at the equilibrium. Tushman and Romanelli (1985) call these periods of incremental change convergent periods. In such a period the organization acts according to its deep structure, which is the basic configuration in which the organizations´ units are organized, based on fundamental interdependent choices (Gersick, 1991). Tushman and Romanelli (1985) speak of the core beliefs and values, products, markets, the power distribution, the structure and the control systems of the organization. When these are being fundamentally changed, one can speak of a revolution. Such a revolution takes place when the organization is not able to change as rapidly as its environment, which is called inertia (Pfeffer, 1997, p.163; Weick and Quinn, 1999). Through this inertia triggers to change arise and replacement of for example the strategy or structure of the organization will take place (Weick and Quinn, 1999). The revolution is then the execution of a change program where the ´new way´ is being implemented in between periods of ´stability´ (Schein, 2002). This is called planned change, an intervention in the organization and is also often called an episodic change.
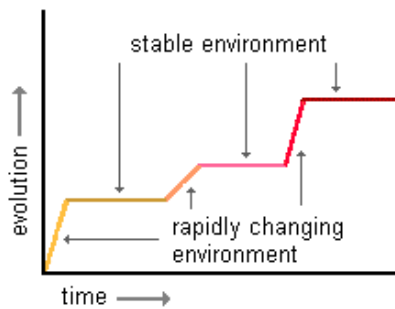
Figure 7. Punctuated equilibrium of Gersick (1991)

Characteristics of such episodic changes are that they are infrequent, intentional and discontinuous (Weick and Quinn, 1999). Besides, the content of the change is often more strategic and deliberate than emergent change is and therefore also most often initiated at higher levels in the organization (Mintzberg and Westley, 1992). A typical model for this kind of change is based on the theory of Lewin (1952). According to this theory the current way of working with its corresponding cognitive concepts should be unfrozen after which the cognitive concepts can be restructured and the new way of working implemented, which all has to be refrozen again to continue in the new way (Weick and Quinn, 1999).

2.4.5 ´Change organizations´

Next to the type of change taking place with servitization, it is also interesting and relevant to find out how organizations approach organizational changes associated with servitization. More specifically, what type of change team or intervention team do they use to organize changes and make change happen. Van Amelsvoort (1998) talks about different types of ´change organizations´, which are types that describe the structure of intervention teams and ways how an intervention can be executed. Below is a table, extracted from a course document from the course Intervention in Organizations from the Radboud University (Achterbergh, 2017), in which all eight change organization types are presented. In this table one can find the names, the characteristics, descriptions, typical conditions and typical problems of the change organization types. The applicability of the types depend on functional goals such as the object and the impact of the change, on social goals such as participation, on the conditions and contextual factors as well as on inherent problems of the types. Regarding servitization very little is known about how organizations organize their changes and possible interventions. Some of these change organization types might be very relevant for certain changes and interventions during a servitization journey and since multiple changes take place, possibly multiple archetypes can be of use in different phases of the transition. Therefore this research investigates which change organizations types are used with servitization.

		Characteristics	Description	Conditions	Problems
Expert		Object: narrow-broad Freedom: closed Participation: little Tempo : fast-gradual Impact : large	External specialists intervene in aspects of the infrastructure	Little internal expertise Highly political atmosphere	Low acceptance and integration Small focus: working methods in the primary process
Experimental		Object : small Freedom: open Participation: much Tempo : gradual Impact: small	Local initiators intervene locally to experiment with new ways of working	External pressure to change is low Enthusiasm for experiment is high	Insufficiently embedded in the organization; lack of freedom; one-sided focus; not effective; high risk if projects fail
Bottom up continuous improvement		Object: small Freedom: open Participation: much Tempo: gradual Impact: small	Invited by management, organizational members on the work floor come up with suggestions for improvement (continuous improvement)	External pressure to change is low Management supports the approach	Management fails to introduce suggestions into the organization; small focus; tightly coupled to existing ways of working
Deblocking		Object: narrow-broad Freedom: closed-open Participation: little Tempo: fast-gradual Impact: small	Large, complex, and critical problems are tackled by dedicated intervention teams that are not a part of the operating core	External pressure is high; large supra-departmental problems; low support; energetic management; active intervention teams	Organization does not participate in the intervention; analysis takes too long; coordination problems lead to insufficient progress
Blueprint		Object: broad Freedom: closed Participation: little Tempo: fast-gradual Impact: large	A small intervention team designs the whole organization and introduces this intervention by means of a pre-established plan	Rigid organization that needs a wake-up call; supporters of the intervention become a member of the intervention team	One-sided: technical Resistance: not invented here Insufficient progress (communication) Complex (no overview)
Cascading		Object: broad Freedom: closed-open Participation: little-much Tempo: fast-gradual Impact: large	Start: small team develops a macro design – Then: micro structures are designed in a participative way	External pressure and internal discontent, trust between management and workers; flexible expert support; active leaders for intervention teams	Macro-design: 'not invented here' Assigning designers of the micro structure Dealing with resistance at the micro-level
Network		Object: broad Freedom: open Participation: little-much Tempo: gradual Impact: small-large	Local initiatives are collected in a learning network and supported by teams that do not belong to the operating core	Local autonomy Local enthusiasm and trust No critical strategic necessity for change	No real engagement: dependent on local initiatives Diversity of local requirements: no chances to really learn from each other No drive to learn
Collective		Object: broad Freedom: open Participation: much Tempo: fast Impact: small-large	Large groups of organizational members participate in searching conferences	Non-hierarchical culture Strong common interest High pressure for change Adequate leadership Ability to handle uncertainty	Individual members are intimidated (only apparent commitment) General, not very realistic plans / solutions

2.5 Theoretical overview

Now that the relevant literature for this research project has been discussed, it can be concluded what insights this analysis provides with regard to the research question of this research project and what gaps still exist. First the table below, table 3, presents insights based on the examined literature for relevant aspects of the research question. After this, a conceptual framework is presented aimed at guiding the research based on case studies.

Table 3. Theoretical overview

Research question:		
"How do organizations conduct the organizational change process of servitization?''		
Research aspect	**What is known?**	**What is not known?**
Does the process consist of phases? If so, what phases?	With an incremental transition phases are most likely to be present in the servitization transition. In that case organizations develop gradually forward along the product-service continuum by making steps from business model to business model. A service department is set up, service provision is extended until eventually the operations of customers can be taken over. With a radical transition it is less likely that the journeys consists of phases.	Do Dutch industrial SMEs go through an incremental or radical transition? Why? Do the described growth paths/phases in literature apply for Dutch manufacturing SMEs?
Does continuous emergent change, episodic change or a combination of both take place with servitization?	Clear what both sorts of change are. With a radical transition it might be expected that solely episodic change takes place.	This has to be explored in the empirical research, as this is not known in literature.

What events or activities play an important role in the process and do these occur in certain phases of the process?	The seven critical success factors described in this chapter are activities that are very likely to appear in servitization journeys.	How these critical success factors are reflected as practical activities or events is not clear and if this happens in a certain pattern or phases is not known. Possibly there are more important activities.
How do organizations organize a servitization process? What type of change organizations (change/intervention teams) are used to make the changes happen?	With an incremental transition organizations gradually develop capabilities, organizations move to new business models and extend service provision gradually. Also other capability achievement strategies exist.	About this topic not a lot is known specifically. The use of certain change organizations is still to be explored.
What are the factors influencing the course of a servitization journey?	Probably the capability achievement strategy plays an important role, argumentation behind this is not known however.	This has to be explored in the empirical research.

This research studies how servitization journeys for Dutch industrial SMEs are organized and structured. Therefore, the main concept in this research is the servitization transition. The servitization transition is an organizational change process in which an organization develops from being a pure product manufacturer towards becoming a full service provider. This transition can be either radical or incremental. The thesis examines how this transition is structured for Dutch industrial SMEs, as well as which factors are influencing the character of transition being radical or incremental. In an incremental transition process the change process is likely to consist of multiple phases, as is described in this chapter. This research investigates whether, and to what extent, these phases (and development steps) apply for the researched organizations, as well as how these organizations organize their servitization journey. Next to this it is researched whether in such servitization transitions continuous emergent change or episodic change takes place. Finally it is studied what events or activities play an important role in a servitization journey. With regard to this issue the point of departure is the set of seven critical success factors that have to be performed in

order to 'servitize' successfully, as discussed above. The empirical research examines these how these factors are reflected as practical activities in the process. The concepts described here are brought together in a conceptual model presented below.

Figure 8. Conceptual model

Chapter 3. Methodology

In this chapter the methodological approach for this master thesis research project is described. This contains the research approach, the research design, the data collection method and the data analysis. The chapter finishes with a section on ethical considerations and research quality.

3.1 Research approach

For this research project a qualitative research approach is used in order to answer the research question *"How do organizations conduct the organizational change process of servitization?''* and to fulfill the research aim to find out what servitization journeys of Dutch industrial SMEs look like, gain insight in the nature of the changes that come with servitization, discover a growth path in servitization journeys, find out what crucial events and activities are in a servitization process and gain insights in how Dutch industrial SMEs organize their servitization journey. This in order to contribute to existing literature on servitization and organizational change.

Qualitative research concerns all forms of research aimed at the collection and interpretation of linguistic material and with that make statements about a social phenomenon in reality (Bleijenbergh, 2013). It produces rich material such as interview transcriptions, reports about observations and documents, which enables making statements about a specific phenomenon with using only a few observation units (Bleijenbergh, 2013). In this research this implies the studying of the phenomenon servitization in four organizations. This approach fits this research project best for several reasons. First of all because of the character of the research. The research is a combination of inductive and deductive research in which is moved between the two approaches in an iterative way. Findings from literature and new empirical findings are used and compared with each other in developing or extending theory (Halecker, 2015). With the conduction of this research existing insights are used to give direction to the research, aid in answering the research questions and support the analysis of the data. Existing insights concerning servitization, such as insights on the drivers for servitization, factors influencing the servitization of organizations and maturity growth models, are tested and where possible extended with new insights. Next to that, underexplored topics such as the organization of servitization processes and organizational changes through servitization, need to be approached with an open view in order to gather relevant information about these topics. To be able to both test existing theory and explore the underexplored topics rich information is needed, which can best be gathered by using a qualitative research approach.

Another important characteristic of qualitative research is that the researcher has the possibility to adjust the research strategy during the research, based on findings and experiences in the research process (Bleijenbergh, 2013). For this research project this was an important characteristic, since the

research was started with broad research questions. During the research process some adjustments were made, as can be read in section 3.1.3 in which the research process is described. Furthermore, qualitative research is very suitable for capturing the process-oriented nature of servitization (Vennix, 2011; Bleijenbergh, 2013). And at last, in both practice and literature, there is demand for more case studies and descriptions regarding the servitization journeys of organizations, which implies qualitative research.

3.2 Research design

In this section is elaborated upon the design of this research project. It is explained that for this research a comparative case study is performed with four cases and it is also explained what the research process looked like, since this was not completely linear.

3.2.1 Comparative case study

Within qualitative research there are multiple strategies to study the research object. With a research approach in which induction and deduction are combined the most common strategies are action research and doing case studies (Dubois and Gadde, 2002). For this research project four organizations were selected as cases in order to perform a comparative case study.

A case study is the studying of one or multiple carriers of a social phenomenon in the natural environment, during a certain period and with help of multiple data sources, in order to produce statements about the patterns and processes underlying the phenomenon (Bleijenbergh, 2013). The function of this is to explore a phenomenon in depth, describe a phenomenon extensively or explain a phenomenon (Vennix, 2003). With regard to this research, the studying of multiple cases enables the studying of servitization processes in depth, in different contexts and from multiple perspectives (Vennix, 2011). Like this rich and specific information can be collected, which then can be used to eventually provide description, test theory and generate new theory (Eisenhardt, 1989).

Multiple cases were needed to be able to compare the servitization processes of different organizations. Therefore, two organizations were selected to study in depth and two other organizations to compare and test the findings of the first two cases with. By comparing multiple cases one can much better gain insights in the patterns that relate with a social phenomenon, because one can find out what elements and factors the cases share and in what extent they explain the phenomenon (Bleijenbergh, 2013). Furthermore, studying multiple cases contributes to the strength and reliability of the research and it also increases the chances to find more relevant information (Swanborn, 2013; Vennix, 2011; Bleijenbergh, 2013).

3.2.2 Research process

As stated earlier, the approach of this research is a combination induction and deduction to test extant insights and to gain new insights, in order to extend extant literature and gain insights that might be relevant for practice. Therefore this research project did not have a linear research process. During the execution of the research some adjustments have been made to the research questions and interview guides, to ensure feasibility and good fit with the collected data. For this reason the steps and research activities of this research project are described and explained in this section. The steps taken in this research project were (in chronological order):

Table 4. Methodological process overview

1. Literature study	2. Construction of research questions	3. Operationalization of reserach questions
4. Interview guide construction	5. Study of the case websites	6. First interviews with the first 2 cases
7. Read through first interviews	8. Preparation of follow-up interviews	9. Follow-up interviews with first 2 cases
10. Adjust and specify research questions	11. Additional literature review	12. Interviews with other 2 cases
13. Start analysis of data	14. Adjust and specify research questions	15. Analysis of all data
16. Write down results	17. Present findings	18. Draw conclusions

The research project was started with a literature study. This literature study was performed to get to know the state of the art literature on servitization, to find gaps in the literature that could be addressed with the research and also to find relevant literature that could aid in performing the research. Thereafter the main research question and three sub-questions were constructed. The main research question was very broad and kept intact. The sub-questions were also very broad and were therefore altered and specified later in the process. However, with the main research question as leading question and the initial three broad sub-questions, the interview guides were constructed.

In this stage of the research process two organizations granted co-operation for the research. To prepare for the first interviews with those organizations the websites of these organizations were studied. This helped to get an image of the organizations and their progress with servitization. Then

the first interviews with the two organizations were conducted. After those interviews, transcripts of the interviews were made and these were read through. Important information from the interviews, such as organizational characteristics and insights about the servitzation process of these organizations, was taken along for the follow-up interviews with these organizations. This enabled studying the servitization processes of the organizations more deeply. The second and third interviews were also transcribed and read through. A lot of useful information was collected. However, the initial three research sub-questions appeared to be too broad and more focus in the research questions was required. The insights gathered with the first interviews and some additional literature study helped with specifying the research questions. Therefore, the sub-questions were altered into more specific research questions that fit the data better. After this two other organizations were approached for interviews. With those organizations only one interview was conducted, since already two organizations were studied in depth and one interview with the managers of those three organizations appeared to be sufficient to collect the desired data. After the conduction of the interviews the recordings of the interviews were transcribed. Hereafter, a first analysis of the data was performed. After which appeared that the research questions had to be adjusted once more. Then, all the data was analyzed and the results were written down. The findings were presented and conclusions of the research were drawn.

Elaboration on the interview procedure, the construction of the interview guides and on the data analysis can be found further in this chapter.

3.3 Data Collection

In this section is elaborated upon the data collection methods. It is explained what research methods were used and why, how the cases for this research were selected, the selected cases are introduced and the interview procedure is described.

3.3.1 Research methods

The data collection methods for this research project data are conducting interviews and where relevant and available analyzing documents. These two methods are popular methods for collecting data for qualitative research and with case studies it is very usual to combine multiple methods (Bleijenbergh, 2013). The use of multiple data collection methods enables triangulation of methods which can improve the reliability of findings (Eisenhardt, 1989).

The interviews for this study are open, semi-structured interviews. Open interviews entail that respondents are free to formulate their own answers to the questions asked (Boeije, 2005; Bleijenbergh, 2013). This enables the collection of unexpected information and provides rich and varied information thanks to the variation in answers (Boeije, 2005). Therefore relevant and also new

information about the servitization processes of the studied organizations can be gathered which enables the generation of new insights. In interviews people can for example describe the servitization journey and explain certain trade-offs and decisions that are new to the researcher. That the interviews are semi-structured means that the researcher prepares and structures the questions that are to be dealt with in advance (Boeije, 2005; Bleijenbergh, 2013). This enables the researcher to control which information will be discussed in the interview and contributes to the reliability of the data collection since the same subjects and questions are discussed in the other interviews (Bleijenbergh, 2013). However the prepared structure of the interview could be handled flexibly as well which was done with this research. Besides, next to the order of the questions also the formulation of the questions can be altered during the interview in order to keep the relevance of the questions and data collection high. And lastly, with semi-structured interviews the researcher can pose follow-up questions in the interview when this is considered useful. These characteristics of the data collection method were important for this research because it enabled the exploration of new insights and the collection of rich information. More information on the procedure of the interviews can be found in section 3.3.3, information on the construction of the semi-structured interviews can be found in the operationalization section, section 3.4.

Next to the interviews, some documents are used for this study too. The websites of the participating organizations have been studied. This is done in order to get a clear image of the organizations and this is also used for preparing the interviews. On the websites of the organizations one can most often find what the organizations have to offer for their customers and what their core values are. Besides the websites, some of the organizations also offered documents such as brochures, organograms and a presentation. These were useful for preparing the follow-up interviews and also for the general analysis of the research, since they provide information about the offerings of the organization, the planning of the change processes, organizational structure and the motivation for service provision. Some documents also give insights in how far an organization is with developing into a service provider.

3.3.2 Case selection

The first choice made in selecting organizations for this research project was the amount of organizations to study. As elaborated above the choice was made to study and compare multiple organizations to increase the chances to find useful information and to look for common patterns and factors in servitization processes. However, it is important to consider that after a number of cases less new information will be found (Swanborn, 2013). Considering this and the available time for research four organizations were selected for the research. Of these four organizations two were studied in depth with multiple interviews and the other two organizations were studied with one

interview each. In this way the first two cases produce much and rich information and the other two separate interviews with the two other organizations can be used to compare and check the findings of the earlier two cases. Besides, the first two cases provide information which could be used for specifying the questions asked and study the other two organizations. This was expected to be enough to gather relevant data and eventually answer the research questions.

The second choice that was made, was selecting identical cases that have a lot in common, a so called homogenous sample, or cases that differ from each other, a heterogenous sample (Van de Ven, 2007; Bleijenbergh, 2013; Swanborn, 2013). Yin (2003) advises to minimize the variance between the cases when the model or theory is relatively new and underexplored. That means, first formulate a common model for a homogenous collection of cases, to see if the same (expected) phenomenon happens in a similar case (Yin, 2003). For this research project the first two selected cases, that were studied in depth, are relatively similar, as is explained in the case descriptions in the next section. The other two organizations have less in common with the other organizations. Like this it is tried to find a pattern in the first two cases that were studied in depth and whether these findings were also relevant in the other two less similar cases.

The last steps in selecting the right cases were made by combining sampling based on content and convenience sampling (Swanborn, 2013). Convenience sampling is selecting cases that fit a certain objective criterium, on pragmatic grounds. Sampling based on content is selecting cases based on the characteristics of the cases themselves (Swanborn, 2013). Convenience sampling is used in the sense that a contact was established with the project leader of a related servitization research project, initiated by the HAN University of Applied Sciences, which was in development in 2018. This resulted in successfully contacting relevant SMEs orientating on or already involved in servitization. Four SMEs were selected, that met the criteria that were made up for sampling based on content. First of all, the cases had to be informative (Swanborn, 2013). The cases should be able to provide sufficient information about the phenomenon that is to be studied, in this case the servitization journey of the organizations. Therefore cases were selected on the dependent variable, in this research that is the success of servitization. The selected cases should be or should have been successful in a servitization transition to be a relevant case. This resembles one of the guidelines of Pettigrew (1990), to select cases with a high level of experience on the studied phenomenon. Another criterium is that the organizations should be manufacturing organizations from origin and should be an SME (small medium-sized enterprise). All four organizations are described in the next section 3.3.3.

3.3.3 Cases

As mentioned already above four organizations have been selected as cases for this research project. In this section these organizations are presented. None of the organizations objected to the use of the name of the organization in this master thesis, after asking whether anonymity was desired. Therefore, the original names of the organizations are used. All of the organizations are Dutch SMEs that are product manufacturers from origin and now engage themselves in servitization by adding more (advanced) services to their offerings.

Table 5. Case organizations

Organization	Description
Pas Reform	Pas Reform is specialized in the development of innovative hatchery technologies for the poultry sector since 1919. They are active all over the world. They engage in servitization by focusing more on services and service contracts. Supporting customers where ever possible and eventually completely unburdening the customer is the goal. In the future they hope to be able to get paid per chicken.
Aebi Schmidt	Aebi Schmidt is an organization that is specialized in de-icing technology and sweeping machinery. This organization, sells technologies, machinery and vehicles and offers many sorts of services in this field. Their main markets are the Netherlands and Belgium but also other countries in Europe are served occasionally. They engage in servitization by developing into an integrated solutions provider and are already able to take over the complete work process of the customer and unburden the customer completely in this way. They can offer their customer clean roads as a guaranteed result.
Eijkelkamp Soil and Water	Eijkelkamp Soil and Water develops, produces and delivers solutions for soil- and water research throughout the whole world. They engage in servitization by adding services to their offerings and making available the results (prepared data) of their products as services.
Mitsubishi Elevator Europe	Mitsubishi Elevator Europe is a manufacturing organization of elevators and escalators. They are mainly active in the BeNeLux. They engage in servitization by offering the function of an elevator (vertical mobility) as a service to their customers, as such the customer is completely unburdened concerning vertical mobility.

Pas Reform, Aebi Schmidt and Eijkelkamp all provide products and services which are used in the primary process of its customers. This is different from Mitsubishi Elevator, that delivers products that belong to the accommodation of an organization. Since Pas Reform and Aebi Schmidt were contacted the first and both produce and deliver products with a long life span for the primary process of its customers, these organizations were studied in depth and their servitization processes were compared. The other two organizations were contacted after the first studies and interviewed once, with the findings of these cases the findings of Pas Reform and Aebi Schmidt were checked and compared.

3.3.4 Interview procedure

In the previous section is explained that two organizations were studied in depth with multiple interviews and that thereafter two more organizations were studied with one interview each. As one can see in in the section on the research process, the process was started with two orienting and introductory interviews with the first two organizations. These interviews were done in order to get to know the organizations better, to introduce the research project clearly to the organizations and to get a clear image of the servitization process of these organizations. These interviews were held with someone with a strategic position in the organization and who plays an important role in the servitization process. The respondent had to be able to provide relevant information about the servitization process of the organization and should have therefore experienced a big part of the complete servitization process. Preferably this respondent was one of the initiators of this process. As such, the service managers of the first two organizations were interviewed for the orienting introductory interviews. The second and third interviews with these two organizations were to dive more in depth into the servitization process and to look at the process from two different positions in the organizations. Therefore these interviews were held with people who were / are also part of the servitization process, but not on a strategic level. These people were selected during the first interviews with the service managers. After the interviews with the first two organizations the other two organizations were studied with just one interview each. These interviews were held with a general director and one project manager. Also because these people played a big (strategic and managing) role in the servitization processes of the organizations.

Table 6. Overview of interviewees

Organization	Interview	Function
Pas Reform	1	Service & Sales manager + Operations director
	2	Service & Sales manager
	3	Product & Sales director
	4	Experienced member Service department
Aebi Schmidt	1	Service manager
	2	Hardware delivery manager
	3	HRM manager
Eijkelkamp	1	Manager technical projects
Mitsubishi Elevator	1	General director

The interviews were prepared by constructing an interview guide, studying the websites of the organizations and using the information of previous interviews and documents. Before the interviews took place the interviewees were informed about the research and the interview with an email. In this email the topics that were to be discussed in the interview were mentioned and also the opportunity to ask questions or make remarks was given. Also after the interviews an email was sent, to thank the interviewee for the participation and pose another opportunity for questions or remarks with regard to the interview and research. The interviews took approximately 60 minutes and were face to face with the interviewee. The participation of the interviewees was voluntary. Besides, the organizations and the interviewees was asked whether they wanted to remain anonymous. The interviews were recorded, with the permission of the interviewee, so that transcriptions of the interviews could be made for later analysis of the collected data.

Although the interviews were held with the help of an interview guide, the interviews were approached very open and flexible. During the first interviews it appeared that, after informing the interviewees with an email, the interviewees had ´their stories´ ready. So instead of walking through the interview guide by asking question after question, the interviewee was given more freedom to tell their story and experiences of the servitization process in their organization. As such, the interview guide was used flexibly, the questions and topics that had to be covered were discussed during the conversation and questions could be added or skipped if this was considered better. As long as the main goal of the interview was kept in mind. This flexibility is normal in theory-building research and allows the researcher to take advantage of special opportunities during the interview (Eisenhardt, 1989).

The interviews were conducted by the responsible for this research project. However, with the interviews at the first two cases the contact person of the RAAK-project of the HAN Hogeschool was present too and he also had the opportunity to ask questions. This was agreed upon in consultation with all involved parties.

3.4 Operationalization

This section explains how the interview questions were developed and how the two interview guides for this research project were constructed. The interviews were held in Dutch, as such the interview guides are also in Dutch. The operationalization is translated into English. The interview guides can be found in Appendix A. The interview guides were used to conduct the interviews, of which the final goal is to gather the right information to answer the main research question:

"How do organizations conduct the organizational change process of servitization?''

Since the nature of this study is a combination of both induction and deduction, the interview guides were constructed by using existing theory, but were approached in an open way. Central in the interviews is the servitization process, the change process of the organization. A part of the interview questions are specified to uncover the process and be able to reconstruct it. Next to that the focus was on factors that influence the process, to understand or explain what servitization processes look like and why they look like that. Within this process is looked at several concepts that stand out in servitization and organizational change literature, as are discussed in chapter 2.

The first interview guide was constructed for the orienting introductory interviews with the two organizations that were studied in depth. The second interview guide was constructed for the two interviews that followed after the introductory interview. The interview guides have some overlap, since the same servitization process is studied, however asking different people about the same process can provide useful insights from different perspectives. For the other two single interviews a combination of the interview guides was used, although mostly relying on the first guide. Besides, some questions have been added and removed for these interviews. The previously collected data was used for this, as well as specific information from the organization websites. As mentioned earlier, the interview guides have been used very flexibly.

Both interviews contained several introductory and conclusive questions, that were included for practical reasons and have no direct link with theory. The introductory questions were asked to get an idea of the context, to get to know the role of the interviewee in the organization and in the servitization process. The aim of the conclusive questions was to give the interviewee the chance to ask questions and provide possible feedback on the interview or the research itself.

The first interview guide was approached with a logical line in the interview. The intention was to first start generally and gather information about the organization itself. Then, to start about the servitization process gradually. First questions were asked about the vision about and drivers for servitization. After this, questions were asked to get an idea and an image of the change process. After this questions were asked to go to some more specific subjects and ´color in´ further the servitization process and find out what was important there. Therefore questions were asked about what servitization did with the organization, what changes took place and why. To finish the interview, questions were asked about the outcome of the servitization process, to get an idea of the consequences and the possible success. The second interview guide was approached in a similar way. However, since already information was gathered with the first interview, now the focus switched more to the ´coloring in´ of the servitization process, from different perspectives. As such, in these interviews less attention has been paid to the organizational characteristics and the servitization vision and drivers and more to the changes in the organization, important decisions, capabilities and factors in the servitization process. Also these interviews ended with questions about the servitization outcome.

The operationalization scheme can be found in Appendix B.

3.5 Analysis

Qualitative data analysis is a process in which existing or self-produced texts are interpreted from an empirical question, by labeling fragments of these texts in multiple phases with concepts and giving meaning to this. These concepts are called codes and these codes will help to relate between empirical observations and possible general statements based on these observations (Bleijenbergh, 2013). To analyze the data the template analysis technique was used. In template analysis a priori themes are used, which are most often defined in advance of the study (King, 2012). This means that initial theoretical thoughts of the researcher can be used to guide the analysis. This was done for this research as well. An initial template was constructed with a priori themes that were ought important to identify in the data, such as for example process phasing, drivers, changes and challenges in the servitization journeys of the researched organizations. These themes were based on the studied theory and expectations of the researcher. With this template the first round of coding was performed on the transcriptions and documents of the two in depth studied organizations. From this the structures of the servitization processes of both organizations became clear, in the sense of phases in the processes. Knowing this, for each organization separately a table was constructed to represent the servitization process of the concerning organization, consisting of the different phases that arose from the data of the individual cases. From here the two cases were studied separately and further coded in deeper levels. With the coding activities were specified, as well as changes and

challenges and these were categorized in the corresponding servitization phase. Like this for both cases the tables were filled in with further findings for each organization and in that way the servitization processes of both organizations were colored. For each organization a, so to say, very detailed template was developed, with which detailed process descriptions could be constructed. Like this first within case data was analyzed, which helps to find unique patterns before to generalize patterns across cases (Eisenhardt, 1989). After that the findings of the two cases were compared and similarities and differences analyzed. In the end the findings of the other two organizations that were interviewed once were used to test the earlier findings with. The transcripts of these single interviewed organizations were coded by means of the more general template that was used before getting into detail in the two in depth studied cases separately. For the coding of the data the program ATLAS.ti was used.

3.6 Research quality

Here the trustworthiness of this research project is discussed, in order to ensure the research quality. This is done by discussing four criteria to asses qualitative research are being: credibility, transferability, dependability and conformability (Guba & Lincoln, in Symon and Cassell, 2012, p. 207).

With regard to credibility the researcher aims to demonstrate a good fit between the constructed realities of the respondents and the reconstructions attributed to them (Symon and Cassell, 2012, p. 206). To meet this criteria the interviews conducted for this research were well prepared. Before the interviews took place the researcher studied the website of the organizations and informed the interviewees with the topics that were to be discussed with the interviews by sending an email in advance of the interview. Next to this, with regard to the in depth studied cases, multiple people from the same organization have been interviewed, about the same subject. Besides, for the in depth studied organizations the first interview included an introductory part, in which the research was introduced another time and questions were asked about the organization in general, before starting with subject related questions. Like this it was made sure that researcher and interviewee were on the same wave-length. Furthermore, the interviews were recorded and transcribed literally. After the interviews took place the interviews were also discussed with the contact person that was also present with the interviews.

With regard to the transferability of the research the researcher has to provide enough detail about the researched case(s) (Symon and Cassell, 2012, p. 207). As such attention has been paid to be clear in describing the context of and the differences between the studied cases. Like this it is tried to make it as clear as possible for the reader to judge which findings are transferable to other settings

and which are not. To this can be added that exactly this, the context of the servitiztion processes, is an interesting topic for further research.

With regard to the dependability attention has to be paid to demonstrating methodological changes and shifts in constructions (Symon & Cassell, 2012, p 207). As such, with this research it is tried to describe the research approach, the research strategy, the data collection and the data analysis as clear as possible. In section 3.2.2 special attention is paid to the steps taken during this research process.

And last but not least, the confirmability of the research. This is about being clear where the data comes from and to which extent the data confirm the presented findings (Symon & Cassell, 2012, p 208). Therefore with presenting the findings in chapter 4, it is described where the findings come from and at times quotes with reference to the transcripts are used to support the findings.

3.7 Research ethics

During the research project multiple ethical considerations were taken into account. The participating organizations and interviewees were well informed about the research and the interviews. The first two organizations that were studied in depth were approached with a letter by email. In this letter the researcher and the research project were introduced, the research project and the research goals were explained and the organizations were asked whether they were willing to participate in this project. The other two organizations were approached with an email, in which also the researcher and the research project were introduced and was asked if it was possible to have an interview with the desired person. After that, all interviewees were sent an email to thank them for their cooperation and to inform them about the topics that were to be discussed with the interview. Like this the interviewees were given the opportunity to prepare themselves and they were informed in what they could expect. After the interviews another email was sent to thank the interviewees again and to give them another opportunity to make remarks or ask questions.

All participants participated voluntarily and were asked whether they wanted to participate anonymously or if the name of the organization could be used. All organizations mentioned here that the name of the organization could be used in this report. The interviews were recorded with permission of all the interviewees. All participants were informed with what would happen with the data and how the results would be shared. Besides, all participants were given the opportunity multiple times to ask questions or make remarks with regard to the interviews and the research project. Later, when the master thesis was finished, the report was shared with all the participants, as agreed upon.

Chapter 4. Results and analysis

4.1 Introduction

In this chapter the results of this research project are presented. First of all, detailed descriptions of the servitization journeys of Pas Reform and Aebi Schmidt are given. After that, those two servitization processes are analyzed to identify whether the journeys were radical or incremental and why, the growth paths are compared with each other and it is also examined what type of change took place in the transition of both organizations. Then the main activities of both organizations are presented in a table and it is investigated whether these activities are consistent with the critical success factors as described in chapter 2. This analysis is followed by elaborating upon which change organizations (change/intervention teams) the organizations used in their process in order to organize the changes in their servitization journey. Thereafter the results of two other cases are presented and compared with the earlier findings presented in this chapter.

4.2 Servitization journey descriptions

4.2.1 Introduction

In this section the two servitization journeys of Pas Reform and Aebi Schmidt are presented. As is mentioned in the analysis section, these two organizations have been studied in depth. With the first rounds of coding by means of the template, phases were identified within the servitization processes of both cases. It appeared that the servitization process of Pas Reform consists of three phases, being: ´vision and strategy development´, ´set up and scale services´ and ´become an experienced service provider´. The servitization process of Aebi Schmidt appears to have four phases, being: ´experiment and growth of services´, ´strategy development and preparation of reorganization´, ´reorganization´ and ´grow in servitization´. With the subsequent steps of coding was zoomed in on the servitization processes separately by identifying among others specific activities, changes and challenges belonging to the identified phases. Both servitization processes are described below in sections 4.2.2 and 4.2.3. Quotes from the interviews are used to support and validate the text.

4.2.2 Pas Reform

1. Vision and strategy development [1]

Pas Reform had offensive, strategy oriented drivers to engage in servitization. Because of decreasing margins and declining performance the management of the organization started looking for ways to improve performance and earn profits. At first their idea was to focus more on automation. To look for the possibilities and opportunities for this, they approached a consultant. Together with the

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[1] Read more about the vision and strategy development in Appendix C.

consultant the management looked at the business model and studied the market. In doing so, they found out that it was not just automation that they had to focus on. They had to think bigger and should look into the direction of servitization and the provision of services and solutions.

> ``Along the way we started with automation, the strategy, what is it that we want? But doing so we found out that what we want is actually bigger than just automation. We have to prepare our organization for growth, for the future. And this insight resulted in the new strategy. Which indeed is mainly in line with servitization and all that comes with it.´´ (3:15, Pas Reform)

Accordingly they developed a new strategy based on the concepts of customer lifetime, customer intimacy, unburdening the customer and offering total solutions. The organization had to transform into an integrated solutions provider, that offers services within the sales phase, the project phase and the service phase, through offering hardware, services and software. The stated aim of this was to fulfil the customer in its needs and, if desired, completely unburden the customers. To that end the organization felt it needed to get more involved in projects instead of simply selling and delivering the machines. An important part of the strategy development was studying the market and segmenting customers. The customers were divided into five segments, ranging from customers that focus on products and the purchase price to customers that desire a guaranteed result in the form of services.

After the development of the new strategy and vision, these were shared across the organization. This means that change management started there. With every meeting and presentation the new strategy and vision were promoted and explained. This does however not solely belong to the first phase. The promotion and sharing of the strategy and vision appeared to be part of a change management trajectory which is performed during the complete servitization process of Pas Reform until now.

> ``Well, in the beginning we mainly have been busy with clarifying this vision. So we started every presentation that we gave with the strategy part.´´ (3:89, Pas Reform)

2. Set up and scale services

The next ´servitization phase´ of Pas Reform after defining a new vision and strategy is the phase in which the services are set up and scaled. This can be considered as the first steps in putting into practice the new strategy. This phase was started approximately three years ago and Pas Reform is still developing in this phase. In order to make flesh out of the new strategy, development needs were identified to get insight in what had to happen to make the strategy work. This was done

throughout the complete organization. This way, development needs became clear and tasks and projects were created.

> ``And then for each department we looked: what has to happen to be able to do this? What needs to happen for service? What needs to happen with sales? For each department people received their own tasks and instructions what steps to take. And eventually insights were gained in what needs to happen where and when. It resulted in organization-wide meetings about what to change first. It happens very gradual, step by step. That is how we tried to do it and that is how we are still doing it.´´ (3:92, Pas Reform)

Important to mention is that these development projects, in this servitization phase, were considered as logical and realistic steps. Not everything was done all at once, several projects and changes were performed after each other, in different departments and parallel with normal work.

Especially with regard to services a lot had to change. Pas Reform did not have any experience with and knowledge of service provision and until then only did reactive support services for customers.

> ``Then you automatically get to themes like services. Which is something completely new for us. Really completely new. We really did not know anything about that. Before we did everything reactively.´´ (1:6, Pas Reform)

And because Pas Reform did not have any experience with service provision and services in general, they also had difficulties with starting to make flesh out of the strategy. It was a real challenge to get into conversation with the customer and find out what the customer really wanted. The customers had latent needs and did not know about these new opportunities yet. Besides, due to a lack of service knowledge and experience, Pas Reform did not recognize obvious service opportunities that it already had, such as licenses for software and consulting in the sales phase. Therefore a new function, for service manager, was created and a service manager was recruited. The task of this service manager was to set up the services, which he did. Pas Reform started with talking with customers, in order to check the new strategy and ideas and to find out real customer demand. The first change was changing from reactive service provision towards proactive service provision. Furthermore, an important and labor-intensive activity was the recognition, defining and standardization of services[2]. Services that could be performed immediately by the organization such as support, advice, inspections and training.

Next to this, the internal organization needed to be adapted to the new strategy. To this end, the organizational structure was adjusted, in which the service department became more important and

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[2] Read more about the recognizing, defining and standardizing of services in Appendix C.

was assigned people from the production department. The culture and mindset in the organization had to change with a focus on customer intimacy and proactivity towards customers. For some departments the change in strategy meant a change in the way of working. Especially people in the service department had to become more proactive in supporting customers and the work of salespeople had to change from catalogue selling to consultative selling. To support this change process a CRM system was desired, which helps in the controlling of long and close customer relationships. And next to the strategy related changes attention was also paid to improving, optimizing and clarifying processes and function profiles throughout the complete organization to create a steady base for further growth. To achieve all this, change management was very important. Presentations and meetings were held, development programs assigned and training provided. As a manager of Pas Reform said:

> *"Internally we are dealing with the acceptation and the qualification. Therefore we had to do*
> *complete development programs, still, to teach people new skills and to talk with everybody."*
> (1:142, Pas Reform)

And next to adaptation of the internal organization also adaptation outside the organization was needed in terms of informing and convincing customers as well as agents that work for the organization.

Furthermore, what Pas Reform also did and is still doing in this phase, is thinking forward about future steps and developments through group and management meetings. They for example set up a data warehouse project and started with connecting machines and products, in order to collect useful data and product and customer information. The data and information are thought to be necessary for possible future steps, towards for example Service Level Agreements and new services.

> ``*Well, I think that this data warehouse project is a very important project. Because there you*
> *really collect the data, with which you can do something again later. I think that that is a very*
> *important step to be able to work towards real SLA´s and eventually maybe a complete*
> *hatchery as a service. So for committing to real obligations we simply need more data.´´*
> (2:16, Pas Reform)

Other new development needs and projects that are necessary to eventually reach the end goal (completely unburden customers with autonomous self-learning hatcheries), are to be thought of and planned in this phase as well.

> *"We know what our end goal is. But further requirements and which steps we still have to*
> *take to reach our goal is something we will map this year."* (Pas Reform, 3:37)

Furthermore, in this phase the organization had to and has to continue working too. This includes the provision of new services and this often appears to be quite a challenge, especially with the increase in demand for and sales of service contracts. After all, the strategy works and is appreciated by clients, which already led to growth of the organization in this first ´servitization step´. At times the growth is even going so fast that it puts pressure on the functioning of the organization.

> *"Well, we are touching the limits of our capacities to be honest. The organization is under pressure.''* (3:65, Pas Reform)

However, changes are still taking place, experiments and trial and error with services happen and people are still developing themselves. For example not all sales people and service employees are on the desired level yet. Hence, the goal of this phase is to make the organization ready to perform the defined services.

> *"My goal for now is to first make this all land. These developments need to be adopted completely. It has to be operationally well organized. And then, parallely we continue to work on new developments such as data. But first we have to make sure that this (the provision of new services) is working good."* (1:195+1:196, Pas Reform)

3. Become an experienced service provider

This next step is a step that Pas Reform did not reach yet but is thinking of already, as mentioned in the previous phase. After the setting up and scaling of the services and performing these on the desired level, the next step is to become an experienced service provider. With more experience in service provision and data and information at hand, service level agreements can be made with customers. Next to that, the organization aims to focus more on really unburdening their customers and design services for that. This means that customers in the higher segments, especially the fourth segment (in which the organization aims to unburden the customer through controlling machine performances), will be taken care of better. Besides, more will be done with the collected data, in order to look for further development opportunities and new service options.

Growth path of Pas Reform

In investigating the servitization development process at Pas Reform, a growth path emerges. First define a clear vision for the future and a good strategy. Then set up (proactive) services, scale those services and learn a lot. Start with collecting data and information for further growth. And then in the next step develop and present the organization as an experienced service provider with real SLAs. The overall and final goal of Pas Reform to develop itself in a complete integrated solutions provider, where they can completely unburden their customers with an autonomous self-learning hatchery. The expectation is that this can be realized in eight to ten years.

4.2.3 Aebi Schmidt

1. Experiment and growth of services

The servitization process of Aebi Schmidt started with a servitization pilot. Together with a customer Aebi Schmidt agreed to do a pilot in completely unburdening that customer with their de-icing processes. As such the organization started experimenting with new services and learning and experiencing new things in the process of unburdening a customer completely. Before this, Aebi Schmidt only performed reactive support services and with the start of the pilot the servitization process really started. From there the organization also started to offer new services to their customers.

> ``*I think this started around three or four years ago with a pilot. There this began. We were allowed to do this pilot for a year. And this got the ball rolling. And with that the growth of the support department, the services that eventually became Software and Services. We saw big growth potential in the market there.´´* (6:31, Aebi Schmidt)

As the quote says, also the support department grew and more services were developed and offered, since Aebi Schmidt saw there was a lot of potential in service provision. Besides, an ICT company was taken over, in order to start collecting, analyzing and presenting data of customers and machines. This enabled the development of new services again. In this period a few more pilots were conducted with customers, the experimenting and learning continued and still continues throughout the complete servitization journey.

2. Strategy development and preparation of reorganization

After a period of experimenting with customers, development of new services and growing the service department, the decision was made to really do something with the developments in the direction that the organization was experimenting and growing in and to formulate a new strategy[3]. The organization had the feeling they could not stand still in their development, risking the loss of market share in their very mature market. Besides, the organization had difficulties with handling all the developments in its current state and therefore something had to change.

> ``*And eventually we said: if we really want something, then we have to set up those new functions now, with new function profiles. Clarity for each other. Who is doing what? Because we used to be an organization without real clarity, where the links to each other were vague. There was a lack of structure.* (6:46, Aebi Schmidt)

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[3] Read more about the vision and strategy development in Appendix C.

Together with a consultant / interim manager the management of Aebi Schmidt started formulating a new strategy, based on the developments in the market and on the capabilities that Aebi Schmidt already developed. A market study was performed, customer segments were created and the new strategy was developed. Aebi Schmidt was to transform from a machine deliverer into an integrated solution provider, in which they want to offer their customers more in a proactive way and deliver total solutions, through hardware, services and software. To make this new strategy really work, the organization needed a reorganization. The consultant helped Aebi Schmidt with both the development of the strategy model and with the alignment of the organization with the new strategy.

> ``He helped us to map that ´servitization´ and also to get insight in the complete organization for such a change. So he looked with us at what we were doing and what are our opportunities were? With that the strategy was formed.´´ (6:44, Aebi Schmidt)

Then a reorganization was prepared. A stakeholder analysis was performed and a change management plan was developed. Furthermore, the new strategy and plans for the future were shared within the organization and with the holding.

3. Reorganization

Aebi Schmidt started the reorganization during the summer of 2017. A new organizational structure was rolled out, with new departments, functions, tasks and responsibilities. The complete organization was now redesigned to deliver total solutions. As such now there are three main departments: solution development, solution commerce and solution delivery. However, the change was interrupted by the busy fall/winter season where all focus moved to ´normal working´ and getting through the season, there was no time for changing. Until here people were informed about the new direction of the organization and the new plans, but real changes were not and could not be initiated yet.

> ``The disadvantage of this organization is the winter season, when all the focus is on machines and on customers. We ran into that. And because of that we had to retake our momentum for the change, by restarting with intensive training sessions.´´ (6:53, Aebi Schmidt)

Because of this the change had to be restarted after the busy fall/winter season. A new planning was made with activities such as process improvements and training sessions that had to be done before the summer. From that moment processes were adjusted and standardized, function profiles made up and assigned to people, change management was performed to inform, convince and train people and the services were defined and standardized. For all offerings menu charts and recipes were

developed and integrated in the offerings system, as such all offerings[4] were made clear and available for everyone who needs it. Especially the standardization of processes and offerings appeared to be very important here, as well as change management. Besides, in the interviews it was emphasized multiple times that clarity was key in this phase.

4. Grow in ´servitization´

After finishing the planning, in the summer of 2018, one can say the reorganization is as good as completed. However, this does not mean that the servitization process and the development of and within the organization is finished. With the reorganization Aebi Schmidt is making the organization ready for growth in services. At this point there are only a few very progressive customers that want to be unburdened completely and the main income still comes from the sale of machines. However, the organization is getting ready for the upcoming changes in customer demand, where more and more customers want to be supported and unburdened. And that is what the service manager of Aebi Schmidt said:

> ``*Yes, the dream for the next step is that we will grow considerably in the servitization side. In the provision of services. That we will perform more route optimizations for customers.´´*(5:123, Aebi Schmidt)

And therefore, Aebi Schmidt keeps on developing itself into that direction, in a gradual and controlled way. From here new development needs will emerge in line with the new strategy and structures, which will lead to further (organic) growth. For example, new people are needed for dealing with customers in the higher segments and newly assigned managers have to start organizing the work in line with the new strategy.

> *"Here are three new managers. This one is responsible for the hardware, this one for software and this one for all that has to do with the services. And then we have a sales manager and a solution development manager. These people have to get into their role and organize everything according to the new method.* (5:105, Aebi Schmidt)

> ``*Now is the moment to search for an extra consultant that is able to serve our fifth segment customers. And there will be some more project leaders that can take along customers of the fifth segment and help them. And it keeps growing like that. And sometimes we have to use the brake there, otherwise it is going too fast and we will not be able to deliver anymore´´* (6:93, Aebi Schmidt)

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[4] Read more about the recognizing, defining and standardizing of services in Appendix C.

Growth path of Aebi Schmidt

This description of the servitization journey of Aebi Schmidt shows that they started with experimenting and growing services, before linking it to a clear strategy and business model. Because of this, Aebi Schmidt was already able to provide many services and go far in unburdening their customer. Then, the pressure on the organization started to grow and the clarity and overview throughout the organization was getting lost. To gain back the overview and control over the organization and its processes they reorganized and started to professionalize the organization in line with a new defined service (or solutions) strategy. From there they keep on developing themselves in order to be able to serve and unburden more and more customers.

4.3 Analysis of the servitization journeys

4.3.1 Introduction

In this section the servitization journeys of both Pas Reform and Aebi Schmidt are analyzed and compared. In the first part is examined whether the servitization processes of Pas Reform and Aebi Schmidt are radical or incremental and it is analyzed what factors influence the course of the servitization processes. After that the two servitization processes are compared with each other. Here, it is looked at the similarities and differences regarding the course of the journeys and phases within the journeys how this can be explained. At the same time, here it is analyzed, by means of theoretical insights from chapter 2 and empirical insights from the cases, whether certain phases represented emergent and continuous change or episodic change. Additionally the servitization processes of Pas Reform and Aebi Schmidt have been compared with literature on incremental servitization transitions (Oliva and Kallenberg, 2003 and Atos Consulting, 2011) as well, but due to space limitations this could not be included in the main report but can be found in Appendix C.

4.3.2 Incremental or radical servitization

As is discussed in section 2.3 on the servitization transition, the transition can be radical, incremental or a combination of both (Perona, Saccani and Bacchetti, 2017; EU report, 2018). With a radical transition the organization changes its business model and organizational elements in a disruptive way, with an incremental transition organizations develop themselves gradually in a sequential way (Perona, Saccani and Bacchetti, 2017).

Looking at the servitization journeys of Pas Reform and Aebi Schmidt, one can say that both organizations go through an incremental transition. First of all because both organizations are 'servitizing' already for several years and expect to need some more years to become the integrated solutions provider they want to become. The change of becoming a service provider is not made in one go. As the process descriptions above show, both organizations went through and have to go

through multiple phases in their journey. Both organizations develop gradually by looking for development needs and organizing development projects. For Pas Reform these projects are not performed all at once, but these are performed when ought necessary and possible. For Aebi Schmidt many changes and developments took place in the period of the reorganization, which can be seen as an episodic phase as is mentioned in the previous section. However, before this reorganization the organization developed gradually, including a more radical way of incorporating data management capabilities by taking over an ICT-organization. Also after the reorganization Aebi Schmidt will continue to develop and grow incrementally.

As such, both processes were mainly incremental, including some more radical moments or actions. There are several factors that made that those servitization journeys were incremental and not completely radical. First of all, both organizations did not have the knowledge, data, experience, skills and capabilities yet to be an integrated solutions provider. As mentioned in chapter 2 there are several ways to achieve this knowledge, experience and capabilities. An organization can develop it themselves, they can achieve it through acquiring an organization or people or by partnering with other entities (Perona, Saccani and Bacchetti 2017). Both Aebi Schmidt and Pas Reform incorporated several capabilities and knowledge. Aebi Schmidt for example took over an ICT organization and works together with several other parties to make complete unburdening of their customers possible. Pas Reform assigned a service manager to incorporate the necessary knowledge and experience for building their service department. However, still most was achieved through self-development, also because both organizations are the experts with regard to their products, the function of the products and the processes and others do not have that knowledge.

> *"Because that customer has less knowledge than we have, because we are the specialist.''*
> (5:46, Aebi Scmidt)
> *"And we, of course, have all the knowledge of the process.'' (*5:79, Aebi Schmidt)

But, the organizations do not always exactly know what they need to become an integrated solution provider immediately, they are finding that out step by step. As a manager of Pas Reform answered on the question whether they already know what the organization needs to become an integrated solution provider:

> *"Not yet, well roughly. Not very much. For this year we have a roadmap in detail. So, the dot on the horizon is clear. But what we need for that and which steps we have to make, that is something we will fill in this year.''* (3:39, Pas Reform)

To this can be added that both organizations experiment with customers and that trial and error takes place in the development of services, especially in the beginning of the process.

Furthermore, organizations first try to develop by themselves and if appears they need capabilities that they do not have themselves they consider incorporating it in other ways. This is how Pas Reform works with their data, first they try to manage it themselves, if appears they need other capabilities, skills or knowledge they will incorporate it. Like this they work in a controlled manner without taking unnecessary risks.

> *"If you have the data, then we have good people here at Research and Development that are able to say something about the data. Then after trying that, you could think about a data analyst, that could dive deeper into the data. But also tools exist that can automatically search for relations in the data. Maybe you should buy such a tool for a year, find the relations in the data and do something with that with the people here. Because anyhow you need to map process knowledge and incubation knowledge with data. We have the incubation knowledge here, data knowledge is the question what we really need of it.''* (2:24, Pas Reform)

Furthermore customer demand plays a role in the gradualism of the servitization process. Most customers do not want to be unburdened completely already. Hence, for customers this gradual development is desirable, since they also need to adapt. A manager of Pas Reform mentioned that the speed and the way of development is perfect for their market, since services are new for their customers as well. Their customers had latent needs and are enjoying the new possibilities now, but most of them do not want complete unburdening yet. For Aebi Schmidt applies the same, also there most of their customers still want to have the machines in own management. Customers that want more in the sense of unburdening can have more and both parties can learn how to make it work optimally. It is not only the organization that has to develop itself in service provision, also customers develop themselves in their demand and necessities. Both organizations created customer segments along the product-service continuum and the customers are developing towards higher segments along the continuum. As such, the customer segments can be seen as a growth path[5] for customers as well.

Besides, this gradual transition might benefit the organizations because during the servitization process both organizations experience growth. And this puts pressure on the organization. Both organizations are short in capacity in several departments because of the strong growth during their

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[5] The customer segments are: 1. Customers that focus on the purchase price of the products 2. Customers that focus on the cost of ownership 3. Customers that desire a basal performance 4. Customers that desire a total performance 5. Customers that are seeking a risk-sharing partnership and/or want a guaranteed performance.

More information on the segmentation of customers can be found in Appendix C, under strategy development.

servitization process. Both organizations try to keep the development under control and therefore develop gradually. The changing and developing is even paused sometimes too. As the following quote shows:

"On a certain moment we said: now we stop for some time, on a certain department such as sales for example, now we stop and we get back to work. Otherwise you are only changing. And this needs to happen next to the sales process and next to the service provision. So on some place we said: we will do this and we will not do this and here we stop for some time. We will continue later." (3:96, Pas Reform)

And last but not least also the collection of data and information can influence the gradualism and time duration of a servitization process. In order to be able to use data effectively for advanced services, often so much data is needed that it can take a few years to have gathered enough.

``And when we are a few years further and we have this all well organized, then we will receive a lot more data and information. Which we can use for making service level agreements.´´ (1:132, Pas Reform)

4.3.3 Analysis of servitization growth paths

As explained in section 4.2, from the analysis of the interview transcriptions of Pas Reform and Aebi Schmidt became clear what their servitization journey looked like and which phases they went through. Here the phases are presented once more in a figure, after which they are compared and analyzed.
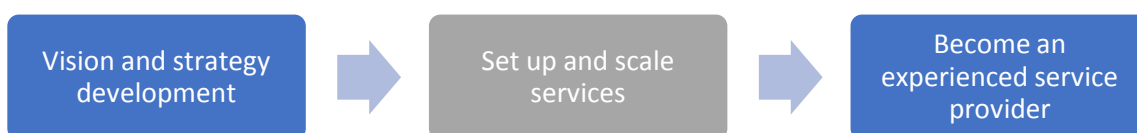
Pas Reform:

Figure 9. Pas Reform growth path

Aebi Schmidt:

Figure 10. Aebi Schmidt growth path

*Grey color represents phase in which organization is during the interviews, Aebi Schmidt was moving from the reorganization phase to the next phase and that is why the last two phases are colored blue-grey.

About the start of both journeys, one can say that both organizations started differently. Pas Reform deliberately started with a market study and developing a new strategy and mission, with the help of a consultant. And from there they had their vision for the future clear, as well as their (desired) end goal. Aebi Schmidt however, started in a more organic way, through interaction with customers and following developments in other markets. They had not heard of the term servitization yet, they simply felt they had to develop in the direction of services and unburdening customers. However, a clear strategy and vision were not there yet and therefore the organization developed without following a clear line and coherently adjusting the organization.

Therefore, with regard to the start of the process for both organizations, one can say that the start for Pas Reform consisted of episodic change and that the start for Aebi Schmidt consisted of emergent change. In short, episodic change is infrequent, intentional and discontinuous change (Weick and Quinn, 1999) in which the deep structure of an organization is changed (Gersick, 1991). Continuous emergent change can be seen as ``accommodations to and experiments with the everyday contingencies, breakdowns, exceptions, opportunities and unintended consequences´´ (Orlikowski, 1996, p.65). Pas Reform deliberately changed its deep structure, in the form of a new strategy and corresponding organizational adjustments, to counteract its decreasing margins and performance. Aebi Schmidt on the other hand started with emergent change through arising opportunities and experimenting with these opportunities.

This difference in the start with servitization can be explained by customer demand and recognizing market opportunities. Aebi Schmidt saw the potential of service provision and started experimenting with this by itself and with its customers. Besides, they had customers that had demand for services. With Pas Reform this was not the case, they did not recognize the opportunities with service provision themselves and their customers did not ask for services, their customers had latent needs. Pas Reform approached a consultant to look at new opportunities for the organization. This consultant had a great influence on the start of Pas Reform with servitization by introducing service opportunities and a service strategy.

In the next phase Pas Reform started to set up their services and make flesh out of the new strategy. Change programs were started in the beginning of this phase as a result of the new strategy. But for the rest, the organization developed itself in a controlled and gradual way parallel to the normal working activities. They did this by looking for development needs and addressing these needs with projects when this was ought necessary and possible. The changes the organization went through in this phase emerged from the new vision and strategy. As such, after defining a new vision and strategy one could say that Pas Reform continued their development through continuous emergent

change. Aebi Schmidt continued to develop itself and its services gradually too. However, without the guiding structures of a vision and strategy and without really aligning the organization with this strategy. Aebi Schmidt continued developing in this way until the moment that the pressure on the organization was getting stronger and performing adequately was getting more and more difficult. If the organization was to develop further into this direction, change was necessary to be able to succeed. The decision was made to actively do something with the developments the organization was in. Therefore they approached a consultant / interim manager and together defined a new strategy and started a reorganization. Episodic change took place, because the organization changed its deep structure in an intentional and discontinuous way. From there, like Pas Reform, the organization started to develop itself further in line with the strategy.

The difference in phases here can be explained by the fact that for Pas Reform the strategy and the line to follow were clear and the organization was getting aligned with this strategy step by step. For Pas Reform in the beginning not that many changes were required yet, since they started with services from almost zero. Customers were not expecting much yet with regard to service provision. Therefore the growth in servitization, in sorts of services and amount of service provision, could go hand in hand with the development and alignment of the organization. Aebi Schmidt already grew in service provision. They were already performing services and customers were expecting performances. However, Aebi Schmidt did not have the strategy and structures developed for this. The organization was not designed properly for this. As such they had to catch up with a reorganization after which they could continue developing gradually again.

From this one can conclude that Pas Reform started with an episodic change and that the rest of the process is continuous and emergent according to the new strategy. Aebi Schmidt started with emergent change and reorganized the organization with an episodic change, from where the organization continued to develop and grow in an emergent way again according the new strategy. The factors explaining the differences appear to be customer demand, recognizing opportunities and strategic plus organizational alignment.
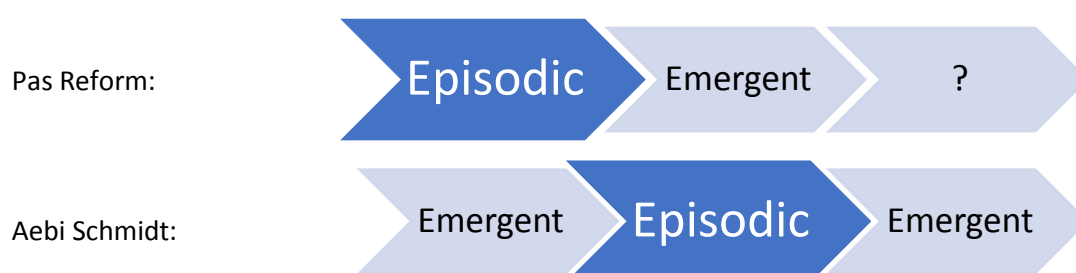

Pas Reform: Episodic Emergent ?

Aebi Schmidt: Emergent Episodic Emergent

Figure 11. Indication of emergent and episodic change in servitization processes

4.4 Activities in servitization processes

After analysis of the course and the phasing of the servitization journeys, attention is paid here to the activities that both organizations performed during their servitization. Through analysis of the interview transcriptions and documents multiple activities that the organizations performed became clear. Here they are presented in a table to show in which phase what activities took place. Underneath the table is discussed whether the activities of both organizations verify the critical success factors that are described in section 2.3.8.

Pas Reform:

Vision and strategy development	Set up and scale services	Become an experienced service provider
•Revise strategy, mission and revenue model •Study market •Customer segmentation •Develop new strategy •Change management •Share, promote, explain new strategy and plans	•Make inventories for development needs •Create development projects and tasks •Assign service manager •Talk and experiment with customer •Recognize, define and standardize services •Adapting/aligning internal organization* •Adaptation outside organization •Perform/work (+new services) •Think forward • Connect machines and start collecting data	•Make up SLA´s •Do something with the data •Develop and provide more advanced services •More unburdening of customers

Figure 12. Pas Reform activities per phase in servitization process

*Includes: change management, adjust infrastructure, change culture and mindset, KPI´s, systems and professionalizing the organization.

Aebi Schmidt:

Experiment and growth of services	Strategy development and preparation of reorganization	Reorganization	Grow in servitization
•Talk and experiment with customer(s) •Develop and perform new services •Acquire ICT-organization for data management	•Market study •Customer segmentation •Internal assesment •Develop new strategy •Prepare reorganization •Stakeholder analysis •Develop change management plan •Redesign organization •Start change management •Share new strategy and plans	•Change management •Implement new organizational infrastructure •Create new change planning and perform planning •Recognize, define and standardize offerings •Professionalize organization	•Continue to develop and improve organization •Unburden more customers •Move more customers towards higher segments

Figure 13. Aebi Schmidt activities per phase in servitization process

1. *Assess the market and internal readiness*

Both organizations asses their market by performing market studies and segmenting their customers. With regard to assessing the internal readiness not a lot of information was found. However, through change management both organizations worked on the acceptation and qualification for servitization. And also inventories of development needs and a planning for changes were part of the activities of both organizations.

2. *Create the right strategic and cultural context*

This critical success factor can be justified. Both organizations developed a new strategy and change management was performed to promote and implement the new strategy and work on changes in organizational culture.

3. *Build the structures and governance for services*

Also this factor can be justified. Both organizations made adjustments in organizational structures and function profiles. Besides, Pas Reform assigned a new manager for the governance of services and also Aebi Schmidt assigned a few new managers that have to work in the new structure and extend the new strategy in the organization.

4. *Dedicate the resources for creating and delivering new services*

With regard to the dedication of resources not a lot of information was found. However, both organizations successfully managed to develop and start providing new services.

5. *Proactively manage engagement and trust*

Both organizations managed engagement and trust in the organization through change management. This was done by presentations, group meetings and personal conversations.

6. *Develop and embed service processes*

Also this was done by both organizations. Aebi Schmidt even integrated the standardized services and processes in a digital system that is available for the employees.

7. *Optimize services and communicate best practices*

Pas Reform is doing this, since (service) performance is not always going yet how it should. Therefore they are also implementing a new system to support the service department in planning, follow-up of customer issues and incident management. Aebi Schmidt also optimizes its service processes and integrate this in the above mentioned digital system. Furthermore, worth mentioning, both organizations are working on optimizing processes throughout the complete organization.

Two more activities could possibly be added to these seven critical success factors. From this research appeared that also the talking and experimenting with customers and the collection and analysis of data play very important roles in the servitization processes of both organizations.

4.5 Change organizations

In this section is examined what change organizations are used in the servitization processes of both researched organizations. The used change organizations were identified by looking at what people and/or parties were involved in certain servitization phases or changes and how these findings fit with the insights presented in section 2.4.5. It appeared that both organizations used multiple change organizations in their servitization journey.

Pas Reform started their servitization process with an Expert change organization. They had few experience and knowledge at hand with the start of their servitization process. An expert in the form of a consultant helped them. He brought with him the experience and knowledge that was needed.

> *"Then we did a study together with a consultant and we came to a certain analysis and conclusion that we have to think more customer lifetime. Then you automatically get to themes services. And that is a completely new subject for us."* (1:4, Pas Reform)

After the development of the new strategy the organization used a Cascading change organization for the phase of setting up and scaling the services. With this change organization the change process was continued. There was and still is a small team, the management team, that decides over the macro design of the organization. However for change in the microstructures, such as changes within

departments or teams, employees are involved in the design of decisions and solutions. Besides, there is still the help of the consultant when needed.

Aebi Schmidt started their servitization with the Experimental change organization, by doing a pilot together with a customer. This pilot was performed next to the normal working activities of the organization and was used to experiment with offering new services and unburdening customers. With regard to the period before the reorganization, next to the pilot, there is no information available about what change organization was used. For the preparation of the reorganization a Blueprint change organization was used. A small intervention team designed the new organization. It was complex and the organization had difficulties with keeping the overview, which are typical problems that arise with this change organization.

> *"My lesson has been, for myself, that from the beginning we had to be more clear towards everybody. About what we are going to do, what the end goal was. And you don't have to do that to everybody, but maybe we should have included some more people with that."* (5:109, Aebi Schmidt)
> *"The general director and I already thought of everything before the management team began.''* (5:113, Aebi Schmidt)

As time passed also a consultant/interim manager was added to the team, who brought knowledge of service growth, business models and organizational design. And also other people such as the HR-manager were added. Like this a reorganization was prepared. Later, when the change resumed after the busy winter period and the reorganization was really put into action, a Cascading approach was used. Through change management people were involved in the discussions about the change and changing their own tasks. Management and decision-making was in hands of the management team and the change management team.

It appears that especially the Experimental change organization, the Expert change organization and the Cascading change organization are of use in a servitization journey. The Expert change organization is useful for the development of the strategy and long term vision for organizations. The Experimental change organization is useful for experimenting with new ways of working and new offerings without changing the complete organization. The Cascading change organization is useful for big and organization-wide changes. The Blueprint change organization is not mentioned here, since Aebi Schmidt changed the Blueprint change organization for a Cascading change organization. They mentioned that they maybe should have involved people earlier, as mentioned in quote 5:109 above.

Further useful information mentioned in the interviews regarding the servitization transition as a whole is that a strong management team is required for servitization. A management team with the necessary intellectual capacity and people with the skills to keep the overview of the organization during the process. This is necessary because the transition is very complex (organization-wide, touches many departments and processes) and a lot of work. As the service manager of Aebi Schmidt stated: "Doing a bit more for the customer costs a lot of energy" (5:141, Aebi Schmidt*), "If you really want this, then you should realize yourself that it entails working really hard, that you will need a different mentality"* (5:133, Aebi Schmidt). Besides, during the journey both organizations experienced growth and pressure on their capacities, new people will be needed including more high educated people.

> *"Yes. I think that when you start with it (servitization), you should have clear whether your capacity is sufficient. To be able to manage it, also regarding time, but also regarding knowledge level. Intellectual level so to say. Because it is not an easy transition."* (6:95, Aebi Schmidt)

4.6 Compared with the other two organizations

Next to the servitization journeys of Pas Reform and Aebi Schmidt, also two other organizations that engage in servitization were interviewed. Both organizations were interviewed once and therefore the information gathered was less rich and specific. After analysis of the interviews it was however possible to test the findings of the two in depth studied cases.

Growth paths

Eijkelkamp Soil and Water

Eijkelkamp Soil and Water had and is in an incremental transition as well, however, completely consisting of continuous emergent change. Through customer demand they recognized service opportunities and simply started performing these. They developed a product-service combination with which they could unburden customers and provide the result of their products (prepared data) as a service. As demand grew, service and sales people agreed with the management of the organization to make this their new work. Therefore, they made their own datacenter and later created a new department especially for those projects, the technical project department. As such, Eijkelkamp grew very organically into a solution provider, by accepting projects and searching internal people and external partners to successfully fulfill these projects. As demand grew, the organization grew in this too as it gained more experience and created a special department for the provision of these solutions. As such, they did not follow a certain maturity path, did not go through different phases and did not develop a special strategy for the organization. They listened to

customer demand and responded to that organically. Important to mention here however, is that just like Pas Reform and Aebi Schmidt more offerings are available for customers, such as the classic products for example.

Mitsubishi Elevator Europe

The servitization of Mitsubishi Elevator was an episodic change process in the form of a project. It was a one and a half year project in which the organization developed and implemented a new (circular) model. This new offering is a model in which Mitsubishi keeps the ownership of the elevator and exploits this through all-in service contracts. Before developing this model, the organization already offered multiple services and several service contracts. Therefore, they did not have to change from pure product manufacturer towards integrated solutions provider, they were already a service provider for a part and had to make the last step with starting to offer the result of their product as a service. Hence, this project was the servitization of Mitsubishi Elevator and it was not a gradual and multi-year journey consisting of multiple phases as was the case with the Pas Reform and Aebi Schmidt.

Activities

Eijkelkamp Soil and Water

With regard to the critical success factors that are discussed in chapter 2 the following was found for Eijkelkamp. They did not really assess the market and internal readiness, the development came from customer demand and was accepted. Slowly market assessment is being done now to grow in their provision of services. The strategic and cultural context were not developed as a clear development point, a vision and strategic sense is emerging however. The structures and governance for services emerged as well, the technical project department was set up to provide the services better. With regard to the dedication of resources not a lot is known, however, knowledge and skills were bundled by starting the technical project department. With regard to change management no information was available. Develop and embed service processes has been done too, how is not known however as neither is known if these have been optimized. Another activity, that was important in the processes of both Pas Reform and Aebi Schmidt was the collection and analysis of data, this was important too for Eijkelkamp but in another way. They had data as their offering, since it is the outcome of their products.

Mitsubishi Elevator Europe

For Mitsubishi all seven the critical success factors appeared. Not too many changes in the organization were needed next to the development of the model. The adjustment of the strategy was not that impactful in the organization and the structure did not really change either. Some

change management was done through presentations and meetings, no real training of personnel was needed. For sales someone was assigned to work for this model only, someone with the necessary skills and legal knowledge. Worthy of mentioning here is that this organization especially needed financial resources for their new model, as well as legal knowledge. Without this the new model would not have been possible. Also the collection and analysis of data was important, this was needed to learn about the quality of their products and to substantiate the new model.

Change organizations

Eijkelkamp Soil and Water

With their servitization Eijkelkamp used the Experimental change organization and the Network change organization. The Experimental change organization was used for doing pilots with customers. The Network change organization was how servitization came about in the organization.

Mitsubishi Elevator Europe

Mitsubishi used a Blueprint change organization to develop the new model, as the organization used a small team of people to do the project. During the project they made use of the help of lawyers, another organization and a customer to experiment with. But the main project team consisted of a few people. Later, with the implementation people were informed and involved for feedback and improvement. Following these insights, it seems like the organization used an Experimental change organization and a Cascading change organization as well, but this cannot be said with certainty.

Chapter 5. Conclusion and discussion

5.1 Introduction

In this chapter, first the research question of this master thesis is answered in the conclusion section 5.2. Thereafter, in section 5.3 follows the discussion, including a reflection upon the results of this research, the limitations of the research presented, theoretical and practical implications and recommendations for further research.

5.2 Conclusion

The aim of this research was to find out what servitization journeys of Dutch SMEs look like, gain insight in the nature of the changes that servitization brings to organizations, discover a direction of a growth path in servitization, find out what are crucial events and activities in a servitization process and gain insights in how Dutch industrial SMEs organize their servitization journey. With fulfilling the research aim the following research question is answered:

"How do organizations conduct the organizational change process of servitization?''

An answer to the first aspect of the research question, on what servitization journeys for SME's look like, has been provided by means of the detailed process descriptions in section 4.2. From these two process descriptions of growth path can be derived. First organizations start with setting up services, experimenting with customers and scaling service provision. After that the service provision is extended based on gained experience, customer information and data and ultimately organizations learn and develop until they can completely unburden their customer by taking over the processes. It is however possible to experiment with completely unburdening customers from the beginning and slowly grow the customer base for this option, as was seen in one of the researched organizations. This growth path resembles for a part with the growth path that was described by Oliva and Kallenberg (2003)[6], however for the researched organizations of this research the phases were not as distinct as presented in their article. This also applies to the maturity model prescribed by Atos Consulting (2011) in which the steps towards being an integrated solutions provider also make sense, a clear difference of the findings of this research with this model is however that it appears that the organizations do not move from business model to business model, but that they actually add the new business models to their repertoire and are able to perform multiple business models depending the desires of the customer. Furthermore, this research also acknowledges the critique on these gradual models from theory by showing that the transition of both in depth studied

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[6] See for a more detailed comparison with the growth path of Oliva and Kallenberg (2003) and also of Atos Consulting (2011) Appendix C.

organizations are not necessarily as linear as prescribed, appear to be multifaceted indeed and consist of experimentation and trial and error.

With regard to whether servitization transitions for (Dutch) SME's are incremental or radical also insights have been gathered. Both the organizations that were studied in depth are going through an incremental servitization transition. As mentioned above they do go through several phases before they reach their end goal of becoming an integrated solution provider that completely unburdens its customers. There are several reasons why the organizations undergo an incremental transition and not a radical one. The reasons that were found are: A lack of knowledge, data, experience and capabilities; not knowing what future steps entail, so experimentation, trial and error and learning by doing is required; the will to try and develop themselves; customer demand; keeping control over the organization; time-consumption of data collection.

Next to the fact that servitization journeys of these organizations were incremental, there was also looked whether these journeys consisted of continuous emergent change and/or episodic change. Both journeys consisted mainly of continuous emergent change, however, in the phase in which the new strategy was developed and implemented episodic change took place, through intentionally and discontinuously changing the deep structure of the organization. After the development of the strategy and its accompanying changes, both organizations gradually developed further with changes emerging from the set strategy and end-goal.

Concerning the activities that take place in a servitization transition this research also yielded interesting findings. Most of the activities that were discovered related with the seven critical success factors that are discussed in chapter 2. Therefore, one can say that the seven critical success factors are very important activities to perform in a servitization transition. However, with this research two other activities were identified that for the two studied organizations appeared to be crucial in their servitization transition and that are probable critical success factors that can be added to the list. These activities are the 'collection and analysis of data' and 'talking and experimenting with customers'. Another interesting finding with regard to the activities is that both organizations clearly paid thorough attention to the optimization and standardization of offerings and processes throughout the whole organization. A steady base of and in the organization appeared to be of importance for the developments with servitization and future growth.

The organization of the servitization processes was as follows. The organizations mainly developed themselves gradually, step by step in a controlled manner in line with the new strategy and with an eye on the future end goal. They did this next to the performing of the normal working activities. The organizations made inventories of development needs, planned changes and performed

development projects that were ought realist and logical. Change was sometimes slowed down in order to keep the organizations under control. Next to this the development was also checked with customers, by talking and experimenting with customers. In order to keep developing towards the end goal, there was also thought ahead about new development opportunities such as data collection and analysis. The change organizations (change/intervention teams) that were used were the Expert change organization, where a consultant helped the organizations with the development of the new strategy and the reorganization of the organization. The Experimental change organization, used for experimenting with customers by doing a pilot for example. The Blueprint change organization was used by one of the organizations for developing the new plans and preparing a possible reorganization, but this was not necessarily successful since was mentioned that more people should have been involved. And lastly the Cascading change organization was used during most of the further developments of the organization in the servitization journey, this worked and was appreciated by the employees.

The studying of two other organizations, be it with single interviews, however did not confirm all the findings and as such show that there are differences in servitization journeys possible. One of these organizations is going through a incremental transition consisting of solely emergent change, without clear phasing. This organization developed organically based on customer demand and neither performed all the activities of the critical success factors. However, this organization, just like the other organizations added the option of unburdening the customer to its consisting repertoire of offerings. The other studied organization went through an episodic phase of servitization, by adding the product-service system of vertical mobility as a service to its repertoire as it already performed as a manufacturer and service provider. The organization did this through a development project and did meet all the critical success factors with this, although not a lot of organizational changes were needed with this project.

5.3 Discussion

5.3.1 Discussion of the results

The results of this research project resulted from the studying of four cases. Two cases were studied in depth through analysis of interview transcriptions and documents, of which findings were presented separately and later compared with each other. Two cases were interviewed only once, with which the findings of the other two in depth studied cases were checked. The results presented in the master thesis are not prescriptive. The results are solely presented to provide insight in the researched servitization processes in order to increase the understanding of servitization processes and organizational change in servitization processes.

The first part of the results of this research project are presented as descriptions of the servitization processes of two organizations. These organizations have been studied in depth through the analysis of multiple interviews and documents of these organizations. These results were presented in the form of process descriptions to show what the servitization processes of these two organizations looked like and give insights in these processes. Besides, since a lot of interesting and broad information was gathered with the interviews the process descriptions allowed to present as many relevant and interesting findings possible in an efficient way. Not all findings and insights could be discussed and presented in detail since this master thesis has to remain within the space limits. By presenting them in the form of a process description the findings could be presented without having to discuss parts of the processes double in the results chapter. Furthermore, the descriptions provided insights and context to the findings after which the cases could be further analyzed and compared with each other in the rest of the results chapter. With the results that are presented in chapter 4 the research questions were answered in the conclusion in chapter 5.

5.3.2 Limitations of the research

This research also has some limitations. First of all the research project was started with a too broad research aim and too broad research questions. Due to a broad start of the research and the collection of data in this research phase very rich and broad information was gathered, specified on servitization but not on a specific topics within servitization. Therefore, later in the research process the research aim and research questions have been adjusted and specified several times, in order to ensure feasibility of the research.

Another limitation of this research is that none of the organizations engaged in a complete servitization transition. Especially one of the two in depth studied cases, Pas Reform, is still in the beginning phases of a complete transition. Because of this, only information of this period was gathered and not a complete servitization journey could be studied. Another organization that was interviewed once already performed many services for a very long time and therefore only had to make the step in which they could offer a product as a service and did not need an organization-wide transition.

Furthermore, the nature of this research was retrospective which might have led to memory-bias and influenced the data collection. As mentioned from Pas Reform information was gathered from the recent developments in their servitization process which entails their servitization until now. Aebi Schmidt however is 'servitizing' already some years longer. Hence, activities and changes in the past might be forgotten or biased. Most information gathered from this organization derived from relatively recent developments and therefore not a lot of information was gathered of their first

period in servitization. The retrospective nature might have influenced the data collection with the other two cases as well.

Another limitation of the research is the scope of the research. Only two organizations were studied in depth and two organizations were used to check the findings with. By studying more organizations possibly more similarities and differences could be found what would give more insight in the possible generalization and transferability of the findings.

A last limitation is the depth of the research. The two ´in depth´ studied organizations were relatively studied in depth, with only four and three interviews and few documents. For more depth and insights from more perspectives in the organizations more people could have been interviewed.

5.3.3 Theoretical implications

This research contributed to theory in multiple ways. First of all by providing two case descriptions of servitization, of which is demand in academic literature. These case descriptions show what servitization processes of Dutch SME's look like and give insight in the course of the processes. Secondly this research gives insight in why organizations go through an incremental servitization transition by means of factors that influence the course of a servitization journey. In literature was already known that organizations can engage in a radical, incremental or mixed transition, this research provides insights into why the researched SME's develop and transform gradually.

Furthermore, this research made the link between servitization and organizational change literature, which appeared to be rare in servitization literature. By making this link, this research found out that a servitization journey mainly consists of emergent and continuous change and that episodic change often takes place with the development and implementation of the new strategy. Besides, by analyzing what change organizations the SME's used in their servitization journey this research provides new insights in what change organizations are used in servitization journeys. This and the insights in a gradual transition shows how organizations organize their servitization process, which is an underexplored subject in literature.

Another contribution to theory is the verification of the critical success factors for servitization. With this research is found that all critical success factors apply in the two in depth studied organizations and that most of these apply in the two other cases. Furthermore, this research potentially found two new success factors, in the form of collecting and analyzing data and talking and experimenting with customers.

Lastly, the two described servitization processes have been compared with literature on gradual servitization transition. The growth path and maturity model presented in literature make sense and

resemble for a big part with the two in depth studied cases of this research. However, the critique posed on these gradual transition paths/models is acknowledged by this research, since this research also found that the transition is multifaceted, consists of experimentation and is not as linear as presented in these articles. Next to this, it is found that the development of a new service strategy appears to guide the gradual development or organizations towards becoming a service provider/integrated solutions provider. In the growth paths/models in literature few attention is paid to this, while it appears to be important.

5.3.4 Practical implications

Next to implications to the academic field, the insights gathered with this research project also have implications for practitioners. First of all by showing how other Dutch SME's organized and went through their servitization journey. This provides insights in possible steps to take with servitization, how to gradually develop and why to develop gradually. It provides insights in factors to take into account with servitization and activities that have to be performed in order to successfully transform.

Furthermore, by elaborating upon the strategy development and the recognition, defining and standardizing of services (see Appendix C), practitioners might gain useful insights in several strategical aspects for developing a service strategy and also in aspects with regard to designing a service portfolio.

Lastly, the insights in what change organizations were used by the studied organizations, might be of use for practitioners engaging/willing to engage in servitization, since it shows how certain changes or phases can be approached in terms of change development/intervention team.

5.3.5 Recommendations for further research

After performing this research several recommendations for further research became clear. First of all a more longitudinal research design for studying servitization processes might yield very interesting and more detailed findings. Now mainly, although not many, synoptic accounts exist on growth paths for servitization. With a more longitudinal research strategy it might be possible to create a clearer and more detailed performative account. Besides, with a longitudinal research strategy the possible bias of retrospective research could be counteracted.

Furthermore, it would be interesting to zoom in more on specific activities that take place within a servitization journey. With this research was found that two of the four organizations studied their market and segmented their customers during their strategy development, where they before engaging in servitization never heard of customer segments let alone use customer segments. Interesting and useful insights could be gathered by researching how servitizing organizations

develop their vision and strategy and study their market. Results of such a study could be of great use in practice. The same applies with zooming in on activities such as defining offerings/services, as one of the researched organizations with this study categorized different service provision phases. In such a topic appears to be a lot of interesting and useful information hidden. And also focusing on the change management with servitization is a subject that could be explored deeper. With more knowledge on such activities prescriptive models could be developed, which could support manufacturing organizations that want to engage in servitization.

A revision of the extant growth paths and maturity models for servitization is also desired, taking into account more recent criticism and findings, such as also provided with this research. Newer and completer paths and models can then be tested of which possibly more detailed prescriptive material can be developed for engaging in servitization. In turn, prescriptive models and growth paths can then be tested by organizations in practice.

Another topic that could be studied further with quantitative research are the seven critical success factors that are proposed in literature and whether the two activities, 'collection and analysis of data' and 'talking and experimenting with customers' could be added to this list.

Lastly it appears that some organizations engage in servitization through emergent change and grow in the first phase of servitization in an organic way. And other organizations deliberately choose to engage in servitization through the development of a new (service) strategy. Research between this difference could produce interesting insights.

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Appendices

A – Interview Guides

After the first interview the interview guides were slightly specified following the information gathered in the first interview. These adjustments are not incorporated in this ´general interview guide´.

Eerste ronde interview

Dit eerste interview is bedoeld om een goed beeld te krijgen van de organisatie en het beeld dat de organisatie heeft over servitizatie. Daarnaast is het de bedoeling dat in dit gesprek duidelijk wordt welke personen hierna geïnterviewd gaan worden. In de hierop volgende interviews zal er dieper ingegaan worden op het servitizatieproces van de organisatie.

Dit is een half-gestructureerd interview. Een aantal vragen staan vast, de volgorde kan variëren naar verloop van het gesprek. Er is ruimte voor doorvragen.

Inleiding van het interview

- Toestemming vragen voor opnemen interview
- Voorstellen van interviewer
- Introduceren van het onderzoek, het onderwerp en het doel van het onderzoek
- Informatie over het interview
    o Half-gestructureerd, +- 60 minuten, vrijwillige deelname
- Vragen of organisatie en geïnterviewden anoniem willen blijven

Algemeen

1.1 Wat is uw functie binnen de organisatie?

1.2 Heeft u het volledige adoptieproces van de servitizatie strategie(en) meegemaakt?

1.3 Wat was uw rol in het servitizatie adoptieproces?

Organisatie

2.1 Kunt u de organisatie beschrijven?

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

    o Wat doet het bedrijf? (Wat zijn de processen?)

    o Wat voor producten biedt het bedrijf aan? Wat voor services?

    o Wat voor soort markt is het bedrijf actief? Wat voor klanten heeft het bedrijf?

    o Wat is de strategie van het bedrijf en wat voor business model hanteert het daarbij?

    o Wat voor afdelingen / business units kent het bedrijf?

    o Wat is de cultuur in het bedrijf?

o Wat is de positie van het bedrijf in de value chain?

o Hoe presteert het bedrijf?

Servitizatie Visie

3.1 Wat verstaat het bedrijf onder servitizatie? Hoe ziet het bedrijf servitizatie?

3.2 Wat heeft ertoe geleid dat de organisatie aan servitizatie is gaan doen?

3.3 Zijn de mogelijkheden voor servitizatie verkend en zijn risico's in kaart gebracht?

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

o Hoe is dit aangepakt?

o Door wie is dat gedaan?

o Welke informatie was daarvoor nodig?

3.4 Is er een visie ontwikkeld voor de adoptie van een servitizatie strategie?

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

o Zo ja, kunt u deze toelichten? Zo nee, waarom niet?

▪ Welke diensten?

o Waar is deze visie op gebaseerd?

o Hoe is deze visie ontwikkeld?

o Wie hebben daar een rol in gespeeld?

o Welke kennis/informatie was nodig voor het ontwikkelen van deze visie? Waar komt die kennis vandaan?

3.5 Is er een strategie ontwikkeld voor de adoptie van servitizatie?

3.6 Is er gedurende het proces vastgehouden aan één visie? Of is de visie gedurende het proces herzien?

3.7 Hoe is deze visie gedeeld door de organisatie? Zowel intern als extern.

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

o Hoe waren de reacties daarop en hoe is daarmee omgegaan?~

o Was er draagvlak voor een servitizatie strategie?

Servitizatie adoptieproces

4.1 Hoe is de adoptie van servitizatie benaderd? Hoe georganiseerd

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

o Bijvoorbeeld als een apart project?

o Eerst een pilot gedaan?

4.2 Kunt u het adoptieproces beschrijven?

Afhankelijk van het antwoord doorvragen in de volgende richtingen:

- Is de adoptie van servitizatie in fases gegaan? Hoe zagen die fases eruit?
- Is de adoptie van servitizatie gepland? Hoe?
- Hoe lang heeft het adoptieproces geduurd?

4.3 Hoe zag de voorbereiding van het proces eruit?

4.4 Is het proces, of zijn procesdelen, geëvalueerd?

Eventueel doorvragen naar besluitvormingsproces en capability ontwikkelingsproces.

Servitizatie en de organisatie

5.1 Welke processen zijn het meest beïnvloed door het adopteren van een servitizatie strategie?

5.2 Welke afdelingen zijn het meest beïnvloed door het adopteren van een servitizatie strategie?

5.3 Wat waren de belangrijkste veranderingen in de organisatie?

Servitizatie uitkomst / succes

6.1 Wat is onmisbaar gebleken om het servitizatie adoptieproces tot een succes te maken?

6.2 Wat zijn blokkades gebleken tijdens de adoptie van servitizatie?

6.3 Wat heeft de servitizatie strategie het bedrijf opgeleverd?
- Marktaandeel
- Financieel resultaat
- Klantrelaties
- Imago
- Werknemerstevredenheid
    - Per fase?
    - Leverde iedere fase resultaat op?
- Inzichten product, functie

6.4 Wat zijn uw verwachtingen voor de toekomst wat betreft servitizatie in deze organisatie?

Afsluitende vragen

7.1 Heeft u nog adviezen voor organisaties die een servitizatie strategie willen adopteren?

7.2 Wilt u nog iets kwijt over servitizatie of over dit onderzoek?

Afronding

- Bedanken voor medewerking
- Verloop verder contact met betrekking tot: volgende interviews, eventueel terugkomen, inzien transcriptie, uitwisselen resultaten en opsturen onderzoek

Tweede ronde interview

Deze vragenlijst is voor de vervolg interviews. Tijdens deze interviews zal er dieper ingegaan worden op het servitizatie adoptieproces van de organisatie. Informatie uit het eerste interview kan gebruikt worden om vragen in een specifieke richting te sturen. Daarnaast is het gewenst dat de respondent de vragen beantwoordt vanuit het perspectief van zijn of haar positie in de organisatie.

Dit is een half-gestructureerd interview. Een aantal vragen staan vast, de volgorde kan variëren naar verloop van het gesprek. Er is ruimte voor doorvragen.

Inleiding van het interview

- Toestemming vragen voor opnemen interview
- Voorstellen van interviewer
- Introduceren van het onderzoek, het onderwerp en het doel van het onderzoek
- Informatie over het interview
    - Half-gestructureerd, +- 60 minuten, vrijwillige deelname
- Vragen of organisatie en geïnterviewden anoniem willen blijven

Algemeen

1.1 Wat is uw functie binnen de organisatie?

1.2 Heeft u het volledige adoptieproces van de servitizatie strategie(en) meegemaakt?

1.3 Wat was uw rol in het servitizatie adoptieproces?

1.4 Herhalen van belangrijkste informatie uit eerste interview en vragen of dit klopt.

Servitizatie visie

2.1 Wat heeft ertoe geleid dat de organisatie aan servitizatie is gaan doen?

2.2 Hoe werden servitizatie mogelijkheden en risico´s in kaart gebracht?

    - Wie speelden daar een rol in?

2.3 Is er gedurende het adoptieproces vastgehouden aan één visie? Of is de visie gedurende het proces herzien?

2.4 Was er draagvlak in de organisatie met betrekking tot de nieuwe visie?

Servitizatie adoptieproces

3.1 Hoe is het servitizatie adoptieproces verlopen?

3.2 Kunt u het adoptieproces beschrijven van begin tot eind/nu? (per fase?)

3.3 Wat waren knelpunten en problemen in het adoptieproces?

    - Hoe zijn die ontstaan?

    - Waarom waren dat problemen?

    - Hoe is hier mee omgegaan?

3.4 Welke partijen waren bij het adoptieproces betrokken? (Intern en externe partijen)

- o In wat voor rol en waarom?
- o Welke rol speelden interne en externe samenwerking in het proces?

3.5 Welke resources waren nodig voor de adoptie van servitizatie?

- o Waar in het proces waren welke resources nodig?

Eventueel doorvragen naar besluitvormingsproces en capability ontwikkelingsproces, zie 5.1, 5.2, 5.3, 6.1 en 6.2

Servitizatie en de organisatie

4.1 Wat doet servitizatie met de organisatie? En waarom?

- o Met de structuur
- o Met de cultuur
- o Met de processen
    - ▪ Werkzaamheden
- o Met de systemen
- o Met de mensen in het bedrijf
    - ▪ Skills

4.2 Wat doet servitizatie met relaties? En waarom?

- o Binnen de organisatie (samenwerken)
- o Buiten de organisatie (in de value chain: klanten, concurrentie)

4.3 Wat doet servitizatie met de value chain? En waarom?

- o Hoe is daar mee omgegaan?

4.5 Wat waren beoogde veranderingen in de organisatie?

- o Zijn deze ook gerealiseerd?

4.6 Wat zijn belangrijke organisatorische veranderingen gebleken?

- o Waarom waren deze belangrijk?

Servitizatie en beslissingen

5.1 Welke afwegingen zijn er gemaakt in het adoptieproces van servitizatie?

5.2 Welke beslissingen zijn er gemaakt in het adoptieproces van servitizatie?

- o Waarom waren deze belangrijk?
- o Wanneer moesten deze beslissingen genomen worden, waar in het proces?
- o Wat was de invloed van deze beslissingen op het proces?
- o Hoe zijn deze beslissingen genomen en door wie?

o Waar zijn de uiteindelijke besluiten op gebaseerd?

▪ Welke factoren beïnvloedden de besluitvorming?

▪ Wie hadden er invloed op de besluitvorming? Intern en extern.

5.3 Wie zorgde er voor de uitvoering van die beslissingen?

o Hoe is dat aangepakt?

5.4 Zijn beslissingen geëvalueerd?

Servitizatie capabilities

6.1 Welke capabilities waren nodig voor de adoptie van servitizatie?

▪ Technische capabilities?

▪ Organisatorische capabilities?

▪ Samenwerkingscapabilities?

o Waar zijn deze capabilities voor nodig?

o In welke fase waren deze capabilities nodig?

6.2 Hoe zijn de benodigde capabilities ontwikkeld?

Samenvatting belangrijke factoren in het adoptieproces

Mogelijk herhalen van factoren die al bekend zijn geworden tijdens het interview

Wat waren belemmerende factoren tijdens het adoptieproces?

Wat waren belangrijke factoren die het succes van de adoptie bepaalden?

Anders: Belang van: business model, visie, middelen, kennis en vaardigheden etc.

Servitizatie uitkomst / succes

7.1 Wat heeft servitizatie het bedrijf opgeleverd?

o Marktaandeel

o Financieel resultaat

o Klantrelaties

o Imago

o Werknemerstevredenheid

▪ Per fase?

▪ Leverde iedere fase resultaat op?

7.2 Wat is er geleerd? Over visieontwikkeling, business model aanpassing en invoering bijvoorbeeld.

7.3 Wat zijn uw verwachtingen voor de toekomst wat betreft servitizatie in deze organisatie?

Afsluitende vragen

8.1 Heeft u nog adviezen voor organisaties die een servitizatie strategie willen adopteren?

8.2 Wilt u nog iets kwijt over servitizatie of over dit onderzoek?

Afronding:

- Bedanken voor medewerking
- Verloop verder contact met betrekking tot: volgende interviews, eventueel terugkomen, inzien transcriptie, uitwisselen resultaten en opsturen onderzoek

B – Operationalization scheme

Operationalization scheme		
Topic	Items	Main question
Organizational characteristics	Strategy / business model	´´Can you describe the organization?´´
	Products / services	
	Market	
	Organizational structure	
	Culture	
	Performance	
Servitization vision	Drivers for servitization	´´Is a vision developed for?´´
	Vision on servitization	
	Strategy for servitization	
	Vision sharing / vision support	
Servitization process	Approach	´´Can you describe the servitization process?´´
	Organization / phasing / planning	
	Preparation	
	Involved parties / people	
	Challenges / problems	
	Important resources	
	Evaluation	
Servitization and the organization	Effect on the organization internally	´´What does servitization do with the organization?´´
	Effect on the organization externally	
	Changes	
Servitization decisions	Important trade-offs	´´What important trade-offs and decisions have been made in the servitization process?´´
	Important decisions	
	Evaluation	
Servitization capabilities	Organizational capabilities	´´What capabilities were needed for successful servitization?´´
	Technical capabilities	
	Cooperation capabilities	
	Capability development	
Influencing factors	Supporting factors	´´What were important factors in the servitization process?´´
	Impeding factors	
Servitization outcome	Outcome	´´What did servitization bring the organization?´´
	Expectations for future	

C – More findings
Findings that did not fit in the main report are presented here.

1. Deeper elaboration upon activities

1.1 Vision and strategy development

When in the process?

For Pas Reform this was the first thing they did in their servitization journey. Aebi Schmidt was already developing in the direction of service provision and started with the development of a strategy after a few years of experimenting, working with and developing services. With the development of the strategy officially a new chapter started for the organization to deliberately engage in servitization. Like this they formalized their previous developments. Noteworthy here is that both organizations, once they defined their strategy, remained with this strategy during their servitization. No adjustments to the strategies have been made.

Drivers for developing a new strategy

Both organizations, Pas Reform and Aebi Schmidt had their own reasons for developing a new strategy. As is already mentioned earlier multiple times for Pas Reform the fall back in margins and performance were the reason to start looking for new opportunities to develop and grow as an organization. For Aebi Schmidt the development of a new strategy was an answer to the ongoing developments in other markets, in their own market and the steps the organization itself was already taking in the direction of service provision. As is described earlier in this chapter Aebi Schmidt saw potential in service provision and already started with providing several services. To make the ´next step´ they decided to develop a strategy accordingly. Also because in its current state it had difficulties with performing and keeping the organization under control. Aebi Schmidt recognized and acknowledged the developments of new business models in other markets which inspired them. Furthermore, their own market was a very mature market in which very few changes took place and in which Aebi Schmidt had a large marketshare. The risk of losing market share was realistic, especially with the entrance of discounters on the market. As such, Aebi Schmidt was convinced it could not rest and enjoy its position, it had to keep developing in order to retain their position.

Drivers for the development of a ´servitization strategy´

The drivers of both organizations to engage in servitization and develop a service/solution strategy resemble with the drivers for servitization described in chapter 2 of this report. As such only notable drivers are mentioned here and the other drivers is not elaborated upon further.

A noteworthy driver that is not often mentioned in literature is that the customer has sustainability demands and therefore influence organizations in their servitization. This was the case with Aebi Schmidt that offers refurbishment of machines that customers can lease.

A difference in drivers for servitization is that Pas Reform had an offensive driver to engage in servitization, since it was to counteract decreasing margins and performance and to grow as an organization. Aebi Schmidt had a defensive driver to engage in servitization, since it was to protect their marketshare and keep ahead of competition. This difference however was not of influence of both strategies. The strategies defined by Pas Reform and Aebi Schmidt were on many aspects the same, as the rest of this subject will show.

Content of strategy

Both organizations developed a service (or solution) strategy. Through servitization both organizations were to transform into an integrated solutions provider. An integrated solutions provider offers its customers solutions by offering combinations of products (hardware), services and software. With such a solution the organization can completely fulfill the customers´ needs and unburden the customer completely.

> *"With that we change from a deliverer of hardware, we are in that transition now, to an integrated solutions provider. And those solutions consist out of hardware, but also very important software. (…) And very important with that is the service, that expertise that we offer together with that.''* (5:31, Aebi Schmidt)

Important themes in the strategies that were mentioned in the interviews were: customer lifetime, customer intimacy, unburdening customer and offering total solutions. The following quotes show that:

> ``*Then we came to a certain analysis and a conclusion that we have to start thinking more customer lifetime. Then you automatically come to themes such as service provision´´* (1:4, Pas Reform)

With thinking more customer lifetime is meant that the organization will focus more on the lifetime of the customer itself instead of just focusing on the sale of a product. Pas Reform made a division of phases in order to approach the lifetime of a customer. They offer services/solutions for in the sales phase, for in the project phase and for in the service phase which is the phase after finishing the project. In literature the term product lifecycle or product lifetime is mentioned occasionally (e.g. Tukker, 2004; Oliva and Kallenberg, 2003), but here Pas Reform is talking about and using customer lifetime which is a useful insight for defining and categorizing offerings.

> *``Then we will come to strategy, customer intimacy. Actually the number one for the whole*
> *organization.´´* (1:167, Pas Reform)

Customer intimacy is an often used term in servitization. As is mentioned in the interviews in relation to this term, it is about thinking like the customer and recognizing and understanding the needs of the customer.

> *``Our business model is to unburden customers and offer total solutions.´´ (*1:176, Pas Reform)

> *``We recently defined our strategy. That we want to offer solutions for the complete*
> *infrastructure, that we offer clean roads. Mainly in the sense of total solutions.´´ (Aebi*
> *Schmidt, 5:138)*

With offering total solutions the organizations aim to fulfill all the needs of the customer. Like that they want to unburden the customer as much as possible. In the ultimate form this is done by taking over the complete operation of the customer and by offering the customer a guaranteed result.

Next to the strategy both organizations work towards an ultimate goal as service provider, by being able to ask money for the result. Such as a ´cost per chick´ for Pas Reform and the sale of clean roads or kilometers for Aebi Schmidt.

> *``You can go a lot further with servitization. Into the direction of a certain price per chick, that*
> *is of course our ultimate goal. But if we will ever get there? That depends on the customer,*
> *but also on us, whether we can live up to that. That is what we have in mind as our dot on the*
> *horizon.´´* (1:189, Pas Reform)

Activities

In order to come to this strategy both organizations performed some activities. With the interviews the following activities came forward: take a close look at strategy and mission, revise revenue model, perform a market study and recognize and develop customer segments.

Look at strategy and mission

Both organizations looked at their old strategies, and in both cases these strategies were being a machine deliverer or how Aebi Schmidt called it, a hardware deliverer.

Revise revenue model

Also the revenue models were revised. Since both organizations were machine/hardware deliverers, they both used to use a transactional revenue model.

``That is also what you see with software, we sold it as a product, but it is software. We sold it in a one-time transaction and after that customers could use it as long as they wanted. And we recently switched to a license model.´´ (1:58, Pas Reform)

Market study

Both organizations performed market studies in order to develop a correct and well suiting strategy. They studied their customers, their competition and the market as a whole. Pas Reform used the theory of Treacy and Wiersema to get an image of their competition. This means that they looked at the strategies regarding innovativeness, strength in operations and customer intimacy. With this perspective they looked at competitors and decided on what themes the organization could differentiate itself and perform good.

Pas Reform had a good position in their market, they found themselves in the top three of the market. Besides, services and servitization did not play a role in the market yet. Customers appeared to have latent needs, they did not ask for services, but when offered they were interested. As such, for Pas Reform this was a good moment to start with servitization, according to their saying the market was ready.

Aebi Schmidt was the number one in their market with a large market share. As described in the drivers before, they want to protect that market share. Their market is a very mature market that is not growing anymore for several years and in which very few changes took place in the last years. The biggest danger therefore comes from discounters that are entering the market. Besides, Aebi Schmidt recognized that there are megatrends in other markets and they felt that the market could be disrupted by new developments. Furthermore, the demands from customers are slowly changing as well. Their customers experience a growing pressure for outsourcing and also the increasing demand for sustainability (in the form of circular economy) affects customer demand slowly.

Create customer segments

From the market study a better image of the market arose as was an image of the customers of the organizations. Both organizations created customer segments to differentiate their customers in the light of their demands. They did this by using five segments along the so called product-service continuum. Both organizations used similar segments (from left to right along the product service continuum): customers that focus on the purchase price of the products, customers that focus on the cost of ownership, customers that desire a basal performance, customers that desire a total performance and customers that are seeking a risk-sharing partnership and/or want a guaranteed performance. Customers in the first segments mainly focus on buying products, while customers in the last segments desire more services and support. As is the case with the product-service

continuum, the higher the customer segment (=more to the right on the continuum), the greater the importance of services and the value desired/offered. This perspective on customers was new for both organizations, as a product organization they never used customer segments.

> ``We did that whole trajectory and like that we zoomed in and found these customer segments. Until a few years ago we had never heard of customer segments so to say. We always had only one customer, ´the´ customer. And now appears that ´the´ customer does not exist, we have segments and that are all different customers with other desires. That is a completely new insight for us. The next step was to find out what those customer desires were. That became clear as well as what our strategy had to be, looking at our possibilities and opportunities on the market. That is the strategic part.´´ (1:71, Pas Reform)

Furthermore, the five segments along the product-service continuum can also be seen as a roadmap for customers. Customer demand is developing in the direction of more support, services, outsourcing and integrated solutions and as such customers move forward along the product-service continuum. Like a manager of Pas Reform said:

> ``But, you also see, these are individual segments, but it is also a route. Many customers walk that route and often start in the lower segments and they slowly move upwards. Also depending on the speed of the market.´´ (3:25, Pas Reform)

For the organizations the customers in the highest segments are the most interesting, since these customers ask for the most value. As such organizations hope they can move their customers towards the highest segments in order to earn more money. The service manager of Aebi Schmidt said the following about that:

> ``Can you imagine that if we are able to move our customers a bit to the right, to move them from the third to the fourth segment, what that means for our turnover? That is very important that we try to accomplish that.´´ (5:87, Aebi Schmidt)

This insight, to use the product-service continuum to look at customers and segment customers along this continuum is new. In literature the product-service continuum is solely used to look at the servitizing organization itself, to determine the position of the organization on the product-service line. However, as appears here, it is also very useful to look at customers. As for example Kowalkowski et al. (2015) and Windahl and Lakemond (2010) already mentioned as comment to the continuum, this represents very well that one organization can serve different customers from different segments. As such the organization is not just active on multiple spots of the continuum, but is able to serve multiple segments along the continuum.

No risk analysis

Something worth noticing is that both organizations did not do any risk analysis calculations to check the risks and feasibility of their new strategy. In literature is often written about the risks of servitization and change processes in general (e.g. Benedettini, Neely and Swink, 2015; Atos Consulting, 2011) and therefore performing risk analysis would be a logical activity in the formation of a the new servitization strategy. However, as this research shows, Pas Reform and Aebi Schmidt did not do this. They were convinced of the development they were about to make and saw the development as logical. Besides, as described earlier, both organizations make their developments in a gradual controlled way.

> _"Look a cost-benefit analysis is nothing else than a risk analysis. I want to know what my risks are. And you can do that by looking at the euro's. But you could also say: wait a minute, we already had so many tests in other ways, not with money, but with offerings in smart projects, in another way. And that was received very well, we even got paid for it sometimes, so that seems to be a good strategy."_ (3:61 Pas Reform)

Involved people

Pas Reform started the strategy development process with the idea to do something with automation. To get an idea of the possibilities they approached a consultant for help and advice.

> ``_With the former general director we looked and said: Actually, if we want to do more, we should have a good look at the strategy of automation. What is it that we want? (3:1, Pas Reform) And then we said: lets involve an external person to have a look at the strategy for that.´´_ (3:2, Pas Reform)

Involved in that process was the management team, consisting of the general director, the operations manager and the product manager. Then they approached the consultant. During the process also people from Sales and Finance were involved.

For Aebi Schmidt, the first thinking work was done by the general director and the service manager. But also they approached a consultant to really come to a strategy and reorganize the organization. Later in the strategy formation process, when the ideas were made, other management team members were informed and involved.

As such both organizations got help from a consultant, that helped them with studying the market, making an analysis, customer segmentation and developing the strategy. The consultant had the necessary (theoretical) knowledge of servitization and new business models, to develop a strategy that fits the market and the capabilities and ambitions of the organization. And the organizations

themselves had the knowledge about their processes and expertise and the feeling to move towards services.

> ``He gave us insights and helped us developing´´ (1:16, Pas Reform)

> ``That consultant gave us this model, how to do this. So to help us to organize this all right. So, so to say to collect and group our knowledge and from there offer and design a certain strategy.´´ (5:102, Aebi Schmidt)

> ``And that is that combination of the consultant that we have, that has good theoretical knowledge and was able to say how we had to do it. And we of course have all the knowledge of the process. And we had to bring that together.´´ (5:78, Aebi Schmidt)

1.2 Recognize, define and standardize services

Another activity both organizations performed was to recognize services, define services and standardize these. As mentioned in chapter 2, this also appears to be a typical servitization challenge. In the interviews with the organizations this was not necessarily mentioned as a challenge, but it was a very important activity to do and appeared to be a lot of work.

> ``And what we spend a lot of time on as well, was to determine all the services. Like: what is it that I offer? What do I want to offer the customer? That is what you make inventories of. That was really a lot of work.´´ (5:118, Aebi Schmidt)

And although it was not really mentioned as a challenge in the interviews, it was not always easy. Often the organizations already performed certain activities that can be considered as services, but they do not recognize these as such.

> ``And without really knowing we already did provide services. Because if you asked sales people, they said: we already have calculations, we use that to advise the customer about how many machines they need and what machines. They already did that. But one had it in his head, the other did it in another way.´´ (1:87, Pas Reform)

As such organizations have to recognize possible services they possibly already perform and that they can start to perform. The next step is to define and describe the services.

``We asked ourselves, what are services and what can we provide? And one of the first steps was: lets simply describe the services. Because if you want to offer it to the customer you have to have clear what you will do.´´ (1:81, Pas Reform)

``Besides that we made an inventory of all the services that we have. And that has been very important and good work. So: what can we do? What do we already deliver? And what else would we like to offer our customer?´´ (5:52, Aebi Schmidt)

And with defining those services, organizations standardize the developed services. This is done to provide clarity so that the overview of the possibilities will not be lost. For both people in the organization such as salesmen and for customers. Aebi Schmidt for example standardized all offerings, including the services, with menu charts and recipes in a digital system, available for everyone in the organization. Both organizations also developed brochures and other sales tools in which all services / offerings were described.

``We made a menu chart, a demarcation of the product range. We worked out recipes. Because with every menu comes a recipe. Just like with a real menu. What are the ingredients, what is it that you do, what do you get back for it?´´ (5:135, Aebi Schmidt)

Characteristics of services

<u>Within performing ability</u>

A characteristic of defining the services is that the defined services were all realistic. The organization should be able to provide these services immediately. As the service manager of Pas Reform said:

``And then we had a look, what services could we add to our current services package, what we can make true. You can want to go here, should not do that. Lease constructions, you can want it, but is also pretty difficult. Then we started looking, what are services that we can perform immediately?´´ (1:79, Pas Reform)

``No, but these services, that we described, we were able to provide these immediately. That has been my goal. Everything we described in the brochure, is doable from day 1.´´ (1:96, Pas Reform)

That is also why Pas Reform did not include SLA´s in the contracts yet. Because the organization was not sure if possible contractual obligations could be met.

<u>Customer lifetime</u>

The services have to be defined in a structured way and according to the strategy of the organization, in the case of Pas Reform, that was customer lifetime. They defined services for the complete

lifetime of the customer and as such they defined services for three service phases: the sales phase, the project phase and the service phase which is the period after finishing the project.

> ``The service provision in the sales phase, in the project phase and in the service phase as it were. But we did say, service provision is not only afterwards, it is also before. Because also there you are going to advise your customers a lot more.´´ (1:85, Pas Reform)

Complete package

Another characteristic of defining services is that a clear and complete package of services is defined and not several services at a time. As such the customer can be offered a complete and clear package of services. Besides, these services can complement each other which can make it more interesting for the customer. For Pas Reform this was a conscious decision:

> ``Yes and that was a conscious choice. To say: first we describe all that we can do, better to take a bit more time for that. Then you can offer the customer a complete story. Look, if you go to a customer today and say: we can do inspections. And the customer says: No, that does not fit. Then you can go back home. No, now we have a complete package of services, that all have their own advantages and disadvantages, the added value for the customer. So we can really sit down with the customer and say for example: we can offer you this and we think this is good for you. And then you see other services that complement that well. It is easy to switch like that. We chose consciously to first define a complete package of services. That you can perform immediately, thought well about the added value and why the customer cannot do it himself.´´ (1:21, Pas Reform)

Aebi Schmidt already had a big list of services and possible services and decided to bring back this list to a reasonable amount of standardized services and options, also to secure clarity in offerings.

> ``Many services we already had and we defined those. On the basis of these we selected an important part, around 40. Of which we say: we are going to put these on our menu chart to offer it to our customers, together with some options´´ (5:53, Aebi Schmidt)

Added value

As one can read in the previous quote of Pas Reform it is important to think of the added value of the services. If the value of the services is clear, the service is interesting for the customer and the customer is willing to pay for it.

> ``The services should contain value. So then you can ask money for it.´´ (1:50, Pas Reform)

When in the process?

Both organizations did this shortly after developing their new strategy. After that, if new services were proposed, these had to be checked and accepted by a commission first, before these could be developed and offered. This however applies for all offerings and not solely services.

> ``*Yes, these have to go to a commission of wise men first, to judge whether we should want to offer that to the customer. So not simply do what the customer asks, but first think whether this is the right thing to do. There was no commission with wise men that judged that.*´´ (5:57, Aebi Schmidt)

Involved people

Many people have been involved in the recognizing and defining of services. Both internal people throughout the organization and customers.

> ``*And we defined those services on the basis of the input of internal people and of customers, as with inspections for example, how should the machines be maintained? What needs to be done periodically?*´´ (1:99, Pas Reform)

The real defining and standardizing of the services was mainly done in teams, consisting out of people from the management team and service department.

2. Servitization processes compared with literature

In chapter 2 the theories of Oliva and Kallenberg (2003) and Atos Consulting (2011) are presented as incremental servitization transition theories. Here these theories are compared with the servitization transition processes of Pas Reform and Aebi Schmidt.

Oliva and Kallenberg (2003)

Consolidating product related services

According to Oliva and Kallenberg (2003) this is the first phase in servitization. This resembles greatly with the first phases of both Pas Reform and Aebi Schmidt. Better said, the phase in which Pas Reform set up and scaled its services and the phase where Aebi Schmidt started with experimenting and growing their services (phase 2 in figure 3. and phase 1 in figure 4.) Both organizations set up / started to grow their service department as separate departments in the beginning of their processes. Besides, Pas Reform developed several KPI's for service provision in this phase, for Aebi Schmidt this is not known.

Entering the installed base service market

Oliva and Kallenberg (2003) present this as the second phase in the process. However, for both researched organizations this phase is combined with the previous mentioned phase. Pas Reform already did the actions that belong to this phase in the beginning of their process where they set up and scaled their services. Here they already started to exploit the service opportunities where possible and the change towards a service-oriented culture was initiated immediately after the development of the new strategy. For Aebi Schmidt this phase also resembles strongest with their first phase in which the organization was experimenting with and growing their services. The service offerings were being expanded and more services were offered. However, the organization did not change its culture structures and culture really, since they were not deliberately in a servitization process with a clear strategy yet.

Extend services

This is the third step or phase that Oliva and Kallenberg (2003) present in their article. Here they say that organizations extend their services to relationship based services or process centered services. This phase resembles with the third phase of Pas Reform, in which it wants to become an experienced service provider and develop more advanced services. However, in their second phase of setting up and scaling their services they were already offering services such as advice, training and consult and as such already developing to be more process centered. And also regarding the relationship with the customer more is being done, such as an increase in contact moments. As such both process centered and relationship centered services are already part of the offering in the beginning of servitization for the organization and these do not solely belong to a later phase in the servitization process. Aebi Schmidt did the same, they already started experimenting with and started performing both relationship based and process based services in the begin phase of servitization. Later they started extending and are still extending both these types of services more and more. The extension of services for both organizations was more based on making service level agreements with customers and make use of data to develop and offer new services than on deliberately focusing on the relationship with customer or the process of customers.

Take over customer operation

This is the last servitization phase according to Oliva and Kallenberg (2003). This step is taken when the previous phases have been succeeded and when the organization is ready to take over operations of customers. For Pas Reform this will probably be the last phase in their servitization process. They say that within eight to ten years they hope to be able to unburden the customer completely and get paid per chick, for the result they deliver. However, Pas Reform is not that far yet so if the organization will reach this phase is not known. For Aebi Schmidt this proposed step does

not resemble. Aebi Schmidt already started experimenting with taking over the operations of customers with their start with servitization. As such, it is not the last phase, it is something they do during their complete servitization journey with few customers. As they are getting further and further in their journey they take over the operations of more and more customers. They try to grow in this and expand the amount of customers of which they can take over the operations. As such it is not simply a step for them, it is more the growth of the customer base that is purchasing these services. Note here that the organization does not take over the processes of all customers, most customers still receive products and services the organization is offering for a long time already.

Atos maturity growth path (2011)

The Atos Clover Leaf Model (Atos Consulting, 2011) also suggests four phases an organization needs to go through to become an integrated solution provider, as explained in chapter 2. With each step, the organization moves towards a new business model and needs to adjust the organization accordingly with the business model change. The steps in business models proposed by Atos Consulting are going from pure product manufacturer to value added manufacturer to full service provider and end as an integrated solutions provider. The researched organizations with this research project however do not make all these changes in business model. The first step, from product manufacturer to value added manufacturer is a step both organizations took. Both organizations create extra value by starting to offer services together with their products. Here, Pas Reform however already set its strategy to become an integrated solution provider and as such start to behave in that direction by moving towards a service culture, focus more on customer intimacy and train salesmen in consultative selling. These are steps beyond being a value added manufacturer. Aebi Schmidt already in the beginning started with experimenting with completely unburdening customers and as such behave as an integrated solutions provider, but next to that developed services for next to their regular products. Therefore also Aebi Schmidt became a value added manufacturer that was already working and thinking in further business models as well. Pas Reform did not develop further yet than being a value added manufacturer. Aebi Schmidt did, however for most customers they still are a value added manufacturer with options for more. Aebi Schmidt has a few customers for whom they perform as an integrated solutions provider and where they unburden their customer completely, however for all other customers they are not an integrated solutions provider yet. Because customers do not want that yet and because Aebi Schmidt cannot do this for more than a few customers. As such they perform all the four business models that are presented in the article of Atos Consulting (2011). They do not move from business model to business model and adjust the organization on that, apart from the first step to value added manufacturer. After that, they add business models to their performing abilities. To be able to do that they developed a new

strategy (to become an integrated solutions provider) and adjusted the organization with a reorganization. Eventually they will develop themselves to be able to unburden more customers and try to move as many customers as possible towards the segment in which they want to be completely unburdened. More on the segmentation of customers can be found in section 4.4.1.

Conclusion of comparison with literature

The phases presented by Oliva and Kallenberg make sense and the steps mentioned by them do take place for the researched organizations. However, for the researched organizations the phases are not as distinct as presented by Oliva and Kallenberg. The first two phases of Oliva and Kallenberg are done together at once by both Pas Reform and Aebi Schmidt, with the exception that Aebi Schmidt did not change its culture yet and as far as known did not really adjust the organization further on it. The phase of extending services is a legit phase that took place for both organizations. The distinction made by Oliva and Kallenberg that this should be done either in focusing on relationship based services or process centered services does not clearly apply for the researched organizations. Both organizations made the step in extending their services more based on making service level agreements and using data to base new services on. The last step of taking over the operations of customers is an expected last step for Pas Reform. For Aebi Schmidt this is not a last step, for them it is an offering for customers that they already experiment with from the beginning of their servitization and an offering that they are growing for more and more customers.

Also the steps presented by Atos Consulting (2011) make sense, however, after becoming a value added manufacturer, the organizations do not move towards new business models but they add new business models to their abilities. Therefore, they become organizations that can perform multiple business models and offer different product-service combinations.

Besides, the transition appears to be not as gradual and smooth as both articles describe. As such the critique on the product-service continuum and on a gradual transition that is presented in section 2.3.4 can be confirmed. The transition appears to be multifaceted indeed and consists of experimentation and trial and error. Besides, both organizations skip some steps that are prescribed in the articles. And, also, both organizations have multiple offerings for different customer segments.