

The domino effect – how adaptive interaction enables business capabilities to initiate Servitization

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ABSTRACT,

Due to globalization and digitalization, new forms of business strategies need to be considered for manufacturing firms to stay competitive in the highly dynamic market. Servitization might be the solution to succeed, and many scientific papers target related topics as stages of servitization, customization and innovation. However, literature is overlooking an important component: Customer Interaction. Hence, this paper is investigating the interplay between adaptive interaction, the development of supplier/customer relationships and Servitization. By examining different scientific papers and executing exploratory research with three German manufacturing firms, we will identify five statements that explain the role of adaptive interaction in Servitization. Additionally, a visualization of the interdependence between the three variables explains the consequences of adaptive interaction for relationship and capabilities development, which in turn enables servitization. Moreover, there is a distinction made between intermediate and advanced services, the focus is primarily on the initiation phase of Servitization, and finally the different roles a customer can act as are considered. Communication between manufacturing firm and customer plays a crucial role in the transition towards Servitization. Especially, in the initiation phase it is important to involve the customer in the process to identify customer needs. Implying that relationship management should be considered as highly valuable, which can be enabled by technological advanced systems. Furthermore, Based on the conceptualization of the statements, manufacturing firms can reflect on their current customer relationship strategy and identify new opportunities on how to incorporate the customer more actively in the initiation phase of Servitization, and further gain insights in how to ease the transition for the company with the assistance of the customer.

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Keywords

Servitization, Adaptive Interaction, Manufacturing, Relationship Management, Capabilities, Strategy

1. INTRODUCTION

The term Servitization has been circulating in the business world ever since it was introduced by Vandermerewe & Rada in the 1980s. The concept considers the organizations attempt to extend their product-oriented business portfolio with services, aiming to create an integrated system of products and services. Since this business model was introduced it has sparked interest of many researchers in diverse industries to conduct in depth research about this. Servitization has been proven to be of high value, when desiring to sustain a competitive advantage, improve customer relationships and sales growth (Fraunhofer, 2018). Reading through scientific papers, which address Servitization, one keyword has been associated with it often: Customer Interaction. The term can be defined as the communication between a firm and their customers. It further acts as a management strategy to identify, attract and retain profitable customers, but also use interaction as a learning opportunity to identify the needs of individual customer (Thom. Poole, 2008). The statement by Ford D., et al (2008) who identified interaction as a confrontation process with the ability to “change and transform aspects of resources and activities” in the B2B market between company and customer has also triggered my interest in investigating this topic further in conjunction with Servitization. Hence, the question evokes how customer interaction can be linked to the process of Servitization. Nowadays, it is of essence for companies to distinguish themselves from competition. Especially manufacturing firms need to emphasize on providing their customers a unique offering to remain successful in the industry. Factors as Globalization and Digitalization are drivers that need to be considered in business. The latter, enabling companies to shift from traditional business models to innovative ones. Customer Interaction and Servitization are two elements, which can differentiate a company’s business model from the other players in the industry the firm is operating in.

Therefore, in this paper I will approach the matter of how customer interaction is applied during the transition phase of Servitization, whilst also elaborating upon the consequences.

First of all, a distinction has to be made in the commerce with the customer. It varies between a simple encounter with the client and a long-lasting relationship. Defining an Encounter in the business sphere, it is a focus on a short-term transaction (Gummesson, 1996). After a sale is completed, provider and customer go separate ways, interaction is completed. Building a relationship with customers on the other hand is the combination of short-term transaction and a long-term relationship (Gummesson, 1996). Additionally, the dependability of both, provider and customer, increases which in return establishes the strategic option such as cooperation and collaboration (Lindgreen, A. 2006).

Based on the aforementioned clarification another specification can be made. According to Johanson and Mattsson (1987) they distinguish two modes of interaction which lead to change and stability. The first mode is exchange interaction, which is argued to be operating in the present and focused on maintaining norms and expectations (Medlin, 2004). Then, there is adaptive interaction which primarily implies the changing nature of norms and expectations and is therefore oriented towards development in relationships and networks (Medlin, 2004). The fundamental basis both interaction modes have

in common is that they are referred to time and dynamic. In conjunction with Servitization, the focus on the future is of essence, as changing business models and strategies require different approaches towards customer interaction. Considering the two modes of interaction, adaptive interaction seems to be an appropriate approach in the transition towards Servitization to build customer relationships and networks. Even though, literature is investigating the impact of adaptive interaction it is yet overlooking the consequences for Servitization. Hence, in this paper the impact of adaptive interaction on Servitization will be investigated. Bearing in mind the changes in nature of customer interaction in manufacturing firms: past – present – future.

A study of T. Baines et al. (2017) suggests that there are four capabilities which can be built by pursuing a didactic relationship with the customer: (1) Knowledge development, (2) service enablement, (3) service development and (4) risk management. Each capability is generated through communicating with the customer and aiming at building a long-lasting relationship. Due to the benefits both parties, customer and manufacturing firm, experience. Generating insights about customers is seen as crucial, as these lead to “competitive advantages and superior performance” (Atos Consulting, 2015). Literature further implies that understanding customer needs and requirements is driving product/ service improvements and innovation (Baines and Lightfoot, 2009). Therefore, in this paper I will associate the different capabilities of a dyadic relationship with Servitization. Forming the hypothesis, that integrating product and service into a valuable solution, requires a dyadic relationship to pave the ground for Servitization.

Moreover, this paper is approaching the phases of Servitization, with a primary focus on the initiation. With regard to this phase, it conceptualizes the consequences of adaptive interaction and the importance of developing a dyadic relationship between manufacturing firm and customer. Based on this, I will emphasize on how adaptive interaction can assist to build capabilities – in particular on how it is identifying customer needs. Thus, viewing the customer as a source of “Knowledge development”. Therefore, this paper is pursuing the goal to conceptualize the linkage between adaptive interaction and servitization from a methodological and exploratory point of view. This approach - generating insights from literature and collecting first-hand data from manufacturing firms – enables me to visualize a framework which explains the linkage and can act as guidance for manufacturing firms who are pursuing to develop the business model of Servitization.

The previous insights of Servitization and customer interaction lead to the following research question:

How do suppliers and customers interact to adapt their business relationship in the initiation phase of servitization?

Subsequently, to explore the research question I have come up with the following sub-question:

what are the implications of adaptive interactions for the business relationship?

By narrowing down my research question, I attempt to focus on a specific mode of interaction in terms of building business relationships and how it is implemented in manufacturing firms who aim at servitizing their business.

Now to the structure of this paper. Starting with a short section, which is explaining the theoretical and practical relevance of this paper. It is focusing on the value of the research in customer interaction in context with servitization for the academic literature set. Furthermore, the value for manufacturing firms is estimated and how they can adapt the insights generated in this paper for their business. Then, the paper continues with the discussion of literature about servitization. More specifically, the characteristics, the stages of servitization and the distinction between intermediate and advanced services. It is then followed by literature of adaptive interaction and how interaction can build business capabilities. Both variables will then be put into relation. In the subsequent chapter, the methodological approach of my research will be explained and discussed. Afterwards, the results of my exploratory research will be provided and analyzed. Coming to an end of this paper, a conclusion with managerial implications will be illustrated.

1.1 Theoretical & practical relevance

From a managerial perspective this paper is aiming at explaining the link between adaptive interaction and servitization, due to the large gap of research in this field. Multiple articles and scientific papers address the topic of servitization. As the term has been introduced in 1988 by Vaendererwe & Rada with the article "Servitization of Business: adding value by adding services", it has aroused interest and started the discussion of this phenomena in the business world. The topic becomes more important than ever, as manufacturing firms face barriers of differentiation on the market. Digitalization and globalization lead to a dynamic and competitive environment. Existing literature informs manufacturing firms about the meaning, the advantages and necessity to transition towards servitization. Different terms of all fields are associated with servitization and open up many sub-topics to be discussed. Hence, customer interaction stood out, but I have encountered a shortcoming in sources of information in regard to the interplay of customer interaction and servitization. Which I am willing to fill. Thus, the conceptualization of adaptive interaction and its consequences for the initiation phase of servitization will contribute to the empirical literature set. To do so, different literature concerning features of servitization and customer interaction will be discussed in this paper. These will be reviewed, analyzed and put into context with my research. I am conducting exploratory research at manufacturing firms to test hypothesis of existing literature and develop statements myself. Additionally, the investigation at manufacturing firms – collecting primary data - contributes to the extended understanding and explanation of how adaptive interaction impacts Servitization. The overall aim being to offer manufacturing firms a guideline about the latitudes and limitations of customer interaction and how that tool can be efficiently applied to facilitate the transition towards Servitization.

2. THEORY

The purpose of this section is to introduce and discuss the two variables of this research. Starting with servitization, its characteristics, the stages of this business model and lastly the distinction between the types of services. It is followed by a characterization of customer interaction, which then goes more into depth by discussing adaptive interaction and also covers the business capabilities built through interaction.

2.1 Servitization

2.1.1 Characteristics

The term was first introduced by Vandermerewe & Rada (1988) who defined it as a company's' innovative approach to create value by adding services to products. It indicates that both, product and service, are interlinked. The explicit definition mentioned in their article is "the increased offering of fuller market packages or bundles of customer focused combinations of goods, services, support, self-service and knowledge in order to add value to the core product offerings". Nowadays, Servitization is viewed as a strategy in which services provide the manufacturing companies a main differentiating advantage, according to Baines et al. (2009). Especially, in the growingly dynamic and globalized environment having a unique offering is of necessity due to high competition.

Furthermore, one has to consider that there are two levels of Servitization. One being services as 'add-ons' for tangible products. The other being products as 'add-ons' for services. (Baines T.S. et al, 2009). These will be elaborated upon in 2.1.2.

Research has shown that applying Servitization as a firm's strategy will lead to advantages in three fields of business, which are accordingly (1) financial, (2) strategic and (3) marketing. The first driver can be summarized as providing a continuous flow of income, as "product-service sales tend to be counter-cyclical or more resistant to the economic cycle" (Gebauer & Fleisch, 2007)

2.1.2 Business Models of Servitization

According to Kohtamäki, M et al. (2018), a manufacturing firm can enact in four different service business models. These are accordingly the (1) product business model, (2) the service-agreement business model (3) the process-oriented business model and lastly (4) the performance-oriented business model. Each model has its own set of characteristics with compatible aspects between customer and firm, which then leads to the classification of the firm's business model.

The business models (1) and (2) rely on the assumption that the supplier is focusing mainly on the provision of a product, which in turn leads to the customer owning the process (Kohtamäki, M. et al., 2018). The focal characteristic of the (1) Product Business Model is the transaction-based relationship and the strong product focus. The manufacturing is set up to perform in an evolutionary business model, which starts with the development of the product, to sales, then delivering it to the customer and lastly providing their customers the service of repair and disposal if desired. (Kohtamäki, M. et al., 2018). It clarifies, that once the sales evolution reaches its ultimate activity, the business relationship with the customer ends. Once it ended, an important source of income dissolves. Important to keep in mind is that this business model is very simple and practiced among many manufacturing firms. Nevertheless, it is of high importance for these firms to look into more advanced business models due to the increased relevance of servitizing the firm, as the high competition in the industry demands for a differentiated approach to meet customers' needs.

The business model of (2) the service-agreement is revolving around supporting the product. Examples mentioned by Kohtamäki, M. et al (2018) range from fixed-price service contracts to product upgrades. Manufacturing firms recognize their customers' needs for continuous use of services due to the close relation of

product and service the firm supplies. Concluding, a manufacturing's key asset is to build and maintain their "installed base of products and existing service contracts" ((Kohtamäki, M. et al., 2018). Manufacturing firms best suited for this kind of business model are those, who's main emphasis revolves around "product's availability and reliability".

The business models (3) and (4) are extensively more complex, due to the suppliers' responsibility of focusing on the customer's process and keeping ownership of this process, instead of selling it once and only (Kohtamäki, M et al., 2018)

Kohtamäki, M. et al. states that (3) the process-oriented business model aims at providing their customers outsourcing services in which the customers overall costs are to be decreased, while their productivity increases. Doing this will lead to high appreciation of the customer and communicates the high value one can expect when partnering up with the manufacturing firm. This business model, once applied, requires explicit focus on building strong customer relationships to elongate business and mitigate the risk of only "becoming a subcontractor" (Kohtamäki, M. et al., 2018), which would lead to high deficits in the manufacturing firm due to losing control about their customer.

The last and most complex business model is (4) performance oriented. According to Kohtamäki, M. et al (2018) it emphasizes on the procurement of integrated solutions in which the customer outsources components of the business process. The key indicator for success is to emphasize on relationship building. The focal issue should be to establish mutual trust and work upon a business agreement from which both parties benefit from. Following this business model is highly beneficial for manufacturing firms due to the sequential dependence. Once a contract is established and agreed upon, the manufacturing firm, on that basis, can be certain that a long-lasting business relationship is established, which will lead to a consistent source of income.

For the sake of answering my research question, I will focus upon the business models (1) and (2). The product-based business model is constituting the traditional view of manufacturing firms, whereas the service-agreement business model is the first step towards servitization. Hence, it is of interest how adaptive interaction can impact the manufacturing firm when attempting to move from business mode (1) to (2) or even further.

2.1.3 Intermediate vs. Advanced Services

As briefly mentioned before, there are two levels of Servitization.

A non-servitized company is offering only base services, in which goods and the associated spare parts are sold to the customer. (Baines & Lightfoot, 2013). At this level the company entirely focuses upon the product provision and the only function of making services available is to support the product. The next level of Servitization is then intermediate services. Characteristics are that product and services are closely related. After the purchase of the product, services can be demanded by the customer to increase the value of the goods and maintain satisfaction. Services provided by manufacturing firms are maintenance, goods repair, overhauls, helpdesks, training and condition monitoring. (Baines & Lightfoot, 2013). Keeping in mind that the company still views the sale of the product as a key aspect in generating profit but sees the opportunity in extending the sales-process with the

customer by providing after-sale services. It will guarantee a consecutive business relationship and benefits both, seller and buyer. At this level the focal issue revolves around the product condition (Aston Business School, 2016). The highest level a firm can achieve in Servitization is the one offering advanced services. These include customer support agreements, outcome contracts and pay-per-use (Baines & Lightfoot, 2013). The most famous example of a company offering advanced services must be Rolls Royce, who are manufacturing engines and offered their customers to pay by the hour to the amount of time an engine is in flight (Rolls Royce, 2010). At this level, the companies' services visualize their main focus of their value creation process (Baines T.S., 2013). To reach this level of Servitization, a company has to reconstruct their business model to move their product focus towards service dominance.

When collecting primary data at manufacturing firms, I will identify the opportunities these have to implement either intermediate or advanced services. Moreover, I will set it into context how adaptive interaction impacts the idea generation in the initiation phase towards servitization.

2.2 Customer interaction

2.2.1 Characteristics

To start with, manufacturing's interaction with customers range from no interaction at all to intense interaction. The level of interaction is closely related to the category of offering of companies. Hence, if a manufacturing firm is selling only standardize products, there is no need for interacting with customers besides in the actual sale. The more flexible, in regard to customization, the product range of companies is, the more important it is to intensify the communication with customers.

2.2.2 Adaptive Interaction

According to Medlin (2004) there are two different modes of interaction: exchange and adaptive interaction. It is argued that interaction can always be set into context with time. Hence, the past, present a future interaction need to be determined in business relationships. In this paper, I will focus upon adaptive interaction.

Considering the importance of time for adaptive interaction, Medlin (2004) emphasizes that it is limited to the present. Yet, historical events significantly influence the business's movements for the future. Hence, future expectations are established on the basis of the past. Another attribute of this interaction mode is its ability to shape a relationship between company and customer (Brennan & Turnbull, 1999). Additionally, Loohuis (2015) assumes that adaptive interaction is oriented towards change, which in turn enables future interaction. Change occurs when the individual business parties discuss and plan economic exchange decisions. Thus, business relationship and change are closely related and can be implemented with adaptive interaction. Therefore, future scenarios and expectations impact the relationships and the involved future interaction between the individuals. Medlin (2004) further identified behavior patterns which characterize adaptive behavior. These are accordingly trust, commitment, intentions and norms. Keeping in mind that these are flexible and open for change.

2.2.3 Interaction building capabilities

In a business environment, interaction within the organization, with suppliers and customers is fundamental. Not without reason, as interaction is a tool to build

business capabilities. According to a study of T. Baines et al. (2017) there are four capabilities which can be built by following a didactic relationship with customers. The first one “Knowledge development” stresses upon the importance of identifying the partners business capabilities. To make the relationship work, it is crucial to emphasize on it as it sets the fundamentals for the ongoing business. Then, the capability of “Service enablement” which focuses upon how interaction can support the adaptation of new services (T. Baines et al, 2017). By forming relationships with customers, new opportunities can be identified. Further, resources and knowledge can be complemented to innovate new products or services. Subsequently, the capability “Service development” can also be established with the help of interactivity between manufacturing firm and customer. According to T. Baines (2017), the customer can be involved in the idea generation process of new innovations, as in developing servitized offerings. Thus, the consistent interaction generates new insights and broadens the company’s horizon with the visions of customers. The service you want to offer, needs to be one that the customer desires. Hence, by cooperating in the service development phase, the manufacturing firm can be certain that the final product-service is optimized and therefore, ready to be successfully commercialized. Lastly, T. Baines et al (2017) mentions “Risk management” as a capability developed through interaction. It enables both parties to share experiences and give feedback to mitigate risk and optimize the service further. It is also mentioned that trust plays an important role, as highly complex product-services “require high availability and co-operative operations” (T. Baines et al. 2017)

2.3 Investigating the relationship of Servitization and Interaction

The aim of my research is to investigate how customer interaction is linked with servitization. In this section, I will set the aforementioned theories of servitization and customer interaction into context to examine and discuss the consequences of the intermediate variable “adaptive interaction” for servitization. Whilst elaborating onto the capabilities shaped owing to this interaction mode. Moreover, I will conceptualize how these capabilities benefit the transition towards servitization.

Starting with the quote of Bastl et al. (2012): “The need to co-create service offerings with customers and other partners becomes imperative” in servitization. Implying that, the provision of services which are adjusted to the individual customer need a high involvement of customer input. Consistent interaction with the customer enables firms to gather and analyze customer needs, aiming at offering the perfectly tailored product-service systems (Baines T.S., 2017). Leading to the conclusion of Gebauer et al. (2008) that the customer should be viewed as a development partner. Loohuis (2015) implies that adaptive interaction supports the development and advancement of

business relationships. Thus, concluding from literature, to initiate servitization it is of necessity to build relationships with potential customers with the means of adaptive interaction. As mentioned in 2.1.2, when aiming at a more advanced business model, it becomes crucial to rely on relationships and mutual trust. An important feature of adaptive interaction is trust, which again concludes that there is a strong relation between adaptive interaction and servitization. To undermine this M. Schaarschmidt et al. (2018) have recognized the link between innovation-related activities of manufacturing firms, which is also associated with adaptive customer interaction. As this interaction mode is revolving around change and development (Medlin, 2004), it seems to be the best fit for servitization. Since servitization is naturally linked with innovation. Moreover, there seems to be a need for the right application of technology, as “customer interaction for hybrid offerings involve more technical depth” according by Menor et al. (2002). Again, adaptive interaction seems to be the right mode of interaction, as it is “oriented towards change to enable future interaction” (Loohuis, 2015). By investing into technology, customer processes can be optimized.

Considering the implementation of intermediate and advanced services in regard to adaptive interaction, one can conclude that the communication approach of adaptive interaction is coherent. By establishing communication between manufacturing firm and customer in the present to discuss future expectations. For intermediate services, the emphasizes lies within the after-sale service. Hence, referencing to a present scenario when manufacturing firm and customer discuss the subsequent options of what they can expect as future services, adaptive interaction is applied (Medlin, 2004). The implementation of advanced services also implies a need for openness to change and technological advancement. Since it is connected with continuous interaction and strongly focused upon future events, adaptive interaction works out for the concept. Also, offering advanced services requires manufacturing firm and customer to become flexible and adaptive in terms of “revision[ing] norms, expectations, and intentions which had been developed in the past” (Medlin, 2004).

Now, considering the theory of interaction building capabilities and how it complies with the requirements of adaptive interaction. Keeping in mind that the theory itself, is already leaned on the concept of servitization. To start with, it can already be concluded that adaptive interaction leads to the capabilities mentioned in 2.2.3. Since the capabilities are formed and shaped within the interaction process, change occurs. Additionally, each capability is targeting at enabling future interaction. Firstly, these capabilities aim at forming relationships between customer and manufacturing firms. Once these are established, they serve different purposes. Yet, each capability relies on the insights generated by past events, as it allows “cause and effect reasons that explain the present relationship” (Medlin, 2004, p.4). The advantage

Adaptive Interaction	Business Models of Servitization				Types of Services	
	Product-Based	Service-agreement	Process-oriented	Performance-oriented	Intermediate Service	Advanced Service
	Traditional Exchange interaction	Build & maintain service contracts which implies consistent communication	Building strong customer relationships,	Emphasis on business relationships with mutual trust	Consideration of past & present events to optimize after-sale services Flexible, future-expectation: timing and nature of service	Continuous communication, advanced technology requires openness to change and strong relationships with trust
	Focus on past & present events			Focus on change and future expectations		

Table 1: overview of the relationship between servitization & adaptive interaction

of the insights in turn leads to shaping the desired future relationship. Previously mentioned in 2.2.3, Medlin (2004) figured out which behavior patterns are in context with adaptive interaction. Considering them now, it can be concluded that the capabilities can only be build if a relationship is formed. Additionally, it has to be based on trust and commitment. Furthermore, by establishing these capabilities through interaction, change automatically happens in the business approach of the manufacturing firm. With this understanding, it clarifies that the capabilities are embodied in adaptive interaction. So, following this interaction mode will set the base to enable these capabilities to initiate servitization.

3. METHODS

In addition to using literature for my dissertation, I am also conducting data at three German manufacturing firms to gather primary data. The design of this research is exploratory.

3.1 Sample

The choice of manufacturing firms was crucial. All three firms differ in size and representation globally. To respect the companies' request for anonymity I will refer to these as Company X, Company Y and Company Z. I have approached these companies via mail, in which I was explaining my research. Subsequently, I was invited to the company's office to introduce my research. Also, it gave the company and me the opportunity to consider if the company is the right fit for my investigation.

3.1.1 Company X

The firm is in Germany, North-Rhine Westphalia and was founded in 1990. Their business revolves around the provision of high-quality thermoplastic resin. It does not only serve the German market but is also present internationally. The distribution of sales is almost equally divided, although the trend is developing itself towards a more abroad focused business. Currently, the company is employing up to 200 people. The mission of the company is to supply a wide range of products, whereas sustainable management and strong customer orientation are at the heart of the company's business. Furthermore, the company has been honored with several quality awards, which implies a competitive advantage in the industry. The product portfolio offers standardized goods, but also praises the availability of customization. Whereby the custom-made products are focused upon and constitute the majority of turnover. Choosing this firm as a representative of my sample has been triggered due to two main statements on their website: strong focus on customer relationships and the available service of customizing products. Both attributes are components of my research, in which I want to investigate in. Furthermore, I have recognized after the introductory meeting that the company is indeed following a product-based business model. According to Company X, they agreed upon the participation, as they hope to gain new insights for opportunities to transition their business model.

3.1.2 Company Y

The firm is in Germany, North-Rhine Westphalia ever since 1981. The product portfolio of the company consists of gear units, engines and electronic controls. The company is operating within Germany, but also has a base of European customers. Especially the partnership with a Finnish company has strengthened the appearance on the European market. The company is communicating their main competences as being flexible, offering a variety of

products and custom-made solutions, services and the quality assurance "made in Germany".

I have chosen this company, due to its wide product spectrum, but also specifically because of the company's owned training center in which customers are taught and trained to use the products efficiently. This service is meant to support customers to become market leaders in the industry by taking out the maximum potential of the products. A first step towards servitizing the manufacturing firm.

3.1.3 Company Z

Company Z is a global leader in the industry of packaging and paper. The company has several locations in Europe, whereas the business branch office I am working with is in Germany, North-Rhine Westphalia. Out of my sample, this is the biggest firm with 26000 employees and operations in more than 30 countries. At heart of the businesses' principles stand the sustainability aspects and viewing their customers as partners for new innovative approaches. I have chosen this company due to their focal issue of following environmental and societal trends. As Servitization is also strongly linked to sustainability, this firms seemed to be a great fit. Additionally, the provision of services such as customization and solutions fit to my research question.

However, during an interview meeting it turned out, that the topic Servitization is relatively difficult to handle for that company. This is due the manufacturing of disposable products. Furthermore, they act as a supplier for other companies, as their products are small components which will be connected to bigger ones later in the supply chain. Nevertheless, they participated in the survey and provided me with information for my research in form of an interview.

3.2 Data Collection

Primary data is collected in one survey and one interview with each of the participants. Starting off with the survey, which will be distributed via the internet to the contact person. Then, the interview is conducted at the participant's company. These instruments aim at answering my research question.

3.2.1 Survey: Readiness to servitize

My first step of collecting primary data is to establish an online version of the "Readiness to servitized" test by Kohtamäki, M. et al. (2018). To do so, I will use Google Forms and will distribute the link to my sample via mail. Starting my research with the survey will set the basis for the subsequent interviews I will conduct. Later in my research. The survey consists only of closed questions, targeting at three different sub-topics to gain insight into a company's current business-model. These are investigating insights into the manufacturing's firms (1) service development capabilities, (2) service deployment capabilities and lastly their (3) Service orientation.

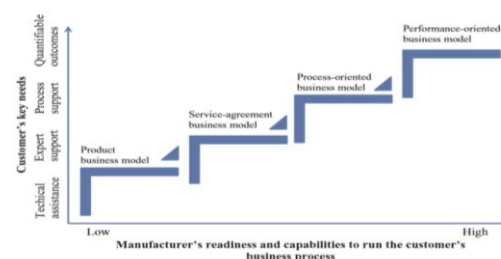


Table 2: Ideal Types of Business Models by Kohtamäki, M. et al. (2018)

The first part of the survey, which is attempting to generate finding about current service development capabilities within the firm. The manufacturing firms are assessing their current strengths or weaknesses in how services are currently classified within the business. To exemplify a few: We observe customer needs” “we are able to turn service activities into a profitable business. “Then, the next category to investigate in are the service deployment capabilities. Amongst others, questions about digitalization are asked (“integrated access to customer related data”), but also about mass customization within the firm “we can easily add significant product-services while maintain high volume. Besides these, the survey also investigates the capabilities of network management (“We remain informed about the goals, potential and strategies of our partners”). Moving on with the section of Service Orientation of management (“...recognizes services as lasting differentiation strategy”) and employees (“try to compensate fluctuating product with service sales”). The aim of this section is to generate insights about the manufacturing firms attitude towards services. More specifically, it is clarifying the status and assessment of the value of services within the firm.

Once the survey has been filled out by my sample, I will evaluate the outcome and classify each into a category of Table 1. I am considering this survey in my research, as it also gives me first implications of the participant's attempts to communicate and include their customers in business. Now, referring to its relevance in regard to the literature set. Whereas the categories service development and deployment lead to practical insights for the theory of interaction building capabilities, the category about network management is investigating the relationship between supplier and customer. However, as digitalization is a major driver of servitization it is also considered, especially since literature suggests that relationship building in servitization requires technical depth.

Concluding, that the survey is purely investigating the current capabilities of the manufacturing firms to initiate the transformation towards servitization. These insights set the fundamentals to further investigate the application of adaptive interaction later on in the interviews.

3.2.2 Interviews

After the evaluation of the survey, I will be able to create semi-structured interview guides. Starting off with a standardized set of question. However, this set will be divided up into three categories. First, to gain an overview about the company market situation, general questions will be asked about the dynamics in the market, customers and competitors. Followed, by questions regarding available services, the role of services and their approach to expand services in the future. Also, it enables me to gain a deeper understanding about the opportunities that lie within the product portfolio to servitize. Thus, I can make assumptions about the limitations and potentials of intermediate and advanced services. Afterwards, the attention will be shifted towards customer relations. Questions revolve around the importance of interaction, interaction modes, the relevance of partnerships and involvement of customers. To generate insights about adaptive interaction, I set up several questions which investigate the nature of this interaction mode within the company. To exemplify a few: “Would you describe your interaction mode with the customers as change oriented and future focused?”, “How crucial would you describe customer interaction in relationship building and innovation approach?”, “As you are offering

customization. Does it come with regularly changes in norms?”, “What role does trust play in your daily business with the customer? Do you think that the matter of trust will increase in importance when servitizing?”. In addition to that, I am including the company’s own assumption about what servitization mean for their business and the role customer interaction will be playing in the initiation process.

As previously mentioned, there will also be a set of unstandardized question which will be adapted to the outcome of the survey. Considering the output, will extent my understanding why the company answered as it did. However, new questions are also likely to rise during the interview. The standardized set of questions acts as the interviews fundament, naturally evolving questions will be asked according to statements of the standardized set.

All interviews are scheduled at the company’s office. The interview of Company X has been scheduled on the 12th of June with one representative of the company, manager of internal sales. The duration of the interview has been 45 minutes. After a declaration of consent, the interview has been audio recorded. For this reason, the analysis of the interview has been simplified, since I could transcribe it afterwards, while completely focusing on the interview in the present. The interview with Company Y has been scheduled for the 24th of May at the company’s training facility. Two representatives have been participating in my interview. As in the interview, with Company X, the interview has been audio-recorded and lately transcribed by me. Lastly, the interview with Company Z has been scheduled for the 27th of May. Again, the interview took place at the company’s office, as in the first case, one representative of the company was present. As in the other two cases, this again was audio recorded and transcribed.

3.2.3 Analysis of Data

After conducting and transcribing the survey and the interview, I have examined the outputs for similar statements regarding the company’s’ approaches for relationship building, the application of adaptive interaction and relating thereto capabilities built to initiate the transition towards servitization. However, it is just as important to investigate differences and unique features to answer my research question.

Below, one can find a visual operationalization table which depicts the procedure of the interview and how the statements will be assorted and evaluated according to the measurement techniques. The statements will be classified, so that a pattern can be identified.

	Concepts	Measurements
Customer Interaction	Adaptive Interaction	Interaction Development: Past – present – future
	Capabilities of Interaction	1. Knowledge Development 2. Service Enablement 3. Service Development 4. Risk Management
	Communication Technology	CRM-Systems Advanced technology

Table 3: Operationalization of “Customer Interaction”

4. RESULTS

The fundamental finding, all three firms are operating in traditional markets, which are showing signs of resistance to change. Nevertheless, the need for change is recognized and companies see an opportunity in Servitization, as the

markets are dynamic and the distinction from competition is proven to become more difficult according to all three companies “Our products and their quality do not really differ from our competition”. The analysis of the survey has also concluded that the sample ranges in the product-based business model, which has been further confirmed during the interviews. All firms provide their customer technical assistance, supported by traditional technology like customer service via telephone or mail.

Past	Present	Future
Traditional Short-term interaction Exchange interaction	Focus on customization, relationship building (=customer as development partner)	R&D with customer, maintain relationship, build mutual trust

Table 4: Interaction Development

Furthermore, the sample has recognized a huge shift in customer interaction throughout the last few decades. Indeed, customer interaction has increased throughout the years and the input of customers is seen as crucial to develop the business further.

- *“staying in continuous contact with our customers to identify their needs & wishes and implement these in our standardized product portfolio” (Company X, 2019)*

In view of the future, all companies plan to invest further in communication technology to provide their customer base with efficient care and build upon these relationships. Not only that, but also the opportunity of seeing the customer as a “knowledge source” has been stated in two of three cases. The keyword “feedback mechanisms” to optimize products and search for niche-innovations is seen as an essential. It states the importance of pursuing a successful relationship management to explore new opportunities for the business. Concluding, the companies are working with past and present records of customer input to convert these into new economic prospects for the future.

- *“our business is customer-driven. We are manufacturing on demand. The input of our customers helps us develop our portfolio” (Company X, 2019)*

The need for investing time and money in innovation is present, again the sample clearly stated that innovations in the past and planned approaches to innovate will be happening in cooperation with the customer. The statement of Gebauer et al (2008) “Observ[ing] the involvement of customers as development partners” is indeed put into practice by the sample. Again, adaptive interaction can be put into context with this statement. As its aim is to develop business relationships and take advantage of the collaboration between supplier and customer. Furthermore, it corresponds with the statement of Atuahene-Gima, 1995 which emphasizes upon the role of the customer to be a source of knowledge for the company. In this case capability building through interaction is put into practice by the sample.

- *“our customer provides us with the vision, we in turn try to implement it. The aim to standardize the product and service. Then commercialize it further.” (Company Z, 2019)*

As mentioned by T. Baines et al. (2017) the interaction with the customer enables companies to use the customers vision to develop new services. Yet, to do so technological

advancement has been identified as the fundamental base to do so.

- *“Servitization can only be done with the help of Digitalization. We are now investing in sensory technique to track usage, wear & tear” (Company Y, 2019)*

This further undermines that interaction and technological advancement are highly interconnected. As Servitization requires an application, which enables communication between customer, machinery and provider. Well-developed CRM or ERP systems are therefore of necessity. All firms seek to further exploit the features of these and link sensory techniques - if applicable for the product - with their products. Concluding, that a tracking device is the means to accomplish the task of offering customers advanced services. Again, considering the findings of literature M. Schaarschmidt (2018) mentioned that “customer interaction involves more technical depth” in hybrid offerings.

The issue Company X has clarified, which is stifling the process of servitizing the firm is the sensitivity of data that would be generated with those tracking sensors.

- *“the market is scared about data that could be gathered. Our customers are still very conservative, changing their mind might become a challenge” (Company Y, 2019)*

This anxiety needs to be addressed on the market, aiming at communicating the advantages to convince the customer of the potential of such new innovations. The study of T. Baines et al. (2017) is stressing upon the interaction capability of pursuing risk management. Hence, it is of importance to actively incorporate communication strategies to uncover anxiety and mitigate uncertainty. If not, this risk could be a stifling factor for the transition. This statement also suggests, that the market is still very traditional and resistant to change. Open communication in form of adaptive interaction can support the change in attitude of the conservative customer. As adaptive interaction conceptualizes change in norms and intentions (Medlin, 2004), it is of importance to embrace the need to create mutual trust. Since trust is decreasing uncertainty. Once trust is established, the customer is willing to experiment with new innovations, leading to a high rate of adoption for intermediate or advanced services.

Regarding the implementation of intermediate services, two of the three companies have stated that they see a growing opportunity in outsourcing and recycling. Again, these opportunities have been identified only due to the close interaction with the customer.

- *“The request of outsourcing is increasing; it definitely is a demand of the customer that needs to be taken care of.” (Company X, 2019)*
- *“Recycling is an issue. Taking the example of France, where waste disposal is charged for. Customers ask for a cheaper alternative.” (Company Y, 2019)*

Again, the customer can be viewed as a knowledge source, as many papers suggest (Lindgreen, A., 2006; Baines, T., 2017). All companies emphasized upon the importance of listening to the customer. Not only to satisfy them, but also to sustain the business relationship by providing them with innovative solutions to make business easier. Considering the capabilities that are enabled through interaction, one can conclude that the input of knowledge and resources of customer can lead to a faster transition towards

servitization. By bundling these, supplier can optimize services for their customer.

About the implication of Schaarschmidt et al. (2018), which I have mentioned in section 2.3.1 that firms should develop selling strategies to foster high level of customer interaction, aiming at promoting innovation in hybrid offerings. I have identified the following implementation of Company X as such:

- “We have a training center, in which we offer our customers introduction and training courses for our products, which are customized.” (Company Y, 2019)

This is indeed a step towards Servitization that has already been implemented in the company and is highly valued by their customer. This form of interaction fosters a strong relationship with the customer and guarantees them the best customer care. Moreover, it is building trust. Especially when introducing new innovations in form of product-service systems, it is crucial to provide the customer with extensive information to increase the ease of adaptability. Also, internally employees are trained for the ERP and CRM systems regularly (Company Z, 2019)

5. CONCLUSION

After the data analysis and the literature review, the following can be visualized in form of a figure which is explaining the linkage between customer interaction, building relationships and servitization. Also, managerial implications are presented as five statements to explain the concept further and provide a guideline.

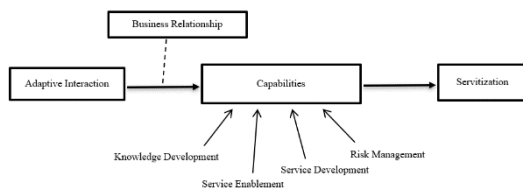


Figure 1: Adaptive interaction building capabilities to initiate servitization

Figure 1 is visualizing the connection between the variables. Hence, it depicts the answer for my research question and the associated sub-question. For my research I have originated from the assumption that adaptive interaction is relevant to build business relationships. As identified by Medlin (2004), adaptive interaction is crucial when aiming at building long lasting business relationships. Throughout the interaction process, all three companies approved, that it not only builds trust, but acts as a driver for change. This is due to customers expressing concerns and needs, which lead to the company taking action in adapting the business to their needs. Automatically resulting in changes in norms and intentions, which depict the dynamics of this interaction mode and matches the research of Medlin (2004). Then, research has shown that adaptive interaction is positively influencing capability building, which are of necessity to initiate servitization. Hence, it was investigated that customers are only willing to “support” your business and ensure its success if there is a relationship base. The better the relationship between customer and supplier, the more willing they are in helping the company to shape a future of innovation. It was also stated, if the product-service is highly innovative - speaking of advanced services, it outdates traditional thinking of both, supplier and customer. Thus, both parties need to be open for change and explore the new innovations together to identify its value and applicability. Once a business relationship is

built through the adaptive interaction, capabilities can be learned which enable the initiation towards servitization. However, the learning process for the supplier can only be successful, if the customer is investing time and resources into the transition process. Thus, continuous interaction and the commitment will be easing the transition towards servitization. Firstly, interaction is identifying customer needs and further explores niches which seem promising to invest in. Then, innovative features for servitization are identified, the capabilities can be shaped in cooperation with the customer. Once the needed capabilities are established, the manufacturing firm can start with the initiation phase of servitization. The path is paved for servitization. Looking at the big picture, one can identify a pattern. The domino effect. Concluding that once the mode of adaptive interaction is applied, the company is enabled to follow a path of change and innovation.

Now continuing with the five statements. This research has shown that the interaction between supplier and customer is playing a significant role in facilitating a company to transform their business model towards a service-oriented one.

Statement 1: *Servitization requires Relationship Management.*

Nowadays, transactional customer management has become ineffective for the majority of manufacturing firms, as the quality of products and services do not differ from competition. Furthermore, it has not the ability to lead to servitization due to the need of customer involvement in service-oriented businesses. Developing a relationship can be done with adaptive interaction, since it is establishing a common understanding to match the company’s future ambitions with the customer needs and values. Especially in the initiation phase of servitization, the interaction with the customer can generate insights about what the customer desires - product and service wise. With these insights, companies can identify and exploit the areas in which servitizing appears to be most efficient. Since intermediate and advanced services aim at a long-term commitment between supplier and customer, the development of a relationship seems to be undeniable.

Statement 2: *Customer Interaction is crucial in the initiation phase of Servitization.*

Advisable here is to form R&D teams with relevant customer, who will support and drive the process of identifying opportunities for intermediate and advanced services. Concerning intermediate services, customers can express requests which services they would like to receive from the manufacturing firm in addition to the product sales. At this level of Servitization, sufficient feedback mechanisms are proven to be successful (Company Y, 2019). Looking at the ability to offer advanced services, it is useful to identify potential customers who can be considered for a partnership. Besides identifying customer needs, new capabilities have to be formed in order to initiate Servitization. Again, collaborating with a set of customers can help to speed up the learning process and collect resources necessary to servitize. Adaptive interaction to create mutual trust is crucial to make the partnership work. Only then, both parties are motivated to search and develop innovative ideas to transition the product into a service, which in turn will benefit both. The customer as a knowledge enabler. To do so, the maintenance of a fully equipped and well-organized CRM system is of necessity.

Statement 3: *The transition to Servitization requires technological advancement.*

Referencing the statement above to customer interaction, the right technology enables the manufacturing firm to keep in touch with the customer and offer services on another level, instead of traditional media (e.g. E-Mail). Particularly intermediate services profit from this approach. Skype, YouTube tutorials can fulfill the role of communication channel, which strengthen the relationship with the customer. Keeping in mind, that a company needs to be flexible and open for change to embrace new procedures and norms. It further enables manufacturing firms to stay high profile when uploading regularly informative content on YouTube, but also be more flexible for short-term meetings with Skype. On the next step towards advanced services, technology like sensory monitoring keeps communication between manufacturing firm and customer alive. For instance, it is facilitating the exchange of data of the product, which will ultimately lead to consultation between the two parties about the delivery of the service the product provides. Discussion about performance, replacement, upgrades are possible topics to be discussed when evaluating the transmitted data. The consistent knowledge and experience exchange are strengthening the relationship between manufacturing firm and customer and is furthermore building trust, which is of necessity as advanced services aim at a long-lasting business relationship with dependency.

Statement 4: *Customers can fulfill the role of reviewer & critics*

As previously mentioned, communication facilitates continuous exchange of knowledge and experience. It is of necessity for a manufacturing firm to realize, when starting the initiation phase of Servitization and make use of it during the process. Only so, the manufacturing firm can find the right product-service system that will satisfy the customer. Furthermore, it enables the company to improve and upgrade it further, adjusted to the statements of the customer. Servitization is characterized as dynamic, which constantly needs to be adjusted and developed to keep the customer base happy. Therefore, communicating open interaction between supplier and customer is benefitting both. Since it optimizes the service for the customer, which leads to profit for the supplier.

Statement 5: *Communication becomes natural once intermediate or advanced services are established.*

Finalizing my research with the most important statement, it can be said, a successfully formed relationship between manufacturing firm and customer, emphasizes on strong communication when initiating Servitization. Once the basis is set (see Statement 2), and the transition has been successful, the portfolio consisting of intermediate and advanced services comes naturally with communication, as both types of services are interactive. Whether it is essential communication about aspects of maintenance or recycling, as part of intermediate services, or monitoring and further development of technology that makes advanced services possible. Each requires input of the customer and facilitates a continuous flow of interaction to satisfy both parties.

Now, discussing the theoretical implications. There are three sequences, the implementation of adaptive interaction, the resulting effect of building new capabilities which ultimately enable a company to initiate servitization. Keeping in mind, that the application of adaptive interaction naturally reveals the development of

business relationships between supplier and customer. Thus, one can speak of the domino effect. It represents the significance of the correlation between these variables for future research. Previously, each variable has been looked at separately, but this research has shown that there is a strong connection between these to successfully initiate servitization.

At last, concerning managerial implications. The framework is providing manufacturing firms with an explanation of the importance of interaction. As it is the starting point of new innovations to come. It depicts the importance of relationship building in today's business world. Hence, a clarification of the strengths of adaptive interaction is provided to exploit future opportunities such as servitization. Additionally, the list of capabilities for initiating servitization can be viewed as a guideline or checklist. If a company can tick off each, the fundament is set for servitization. Thus, the initiation phase of servitization can start.

6. LIMITATIONS & RESEARCH

Each research comes with a set of limitations. The sample size of my research has been small, due to difficulties of finding companies who are willing to participate in my research. Furthermore, this research has been explicitly conducted with qualitative data to gain insights and expectations about the topic of the participating companies, and not quantitative data. Expanding the sample size could have led to more insights. Also, as the companies are still operating in the product-based business, it would have benefited my research if I could have interviewed companies who are already in transition towards Servitization or have already implemented such features.

As my research is targeting the interplay between customer interaction, business relationships and servitization, one can conclude that little extensive research has been done in this area. A lot of scientific papers mention the importance of customer interaction, but do not go in depth about the consequences and opportunities. Therefore, this paper serves as an invitation to conduct further research about this topic, which will benefit product-based companies who are seeking to transition their business model towards a servitized one.

7. ACKNOWLEDGMENTS

I would like to thank my former supervisor Dr. Ariane von Raesfeld, who has supported me in layout and concept finding. Furthermore, I would like to thank my first supervisor Dr. Raymond Loohuis for guiding me through my thesis. Also, my second supervisor H.G. Hanna, who has been giving informative sessions about the topic.

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9. APPENDIX

Appendix 1: Overview of Sample

	Industry	Market	Size	Interviewee
Company X	Manufacturing	Thermoplastic	Medium-sized	Head of Sales
Company Y	Manufacturing	Engines & motors	Medium-sized	Sales Direction Sales Manager
Company Z	Manufacturing	Packaging	Large-sized	Head of market support

Appendix 2: Survey

Service development capabilities	
Sensing service opportunities and threats	
<i>We focus on identifying service opportunities to differentiate our total offering</i>	/7
<i>We observe customer needs</i>	/7
<i>We observe competitors' service offerings and behavior</i>	/7
<i>We react quickly to competitors' service activities</i>	/7
Average score	/7
Seizing service opportunities	
<i>We can make quick and timely decisions to create a new dominant design of the total offering</i>	/7
<i>We articulate intended strategies early and clearly to direct information-gathering and filtering mechanisms and focus management attention</i>	/7
<i>We have the capacity to satisfy customers' expressed needs</i>	/7
<i>We can make tactical choices on bundling and charging for goods and services (or charging for them separately)</i>	/7

<i>We have the capacity to commercialize new offerings and communicate changes to the customer</i>	/7
Average score	/7
Reconfiguring assets and processes	
<i>We are able to turn service activities into a professional business</i>	/7
<i>We are able to turn service activities into a profitable business (whereby services are either embedded in product prices or charged separately)</i>	/7
<i>We have procedures and routines to minimize costs related to new service activities</i>	/7
<i>We can overcome internal resistance and conflicts</i>	/7
Average score	/7
Service deployment capabilities	
Digitization	
<i>Our IT system allows us integrated access to the following:</i>	
<i>all customer-related data (e.g. service contracts, feedback)</i>	/7

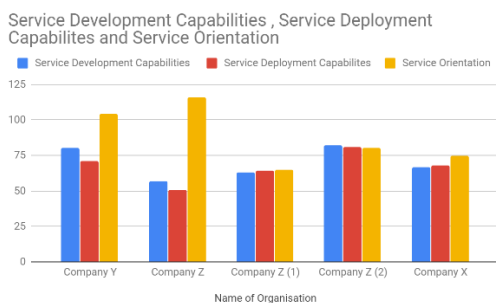
<i>all order-related data (e.g. order status, handling requirements)</i>	
<i>all production-related data (e.g. resource availability, quality)</i>	/7
<i>all market-related data (e.g. promotion details, future forecasts)</i>	/7
Average score	/7
Mass service customization	
<i>We are highly capable of large-scale product-service customization</i>	/7
<i>We can easily add significant product-service variety without increasing costs</i>	/7
<i>We can customize product-services while maintaining high volume</i>	/7
<i>We can add product-service variety without sacrificing quality</i>	/7
<i>We can adjust our process design according to customer demand without significantly increasing costs</i>	/7
	/7

<i>We can adjust our product-service design according to customer demand without significantly increasing costs</i>	
Average score	/7
Network management	
<i>We analyze what we would like to achieve with each partner</i>	/7
<i>We remain informed about the goals, potential and strategies of our partners</i>	/7
<i>We determine in advance possible partners with whom to discuss the building of relationships</i>	/7
<i>We appoint coordinators who are responsible for the relationships with our partners</i>	/7
<i>We regularly discuss with our partners how we can support one another in our success</i>	/7
Average score	/7
Service orientation	
Service orientation of management values	
<i>Our management ...</i>	
<i>recognizes services as a lasting differentiation strategy</i>	/7

<i>considers the combination of products and services as a potential way to improve profitability</i>	/7
<i>uses services to reduce comparability of different suppliers' offerings</i>	/7
<i>aims to exploit the financial potential of services</i>	/7
<i>sees services to compensate fluctuating product sales</i>	/7
<i>considers services as highly profitable</i>	/7
Average score	/7
Service orientation of management behavior	
<i>Our management ...</i>	
<i>empowers employees to respond to a broad range of customer problems</i>	/7
<i>coaches employees to behave in a service-oriented way</i>	/7
<i>sets rewards for service-oriented employee behavior</i>	/7
<i>supports employees for solving customer problems</i>	/7
Average score	/7
Service orientation of employee values	

<i>Our employees ...</i>	
<i>recognize the financial potential of services</i>	/7
<i>try to compensate fluctuating product with service sales</i>	/7
<i>consider services as highly profitable</i>	/7
<i>use services to augment the product offering</i>	/7
<i>use services to improve the customer relationship</i>	/7
<i>use services for selling more products</i>	/7
Average score	/7
Service orientation of employee behavior	
<i>Our employees ...</i>	
<i>serve customers as a reliable troubleshooter</i>	/7
<i>serve customers as a performance enabler</i>	/7
<i>serve customers as a trusted adviser</i>	/7
<i>fulfill the role of problem solvers</i>	/7
Average score	/7

Appendix 3: Survey Output



Appendix 4: Survey Classification

Company	Classification
Company X	Product-based business model
Company Y	Product-based business model
Company Z	Product-based business model

Appendix 5: Interview Question Guide (standardized)

Overview

1. Wie würden Sie ihren Markt beschreiben? (Dynamisch, ...) (How would you describe the market you are operating in?)
2. Vision Statement: Wo sehen Sie sich als Firma in der Zukunft? (What is your vision for the future of the firm?)
3. Wie würden Sie die Verteilung der Nachfrage von Standardprodukten und Sonderanfertigungen beschreiben? (How would you describe the distribution of standardized products vs. customized products?)
4. Welche Keywords würden Sie wählen, um ihr Unternehmen zu beschreiben? (Which keywords would you choose to describe your company?)

Service

1. Welche Rolle spielen Dienstleistungen in ihren Unternehmen? (Produkt & Dienstleistung verknüpft? Unter- oder Übergestellt?) (Which role play services in your company?)
2. Was für Standard-Dienstleistungen bieten Sie ihren Kunden an? Wie sieht der Kommunikationsverkehr dabei aus? (What kind of standardized services do you offer? How does communication between customer and company look like?)
3. Unterscheidet sich ihr Service Angebot, je nach Kunden Priorität? (Does your service portfolio differ according to the priority of customer?)
4. Bekommen Sie Feedback von ihren Kunden zu gewählten Dienstleistungen? (Do you ask for feedback after a service is given?)
5. Wie entwickeln Sie Konzepte für neue Dienstleistungen? (How do you generate ideas for new services?)
6. Planen Sie ihr Dienstleistungssortiment in Zukunft auszubauen? Wenn ja, haben Sie bereits Ansätze? (Are you planning to extend your service offer in the near future? If so, do you have first ideas?)
7. Gibt es eine Dienstleistung, die die Funktion eines Produktes bereits ersetzt? Oder in Zukunft ersetzen soll? (Do you already offer a service, which is replacing a product?)
8. Haben Sie Serviceverträge die das Versprechen von "Zuverlässigkeit & Verfügbarkeit halten? (Produkt Upgrades, Reparatur, Wartung, Ersatzteile)
9. Bieten Sie ihren Kunden Outsourcing Möglichkeiten an?
10. Inwieweit beeinflusst ihr Kunde ihre Dienstleistungen?

Kundenbeziehung

1. Wie würden Sie allgemein ihre Beziehung zum Kunden erklären? (How would you describe your relationship with your customers?)
2. Wie identifizieren Sie Kundenbedürfnisse? (How do you identify customer needs?)
3. Wie leistet der Kunde für Sie Beiträge zur neuen Produkt-/ Dienstleistungsentwicklung? (How does the customer contribute to new product or service developments?)
4. Welche Kommunikationstechnologien oder Taktiken nutzen Sie im Umgang mit dem Kunden? (Which communication technologies do you use?)
5. Inwieweit kann der Kunde bei Customization & Weiterentwicklung mit einbezogen werden? (To what extent ist he customer involved in innovation processes?)
6. How would you describe your interaction mode?
7. Erfragen Kunden an Sie angepasste Dienstleistungen? Gehen Sie darauf ein? (Does your customer approach you in regard to wishes for new customized services?)
8. Was glauben Sie kann der Kunde beitragen, um ihr Geschäftsmodell in Richtung Servitization zu bewegen? (Bsp. Rolls Royce) (What do you think can the customer do to help you initiate servitization?)
9. Was haben Kunden in der Vergangenheit beigetragen, um ihr Geschäftsmodell zu verbessern? (How did customer participate in the past to help you optimize your business model?)
10. Nach dem Verkauf eines Produktes, stehen Sie trotzdem mit dem Kunden in Verbindung? Wenn ja, für welche Anlässe? (How do you interact with the customer after the sales process?)
11. Bieten Sie Möglichkeiten an, ein bereits erworbenes Produkt upzugraden? Oder auch wieder zurückzunehmen (Recycling)? (Do you offer product upgrades, recycling?)

Appendix 6: General Findings

	Company X	Company Y	Company Z
Adaptive Interaction	Demand-driven production	Exploration of customer needs through market analysis (limited feedback)	Customer base, highly interactive and open to change (=go with trends) Norms and intentions are flexible
Business Relationship	focus on customization, Long-term relationships with customers and suppliers	Training Center for customers, Cooperation with customers to explore new innovations, Emphasis on Customization, Long-term relationships & few partnerships	Customization Cooperation for socially responsible innovations Long-term relationships
Possibility of Intermediate Services	Outsourcing, In-house Recycling	Outsourcing, (Recycling)	Outsourcing

Possibility of Advanced Services		Sensory technic seems to be promising to turn products into services	Does not seem applicable currently, due to manufacturing of disposable products