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Future Service Center Concept
Overcoming Challenges and Developing Capabilities to Meet Customer Needs

Master's Thesis in the Master's Degree Programs Quality and Operations Management and Supply Chain Management

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Acknowledgments

Abstract

The aftermarket can be a significant profit source for companies and a key differentiator. However, the aftermarket's importance and potential is often overlooked due to its complexity in term of e.g. high number of SKUs and unpredictable demand. Additionally, services are becoming increasingly important for customer satisfaction. Thereby, the complex aftermarket does not only need to provide products but also services with high quality. To examine services in an aftermarket context, a three-folded purpose was outlined. Namely, to identify current challenges, identify concepts and ideas to tackle these challenges, and to outline capabilities in need of development. The purpose was addressed by a case study at a company referred to as TruckCo.

TruckCo has Service Centers in place to assist the vehicle dealers with requests and concerns. For example, high-priority spare part orders during so called vehicle of road cases, returns, recalls and quotations. The study is based on interviews with TruckCo personnel and experts within service quality and service innovation, a focus group and a literature study. Two theoretical frameworks were combined, namely theory on service quality gaps and dynamic capabilities needed for service innovation.

The study resulted in several challenges being discerned. These could be categorized into the different stages of the aftermarket communication chain at TruckCo. To solve these challenges and ultimately decrease their impact on the overall service quality, a number of improvement ideas were suggested. Four of them were deemed to have higher impact while still being feasible to implement. Namely, establishing an end-customer centric view, a closer cooperation between Service Centers, internal Service Level Agreements (SLAs) and instant feedback on Service Center cases. Seven other concepts were also believed to have a high impact for TruckCo, but due to technical constraints they were not feasible to implement in the near future.

To further ensure that continuous improvements are made to the aftermarket services, TruckCo was recommended to develop their service innovating capabilities. More specifically, they should implement service dedicated roles on a strategic level within the aftermarket services, regard the whole service ecosystem when developing the service offering, and structure their service innovation process to ensure that all ideas are captured within the ecosystem.

Keywords: service quality, service innovation, aftermarket, service ecosystem, dynamic capabilities, dynamic capabilities for service innovation.

CONTENTS

1. INTRODUCTION

This chapter firstly introduce the aftermarket and its characteristics since it is the context the thesis is set in. Thereafter, the theoretical relevance of the project and the connection to previous literature will be presented, followed by the problem background in terms of the practical relevance of the project. The aim and the research questions of the project are explained, and after that, the limitations of the thesis are presented. Lastly, the structure of the report is outlined.

1.1. THE AFTERMARKET CONTEXT

Gaiardelli, Saccani, and Songini (2007, p. 698) define aftermarket services and activities as "those taking place after the purchase of the product and devoted to support customers in the usage and disposal of goods". Several factors differentiate the aftermarket from a standard manufacturing supply chain. In the aftermarket, demand is unpredictable and sporadic (Cohen, Agrawal, & Agrawal, 2006). There is also a high variability regarding demand sizes with intermittent and erratic demand (Andersson & Jonsson, 2018; Dekker, Pinçe, Zuidwijk, & Jalil, 2013; Huiskonen, 2001). Thereby, planning and forecasting is more difficult for aftermarket-sales than traditional manufacturing (Cohen et al., 2006). Cohen et al. (2006) explain that aftermarket services require rapid responses, often same day or next day response. In contrast, conventional manufacturing has a more standard response time that is easier to schedule (Cohen et al., 2006). Number of stock keeping units (SKUs) for the aftermarket can be 15 to 20 times higher than for the normal manufacturing market and the product portfolio is more heterogeneous (Cohen et al., 2006). At the same time, prices for individual parts might be very high, resulting in high storage costs (Huiskonen, 2001; Dekker et al., 2013). The aftermarket supply chain is also more complex since it handles returns, repairs, and disposal of failed components (Cohen et al., 2006). Dekker et al. (2013) explain that spare parts generally have a higher risk of becoming obsolete since a wide variety of components are held with specific functionalities that are only applicable to one or a few products, whilst the demand is unpredictable.

Service requirements are high in the aftermarket as end-users may have to deal with a high cost of downtime (Andersson & Jonsson, 2018). Thereby, effects of stock-outs on spare parts can be financially stifling for customers (Huiskonen, 2001). Additionally, Andersson and Jonsson (2018) state that suppliers of spare parts often deal with a high cost of handling back-orders. Back-order is an order for a good or service that cannot be filled at the current time due to a lack of available supply. Though, unlimited inventory cannot be held since the market requires many spare parts with possibly high inventory costs, large space requirements and a high risk of storing obsolete components. Thereby, companies must balance inventory holding, stock-out and obsolescence cost whilst still offering competitive services for their customers, including providing minimum downtime (Dekker et al., 2013; Andersson & Jonsson, 2018).

Moreover, the aftermarket is a significant profit source for companies and it can be a key differentiator when selling products (Gaiardelli et al., 2007). Gaiardelli et al. (2007) explain

that the aftermarket can be used as a way to realize customer needs and allow continuous improvement of products already sold. It is one of the few connections customers have to a brand, making it a touch-point that influences customer satisfaction and loyalty (Gaiardelli et al., 2007). However, the original manufacturers are not the only actors with access to the aftermarket. Firms often compete with third-party companies who also offer sales and services relevant to their products (Cohen, Zheng, & Agrawal, 1997). Further, the current digitization generates new technologies and changes in the aftermarket, which alter the way companies must do business to remain competitive (Breitschwerdt, Cornet, Kempf, Michor, & Schmidt, 2017). Therefore, it is clear that there are opportunities in the aftermarket, but companies must overcome competition in a changing environment to gain them.

1.2. Theoretical Relevance

A recent study performed by Hallencreutz and Parmler (2019) show that service quality influences customer satisfaction more than product quality in several industries. In a study conducted by Theoharakis, Sajtos, and Hooley (2009), it was shown that service responsiveness towards customers and service innovation contributed to customer satisfaction and loyalty, and ultimately the financial performance of a firm. Moreover, other studies suggest that manufacturing firms that implement services can gain a competitive advantage (Gebauer, Gustafsson, & Witell, 2011; Vandermerwe & Rada, 1988) and increased profitability (Kohtamaki, Hakala, Partanen, Parida, & Wincent, 2015). In essence, service is increasingly important for customers and therefore also for a firm's profitability.

The quality of service is often defined as the comparison made by customers between their expected service and their perception of the actual service (Grönroos, 1984; Zeithaml, Berry, & Parasuraman, 1988b; Caruana, 2002). To understand service quality, several models and frameworks have been developed. For example, Grönroos (1984) divides service quality into technical and functional quality, and Zeithaml et al. (1988b) present a model named SERVQUAL that takes different determinants into account to measure customer perception of service quality. Further, Zeithaml, Berry, and Parasuraman (1988a) present five different gaps that influence the customer's perception of service quality. The fifth gap represents the difference between the customer's expected service and the perception of the actual service delivered (Zeithaml et al., 1988a), which correlates with the definition of service quality. The remaining four gaps show more in detail in what context the problems occur, and together they result in the fifth gap (Zeithaml et al., 1988a).

Challenges related to service quality is however not only to perform according to customer expectations and meet current needs, but also to be able to match future needs. For example, Hallencreutz and Parmler (2019) state that it is crucial to comprehend how customer satisfaction evolves over time. Therefore, understanding service innovation is an important addition to understanding service quality. Several authors, e.g. Bharadwaj, Varadarajan, and Fahy (1993) and Gray, Matear, Deans, and Garrett (2007), argue that service innovation helps firms to improve their overall corporate performance. However, the understanding of how service innovation occurs has been limited (D'Alvano & Hidalgo, 2011; Gallouj & Djellal, 2010;

Den Hertog, Van der Aa, & De Jong, 2010). Authors, such as Damanpour, Walker, and Avellaneda (2009), Den Hertog et al. (2010), Kindström, Kowalkowski, and Sandberg (2012) and Janssen, Castaldi, and Alexiev (2016), stress that service innovation cannot be handled in the same way as product innovation due to the peculiarities of services. For example, Gallouj and Djellal (2010) explain how service innovation differ from product innovation due to the intangibility, non-stockability, co-production with clients, and heterogeneity of services.

To make sense of service innovation, several researchers have combined the topic with a framework referred to as dynamic capabilities (Agarwal & Selen, 2009; Fischer, Gebauer, Gregory, Ren, & Fleisch, 2010; Raman & Bharadwaj, 2016; Den Hertog et al., 2010; Kindström et al., 2012). Dynamic capabilities have been defined by Teece, Pisano, and Shuen (1997, p. 516) as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments". Teece (2007) further explains that dynamic capabilities enable firms to create, deploy, and protect intangible assets that lead to better business performance and long term competitiveness. Janssen et al. (2016) and Den Hertog et al. (2010) argue that the peculiarities of service innovation can be suitably handled by the dynamic capabilities framework since the framework is focused on sourcing and converting ideas with the use of intangible resources. Kindström et al. (2012) present a detailed framework that adapts dynamic capabilities to service innovation. In the framework, Kindström et al. (2012) divide the dynamic capabilities into three main capabilities: sense, seize and transform. Within each capability, Kindström et al. (2012) present microfoundations which further detail skills, processes, procedures, organizational structures, decision rules, and disciplines that lay the foundation for each capability (Kindström et al., 2012).

In past research, service quality gaps and dynamic capabilities for service innovation have been applied and tested empirically. For example, modelling of service quality gaps was applied to the shipping industry by Chen and Lai (2009) and dynamic capabilities for service innovation has been empirically used on Dutch firms by Janssen et al. (2016). In this report, the concepts will be used on a case in the aftermarket. Cohen et al. (2006) explain that many firms perceive aftermarket service as a necessary evil. However, Cohen et al. (2006) argue that companies overlook the full potential of the aftermarket in terms of profitability that could be gained, due to the aftermarket's complexity.

Applying service quality gaps and dynamic capabilities for service innovation to a new context can give an indication of the general applicability of the frameworks. For instance, the model presented by Kindström et al. (2012) has limited previous practical implementation. An implementation could therefore be valuable. Further, considering the underestimation of aftermarket possibilities (Cohen et al., 2006), the results could generate a better understanding of how aftermarket services can be developed to benefit firms.

1.3. Practical Relevance

The project described in this report took place at a vehicle manufacturing company, hereafter referred to as TruckCo. The company sells and services a variety of vehicles from several

brands owned by the parent company. With regard to the theoretical relevance of the study, they were deemed to be suitable as a case company since they have a high quality focus within products but now aim at also incorporating services to a larger extent. Services have a strategic importance for them when seeing to the opportunities within the aftermarket, e.g. when considering profitability and competitive advantage. The scope of the project is focused on the European aftermarket for one of their brands.

The aftermarket for trucks is highly dependent on dealers. The dealers function as middlemen, hence, TruckCo does not have direct contact with their end-customers. There is a *logistics partner agreement* between TruckCo and the dealers which entails that TruckCo is responsible for storage replenishment at the dealer. This is a concept called Vendor Managed Inventroy (VMI). With such a set-up, the majority of the order and material flow passes in-between dealers and TruckCo without deviations or problems.

However, problems do occur at times. The aftermarket is generally characterized by a large number of SKUs and so is TruckCo's aftermarket. To have all components in storage at every dealer is unfeasible. It would require space and capital at an unreasonable level. Instead, only the most common parts are held at the dealers. Similarly, there are regional warehouses in several markets, but these do not hold all components. At times, end-customers require spare parts that are not part of the basic assortment. The most frequent cause for this is breakdown situations. In some cases, trucks have problems to the degree that they cannot be driven. This is called Vehicle Off Road (VOR) and is of high importance since end-customers lose money every hour their truck is not used. Dealers, who are the contact point for the end-customers, must then order the missing components. If the parts are available at the regional warehouse they are transported from there. If not, the order is placed at the European central warehouse. If the component is not available there, a TruckCo Service Center is contacted.

TruckCo has several Service Centers. Most are connected to a geographical market, but some are focused on a specific brand. A Service Center functions as the interface between dealers and TruckCo. In the case of dealers requiring a spare part that is not available at the regional or central warehouse, the Service Center has some possible actions to take. They can, for example, check inventory status at other regional warehouses or contact the procurement department if a spare part is required by a supplier. The Service Center also assists dealers with other issues such as returns, quotation requests, recalls and back-orders. The variety and complexity of these problems mean that workers at the Service Centers cannot answer all questions directly, but require support from back-end functions. In these complex information channels, problems can arise.

Today, the flow of information between dealers, Service Centers and back-end functions is considered by TruckCo to have room for improvement. For example, the communication with back-end is often slow, meaning that the dealers must wait for several days, or even weeks, before they get a response. This could be an effect from the fact that it takes time to reach the person with the right knowledge, or that the person contacted in back-end has other tasks to perform and might not prioritize supporting the Service Center. Overall, finding the correct information fast enough is an obstacle in the service provision process. Simultaneously, the

issues are often of high importance for end-customers, making this a crucial communication channel.
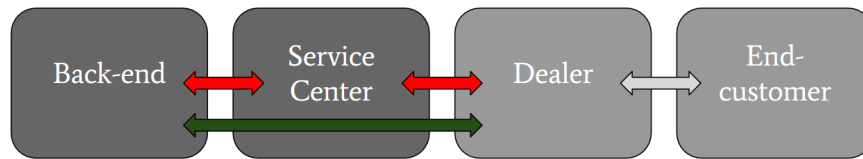
Figure 1.1: The aftermarket communication chain at TruckCo. Red arrows indicate current state, the green arrow indicates wanted future state and white arrows indicate channels which TruckCo is not overseeing.

Looking at Figure 1.1 which depicts the aftermarket communication chain, the dark grey boxes represent the internal functions at TruckCo, back-end and Service Center. Dealers and end-customers are the external actors, represented by the light grey boxes. The red arrows indicate the current situation where the communication works sub-optimally. The goal would instead be to have a more seamless flow, visualized by the green arrow. The white arrows indicate the communication between dealers and end-customers which today is outside the scope of TruckCo's responsibility. However, it is realized by the researchers that the work in this project might involve an integration of the end-customer in the communication channel. Today, the reason for the separation of that communication flow is that it makes the process easier and more flexible. This might not be the case in the future.

1.4. AIM

The aim of the project is three-fold. Firstly, the aim is to identify current challenges Service Centers are experiencing. This could relate to, but is not limited to, ability to support external customers with the information they require and ability to get support from back-end functions to generate the information required at a speed that satisfies the customers. The second aim is to give suggestions on how these challenges can be tackled in terms of different concepts and ideas. These suggestions could relate to, but are not limited to, organizational structure, way of work and technologies that could support Service Centers. Thirdly, the aim is to give an indication on which capabilities should be developed so as to better serve the customers. These capabilities could relate to, but are not limited to, how improvement ideas concerning services are captured and processed within the firm and in which way the processes of the Service Centers are continuously improved. The aspiration is that the project will generate value since it will enlighten companies of both current challenges and future opportunities. In a wider perspective, the project can be relevant for academia. Capabilities needed to tackle challenges and capture opportunities in the aftermarket context can be realized and enable further learning.

1.5. Research Questions

The aim of the project boils down to three research questions:

1. What current challenges are Service Centers experiencing that hinder their ability to support external customers at the service level they demand?

2. What concepts and ideas could help the Service Centers to better tackle the challenges they are experiencing?

3. What capabilities should TruckCo's functions serving the aftermarket develop in order to match current and future service needs?

1.6. Limitations

The scope of the project is focused on one of TruckCo's brands (that solely sells trucks) and its operations on the European market. Internal interviews were conducted in Sweden and at another European location, making these the main sources for empirical data. This leads to that the suggested concepts and ideas might be biased to the problems identified here. However, it is believed that the concepts could be beneficial for other markets and brands as well since the communication processes have similarities across regions and brands.

The scope of the project does not include any implementation. The aim is to provide inspiration and ideas, hence, implementation is left to TruckCo. Further, the project is done on a conceptual level. Meaning that there is a limit to the level of detail that will be presented. For example, specifics about who should contact who within and outside TruckCo is too detailed to be in the scope of the project. Neither will specifics about each dealer and each function within TruckCo be given. Instead, focus will be on a higher, structural level.

The aftermarket consists of many aspects, but only some are dealt with in the report. Inventory levels, forecasting methods, delivery routes and more were deemed to be outside of the scope. Further, the problems identified in this project do not concern all work on the aftermarket, but are focused on those cases when the Service Center is involved. Thereby, the results do not concern the whole company but the aftermarket functions surrounding the Service Centers.

Moreover, in terms of partners there is a focus on the dealers' role and impact on the service since they work closely with the Service Centers. There is however less focus on other partners in the supply network such as carriers. Additionally, there is little direct interaction with end-customers even though they are included on a conceptual level. The reason being that TruckCo's aftermarket functions researched has little contact with the end-customer so few points of contact could be established by the company supervisors.

1.7. STRUCTURE OF REPORT

Chapter 2 presents the theoretical framework of the report, including an explanation of service quality and the general aspects of service innovation, and dynamic capabilities. Thereafter, the chapter combines service innovation and dynamic capabilities. Chapter 3 explains the methodology of the study. This includes the research strategy and approach, research process, research methods, and research quality. Chapter 4 consist of the empirical findings including an explanation of objectives for operational improvement, the current process, current challenges, and future potential directions based on both internal ideas at TruckCo and information from external sources. In Chapter 5, an analysis of the empirical findings in relation to the theoretical framework is presented. A discussion on theoretical and managerial implications as well as possible future research directions are explained in Chapter 6. Lastly, conclusions are presented in Chapter 7.

2. THEORETICAL FRAMEWORK

The following chapter introduces a literary review of the research under study. Firstly, service quality is defined and explained. A model for understanding different gaps in service quality introduced by Zeithaml et al. (1988a) is presented in detail. Thereafter, general aspects of service innovation and dynamic capabilities are explained. Following is a recounting for how service innovation and dynamic capabilities have been combined, including a detailed description of a framework introduced by Kindström et al. (2012). Lastly, a synthesis of the theoretical framework is presented which will explain how the theory will be used in the analysis.

2.1. SERVICE QUALITY

Service quality is the result of the comparison made by customers between their expectations of a service and their perception of the final service performance (Grönroos, 1984; Zeithaml et al., 1988a; Caruana, 2002). Grönroos (1984, 1990) proposes a model in which the outcoming service quality is a result of the technical quality and functional quality that is performed. Technical quality (or output quality) is what is actually delivered to the customer (Grönroos, 1984, 1990). For example, it can be the repair made by a mechanic on a broken car or the drinks served by a bartender. The functional quality (or process quality) delivered is according to Grönroos (1984, 1990) not as straightforward and thereby not as easily evaluated. It refers to how the outcoming service quality is delivered to the customer in terms of e.g. employee performance and behavioral aspects (Grönroos, 1984, 1990). During the 80s, Zeithaml, Berry, and Parasuraman (1985, 1988b) introduced an operational view on service quality called the SERVQUAL model. SERVQUAL is according to Caruana (2002) one of the most widely accepted service quality operationalizations. The model takes five determinants into account (tangibles, reliability, responsiveness, assurance, and empathy) to measure customer perception of service quality (Zeithaml et al., 1988b).

Previous studies suggest that manufacturing firms offering services can lead to increased customer satisfaction (Theoharakis et al., 2009), competitive advantage (Gebauer et al., 2011; Vandermerwe & Rada, 1988), and ultimately overall profitability (Kohtamaki et al., 2015). Zeithaml, Berry, and Parasuraman (1996) contribute with insights into how service quality affects the financial results of a firm. A model of customers' behavioral consequences from superior or inferior service quality was constructed by the authors, in which the customer can chose to either remain or defect from the company in question (Zeithaml et al., 1996). Something which results in different financial outcomes for the firm (Zeithaml et al., 1996). A remaining customer contributes with e.g. ongoing revenue streams and increased spending (Zeithaml et al., 1996). Zeithaml et al. (1988b) and Boulding, Ajay, Staelin, and Zeithaml (1993) emphasize how satisfied customers are more prone to give positive recommendations about the firm to others, and Newman and Werbel (1973) give evidence that satisfied customer remain loyal to the firm. A study conducted by Izogo and Ogba (2015) also suggests that the level of service quality is a significant predictor of customer satisfaction and loyalty.

In contrast, a defecting customer causes e.g. decreased spending, loss of customers and increasing costs to attract new customers (Zeithaml et al., 1996). Singh (1988) outline how dissatisfied customers turn to so called consumer-complaining behavior, by for example giving negative recommendations about the firm to others or taking legal actions. Similarly, a study conducted by Quach, Jebarajakirthy, and Thaichon (2016) show that service quality directly influences customers' complaining and switching intention (inclination to turn to competitors). To avoid unfavorable customer behaviors, Zeithaml et al. (1996) recommend firms to strive at meeting customer demand in terms of their desired service levels, and preventing and solving service problems. However, because service quality is highly dependent on employee performance, it is difficult to perform service at a consistent level (Zeithaml et al., 1988a; Grönroos, 1990).

A model introduced by Zeithaml et al. (1988a) present five different gaps that demonstrate how service quality emerges. The gaps influence the customer's quality perception and may assist firms in understanding how to increase their service performance. The fifth gap is the difference between expected service and the actual service delivered (Zeithaml et al., 1988a), i.e. the overall service quality, which is consistent with the definitions of service quality as was described previously by e.g. Grönroos (1984) and Zeithaml et al. (1996). Zeithaml et al. (1988a) state that the fifth gap depends on the size and direction (positive or negative) of the four other gaps. The first gap occurs when management misunderstand customer expectations and thereby misguide the organization when it decides upon service quality specifications (Grönroos, 2015). This gap can be referred to as *the knowledge gap*. The second gap, henceforth referred to as *the standards gap*, takes place when the organization inaccurately translates management's perception of service quality into service quality specifications (Grönroos, 2015). The third gap implies that the actual service delivery does not fulfill the service quality specifications (Grönroos, 2015). This is referred to as *the delivery gap*. Finally, the fourth gap takes place when the service delivery does not correspond to what has been promised to the customers (Grönroos, 2015). This is called *the communications gap*.

In Figure 2.1 the different gaps are visualized. In Table 2.1, gaps 1-4 are presented with their *theoretical constructs*, which can be seen as the different factors resulting in the gap. In the following sections, each gap is more elaborately explained.
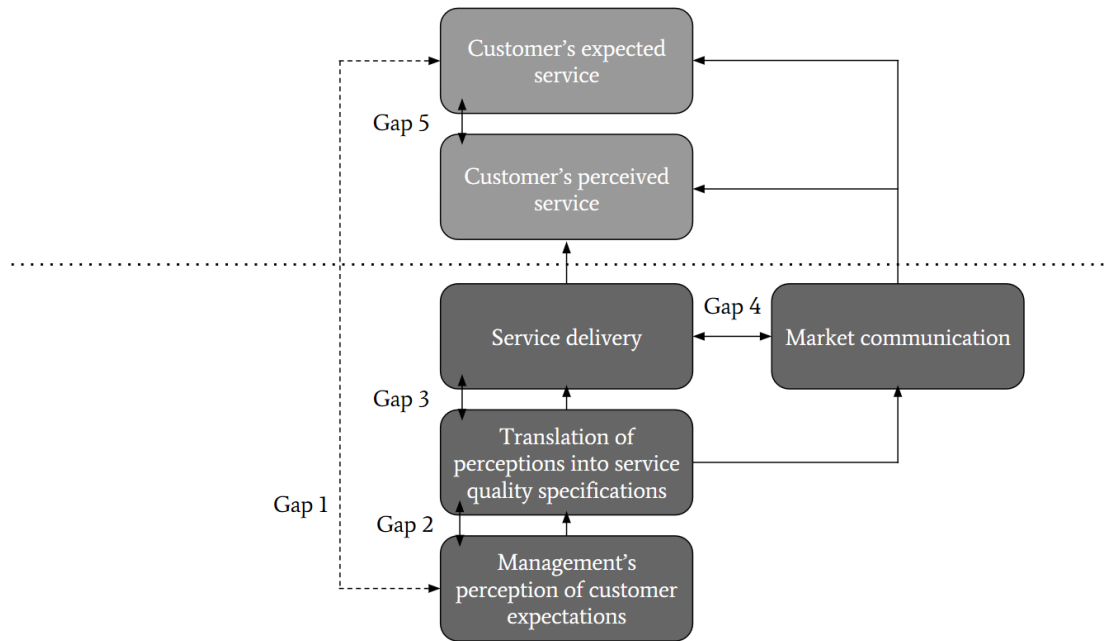
Figure 2.1: An adapted version of the gaps as visualized by Zeithaml, Berry, and Parasuraman (1988a).

Table 2.1: A presentation of the four different gaps that influence the fifth gap as presented by Zeithaml, Berry, and Parasuraman (1988a).

	Description	Theoretical Constructs
Gap 1	The knowledge gap	•Marketing research orientation •Upward communication •Levels of management
Gap 2	The standards gap	•Management commitment to service quality •Goal setting •Task standardization •Perception of feasibility
Gap 3	The delivery gap	•Teamwork •Employee-job fit •Technology-job fit •Perceived control •Supervisory control systems •Role conflict •Role ambiguity
Gap 4	The communications gap	•Horizontal communication •Propensity to overpromise

According to Zeithaml et al. (1988a), there are three theoretical constructs that may hinder managers and the organization overall to fully comprehend what level of service quality is expected by the customers. Specifically, *marketing research orientation, upward communication* and *levels of management. Marketing research orientation* relates to e.g. the amount of market research aiming to understand customer needs that is conducted, how that data is used by managers and to which extent the data is focused on service quality. Grönroos (2015, p. 131) suggests that "new methods to gain deeper insight about the customers and their lives and businesses may be needed, and better ways of using customer feedback from service encounters or customer complaint systems may be required". *Upward communication* concerns the extent of bottom up-communication from both company employees in direct customer contact and non-company employees such as retailers (Zeithaml et al., 1988a). Formal as well as informal types of communication are necessary (Zeithaml et al., 1988a). The quality of the communication is also important, which relates to the third construct *levels of management* (Zeithaml et al., 1988a). The greater the number of layers in an organization is, the larger the gap will be between customer-contact employees and top management (Zeithaml et al., 1988a). Shin, Holden, and Schmidth (2001) identify knowledge location as highly relevant for a company's ability to effectively benefit from organizational knowledge. Challenges lie in how to e.g. develop systematic routines in which knowledge is captured throughout the organization and how to distinguish less valuable knowledge from valuable knowledge (Shin et al., 2001). If the firm fails in these areas, the gap between actual customer expectations and how managers perceive it is expected to increase (Zeithaml et al., 1988a).

There are four theoretical constructs that affect the size of the second gap and ultimately the level of service quality standards (Zeithaml et al., 1988a). *Management commitment to service quality* treats issues such as service quality resource commitment and how management recognizes quality commitment (Zeithaml et al., 1988a). Grönroos (2015) states that when quality is not highly prioritized among top managers, planning of quality specifications fail even if there is sufficient information available on customer processes and expectations. Empirical studies have been made to confirm the importance of top management commitment, see e.g. Sanjay and O'Shaughnessy (1998) and Ugboro and Obeng (2000). *Goal setting* is another construct that influences service quality specifications, since it has been found that formal goals related to service quality must exist in order to perform well within this area (Zeithaml et al., 1988a). Goals must be set so that the service providers, i.e. the employees, understand how the managers wish for them to deliver (Zeithaml et al., 1988a). Grönroos (2015, p. 132) emphasizes that "planning from the top without collaboration of those who actually produce the service should be avoided".

Task standardization concerns translating top management's perceptions of service quality expectations into service quality standards so as to manage employee behavior (Zeithaml

et al., 1988a). The level of standardization depends on the degree of customization, where routine tasks are easier to standardize (Zeithaml et al., 1988a). However, Zeithaml et al. (1988a) state that even services that are customized for each individual customer can be routinized to some degree. Although, Grönroos (2015) mentions that overly-rigid specifications may hinder employee flexibility, hence, it is important to involve both managers and service providers when determining specifications. Finally, *perception of feasibility* implies that in order to match service quality specifications with management perception, managers must find it feasible to meet customer expectations (Zeithaml et al., 1988a). Practically, this relates to e.g. organizational systems and capabilities to meet quality specifications, and the economical feasibility (Zeithaml et al., 1988a).

2.1.3. GAP 3: THE DELIVERY GAP

The service delivery gap causes improper service performance and has seven theoretical constructs which hinder or demotivate employees to perform (Zeithaml et al., 1988a). These are outlined by Zeithaml et al. (1988a) as *teamwork, employee-job fit, technology-job fit, perceived control, supervisory control systems, role conflict* and *role ambiguity*. *Teamwork* is to which extent employees and management are working together so as to reach a common goal (Zeithaml et al., 1988a). It may for example relate to which extent employees consider other employees as customers or how well they cooperate (Zeithaml et al., 1988a). *Employee-job fit* further highlights that careful matching should be made between employee and service specifications so that the employee is capable of performing accordingly (Zeithaml et al., 1988a). For example, Ahmad and Schroeder (2002) performed a study which showed that behavioral traits of employees heavily impact the success of quality management practices.

A low *technology-job fit* can also make employees incapable of performing well (Zeithaml et al., 1988a), since e.g. decision-making cannot be made successfully (Grönroos, 2015). The tools and technologies must be appropriate for the job (Zeithaml et al., 1988a), both in terms of how well they support the quality specifications and how extensive the employee training is (Grönroos, 2015). The *perceived control* is important for the performance of service employees since situations are perceived as less stressful if the experienced level of control is high (Zeithaml et al., 1988a). The perceived level of control can, among other things, relate to organizational rules and procedures as well as the corporate culture (Zeithaml et al., 1988a). *Supervisory control systems* must be carefully adapted so as to reward actions that increase the service performance (Grönroos, 2015). Bititci, Carrie, and McDevitt (1997) convey that it is critical for such systems to give emphasis to soft factors such as behaviour, culture and attitudes, as well as hard factors such as responsibilities and reporting structures. Grönroos (2015, p. 132) further adds that "in any organization where control and reward systems are decided upon separately from the planning of quality specifications, which is the case far too often, there is an inherent risk of a service delivery gap occurring".

Role conflict occurs when expectations on employees are contradicting and thereby create e.g. anxiety and job dissatisfaction (Zeithaml et al., 1988a). Zeithaml et al. (1988a) emphasize that since service providers are the link between company and customers, they must satisfy

the needs and wishes of both. To reduce the risk of role conflict, performance measurement systems can be used that take both internal efficiency goals and customer expectations into account (Zeithaml et al., 1988a). Lastly, *role ambiguity* takes place when service employees cannot perform accordingly since the necessary information is not in place (Zeithaml et al., 1988a). Grönroos (2015) adds that employee motivation is highly relevant for high-quality performance. Top-down communication must be frequent, accurate and with high quality to decrease the risk of role ambiguity (Zeithaml et al., 1988a).

2.1.4. Gap 4: The Communications Gap

The theoretical constructs of the fourth and final gap, which implies that promises given do not match the actual service delivery, are *horizontal communication* and *propensity to overpromise* (Zeithaml et al., 1988a). *Horizontal communication* coordinates employees so that overall organizational goals can be achieved by allowing lateral information to flow between and within departments (Zeithaml et al., 1988a). Such communication is necessary for making sure that the delivered service is consistent throughout the organization (Zeithaml et al., 1988a). This is according to Zeithaml et al. (1988a) especially true for customer-contact employees and the advertising department. Grönroos (2015) states that when the planning of market communication is not integrated with the service operations, overpromises are made. Systems must be in place that coordinate these two activities (Grönroos, 2015), and "every major campaign should be planned in collaboration with those involved in executing the service process" (Grönroos, 2015, p. 134). Zeithaml et al. (1988a, p. 45) further add that "if the company allows managers of individual branches significant autonomy in procedures and policies, consumers may not receive the same level of service quality across the branches". *Propensity to overpromise* corresponds to the fact that when firms feel pressured to be competitive on the market, they overpromise (Zeithaml et al., 1988a). To deal with this issue, the planning of marketing and sales tasks must be improved, e.g. through supervisory management (Grönroos, 2015).

2.2. Service Innovation

Challenges related to service quality is however not only to perform according to customer expectations and meet current needs, but also to be able to match future needs. Hallencreutz and Parmler (2019) for example, emphasize that it is crucial to understand how customer satisfaction evolves over time. Additionally, Vandermerwe and Rada (1988) explain that adding services to the product offering is perceived as a way to gain a competitive advantage. Therefore, service innovation becomes important (Baines & Lightfoot, 2013). Several authors, such as Bharadwaj et al. (1993) and Gray et al. (2007), emphasize that service innovation helps to improve the overall corporate performance. However, there exists only limited understanding of how service innovation occurs (D'Alvano & Hidalgo, 2011; Den Hertog et al., 2010; Gallouj & Djellal, 2010). Former lines of research on innovation have mainly been focused on product innovation, but Damanpour et al. (2009) stress that these do not well explain service inno-

vation. For example, D'Alvano and Hidalgo (2011) state that the challenges found in service innovation largely differ from the ones found in product innovation, which is a result from the intensive interaction with the customers. The aim with services is to meet and fulfill needs, as opposed to provide artefacts (D'Alvano & Hidalgo, 2011).

Gallouj and Djellal (2010) further outline the peculiarities of services. *Intangibility, non-stockability, co-production with clients,* and *heterogeneity* of services give service innovation different dynamics than product innovation (Gallouj & Djellal, 2010). Intangibility refers to the fact that a service "is identical in substance with those who produce it and with those who consume it" (Gallouj & Weinstein, 1997, p. 6). This further hinders it from being held in stock, resulting in non-stockability (Gallouj & Weinstein, 1997). The third peculiarity, the co-productivity of services, relates to how a service is a process between two actors (service provider and service consumer) rather than a given result (Gallouj & Weinstein, 1997). Finally, heterogeneity implies that the characteristics of services are continuously varying because of different customer needs and employees (Das & Canel, 2006). For example, the perceived quality of the service at a restaurant differs depending on e.g. level of hungriness or if there is a new employee or an experienced employee at the front-desk.

Due to these differences between product and service innovation, an increasing amount of research is focused on making a distinction between the two (Barras, 1986; Damanpour et al., 2009; Miles, 2008). For example, Den Hertog et al. (2010) propose that service innovations are new service experiences or service solutions that consist of one or more of the following six dimensions: new service concept, new value system or business partners, new customer interaction, new organizational or technological service delivery system, and new revenue model. Miles (2008) suggests that service innovations should be perceived as emergent, interactive, and dynamic, since services are conducted for individual clients under specific circumstances. They should also be considered as knowledge and information intensive due to the communication between the service provider and customer (Miles, 2008). Barras (1986) emphasizes the interactive nature of service innovations in that they originate and develop in synchronization with shifts in technologies, markets and industries.

Witell, Snyder, Gustafsson, Fombelle, and Kristensson (2016) highlight that the many perspectives on service innovation may create confusion. However, the authors suggest that the different perspectives on service innovation in their totality can help a company to understand how to succeed with their service innovations (Witell et al., 2016). The perspectives can explain the content and development of different types of service innovations, and thereby give directions to the firm on how to balance their innovation efforts (Witell et al., 2016).

2.3. DYNAMIC CAPABILITIES

Teece et al. (1997, p. 516) define dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments". Schoemaker, Heaton, and Teece (2018) explain that dynamic capabilities support the identification of new products and services, which could open new markets where rivals are

not yet active. Dynamic capabilities are those capabilities that help firms to create, deploy, and protect intangible assets that lead to long term competitiveness and greater business performance (Teece, 2007). In contrast, Schoemaker et al. (2018) explain that ordinary capabilities enable identification of process innovations in the company's current environment, for example develop effective marketing and efficient manufacturing. Thereby, dynamic capabilities are not all abilities a company possesses, but those relating to identifying and implementing new ideas as well as allowing firms to shape their environment (Teece, 2007).

Dynamic capabilities can be divided into three types of activities: *sensing, seizing* and *transforming* (Teece, 2007; Schoemaker et al., 2018; Kindström et al., 2012). Sensing change, opportunities and threats is the first category of dynamic capabilities (Teece, 2007). Schoemaker et al. (2018) explain that companies need to sense market changes before rivals do in order to take advantage of them. The second category involves seizing those opportunities realized by innovating and implementing new systems that take advantage of external changes (Schoemaker et al., 2018; Teece, 2007). Lastly, dynamic capabilities include the ability to transform (also known as reconfiguring) resources (Teece, 2007; Kindström et al., 2012). Schoemaker et al. (2018) describe that companies might need to reshape themselves and their ecosystem to gain full advantages of what has been sensed and seized.

To further make sense of the framework, Teece (2007) defined microfoundations as those skills, processes, procedures, organizational structures, decision rules, and disciplines that are the foundations of each dynamic capability. Microfoundations are difficult to develop and deploy because it is in the nature of dynamic capabilities to be difficult to replicate (Teece, 2007). But the microfoundations give a deeper understanding of what dynamic capabilities are by drilling down to a deeper level of detail (Kindström et al., 2012).

2.4. Dynamic Capabilities for Service Innovation

As mentioned, the supply of frameworks for managing service innovation has historically been limited (Den Hertog et al., 2010). Kindström et al. (2012), Janssen et al. (2016), and Den Hertog et al. (2010) among others, believe that the dynamic capabilities framework can be a useful tool for understanding service innovation. Den Hertog et al. (2010) explain that since the service innovation process is less tangible and interwoven with capabilities embedded in processes and routines throughout an organization, the dynamic capabilities framework is useful for understanding the process. Janssen et al. (2016) agree, referring to that the service characteristics explained by Gallouj and Djellal (2010) (intangibility, non-stockability, co-production with clients, and heterogeneity), can be suitably handled by the dynamic capabilities framework since the framework is focused on a process to source ideas and convert them into value propositions. However, Den Hertog et al. (2010), Janssen et al. (2016), and Kindström et al. (2012) point out that the microfoundations needed in a service context are not the same as those needed in a product context. The dynamic capabilities framework presented by, for example, Teece (2007), Schoemaker et al. (2018) and Teece et al. (1997) are product oriented. Kindström et al. (2012) argue that applying dynamic capabilities to service innovation does not require a modification of the overall framework, instead it is

the microfoundations that must be altered to the service context. The authors explain that an alteration of the microfoundations generates deeper insights and an analysis of the capabilities better adapted to service innovation.

Several researchers have merged the dynamic capabilities framework with service innovation. For example, the two concepts have been combined by Agarwal and Selen (2009) in a service value network context, by Fischer et al. (2010) in an explore/exploit context, by Raman and Bharadwaj (2016) in an agile services perspective, and by Den Hertog et al. (2010) who suggested six dynamic service innovation capabilities. Further, Kindström et al. (2012) proposed a dynamic capabilities framework adapted to service innovation based on eight manufacturing case companies, where several microfoundations were explained for each dynamic capability of sensing, seizing and transforming. The framework is more detailed than many others and is focused on manufacturing companies. Therefore, it is considered to be easier to apply to the context of this project. Below, the framework developed by Kindström et al. (2012) is explained more in depth by presenting the microfoundations within each dynamic capability. An overview of the microfoundations within sense, seize, and transform as explained by Kindström et al. (2012) are presented in Table 2.2.

Table 2.2: Microfoundations for each dynamic capability for service innovation as defined by Kindström, Kowalkowski, and Sandberg (2012)

	Dynamic capability		
	Sense	**Seize**	**Transform**
Microfoundations	• Customer-linked service sensing • Service system sensing • Internal service sensing • Technology exploration	• Service interactions • Managing the service delivery process • Structuring the service development process • Adopting new revenue mechanisms	• Orchestrating the service system • Balancing product- and service-innovation related assets • Creating service-oriented mental model

2.4.1. SENSE

Within the sensing capability, Kindström et al. (2012) present four microfoundations. Firstly, *customer-linked service sensing* is the ability to produce deep customer knowledge. The authors explain that this includes institutionalizing feedback loops and creating organizational roles, systems, and processes such that customer demands and needs are continuously understood and captured. As an example, Kindström et al. (2012) point out that firms could consult lead customers early in the development processes, co-develop services with customer and suppliers, and have intelligence-gathering processes that emphasize customer interaction. Den Hertog et al. (2010) agree that understanding customer needs is key, since companies are dependent on users for co-developing and co-producing new service propositions. Agarwal

and Selen (2009) also argue for the importance of customers as a source for innovation and co-developing. According to Kindström et al. (2012, p. 1067), the foremost question management must ask themselves are: "who interacts with the customer and how do we systematically capture and relay that information?".

The second microfoundation within sensing presented by Kindström et al. (2012) is *service system sensing*. This ability involves building up an understanding of the entire service system, including links to partners and suppliers, and creating network skills (Kindström et al., 2012). Den Hertog et al. (2010) agree with this, arguing that service innovators must be able to engage in alliances and networks. Kindström et al. (2012) explain that customers are not the only source for innovation opportunities, since service strategies could also include actors such as dealers and third-party service providers. Thereby, the authors argue that sensing efforts should be directed at these partners as well. Two key managerial questions presented by Kindström et al. (2012, p. 1067) are: 1) "who interacts with service partners and suppliers, and what lateral roles and processes do we have in place to capture this?"; and 2) "do we have service-dedicated roles and teams?".

Internal service sensing is the third microfoundation explained by Kindström et al. (2012). This entails building up internal sensing, for example opportunities related to the integration of products and services or detection of decentralized initiatives (Kindström et al., 2012). Agarwal and Selen (2009) also determine that important ideas can come from internal employees. Moreover, Kindström et al. (2012) explain that services can be invisible in financial statements and performance measurement systems because service provision is not managed in a structured and formal manner. The authors argue that this leads to little attention from management even though services might have a great impact on turnover, profitability, and sales. If a mapping of such semi-invisible services is conducted, it can generate a sense of value internally (Kindström et al., 2012). At one case company in the study conducted by Kindström et al. (2012), understanding that service sales lead to future product sales was a driving force for increased service orientation in the company. The key managerial question for this microfoundation is according to Kindström et al. (2012, p. 1067): "what interfaces do we have between central and local service units and between functions?".

Lastly, *technology exploration* is a microfoundation within the sensing capability (Kindström et al., 2012). This ability involves scanning and exploring new technology outside the service system, mainly relating to more radical technological changes (Kindström et al., 2012). All the eight case companies explored by Kindström et al. (2012) saw benefits arising from the adoption of new technologies, especially related to ICTs. Den Hertog et al. (2010) also mention sensing new technology as an important ability. Den Hertog et al. (2010) argue that technology sensing provides opportunities to adapt and innovate the service portfolio by, for example, finding new ways to communicate with customers, enriching service dialogues or finding new ways to customize services. An important managerial question identified by Kindström et al. (2012, p. 1067) is: "what new-to-industry technologies are emerging, from which we could derive service value in our specific context?". A summary of the microfoundation and relating managerial questions as suggested by Kindström et al. (2012) is presented in Table 2.3.

Table 2.3: Microfoundations and managerial questions for sense, adapted from Kindström, Kowalkowski, and Sandberg (2012)

Dynamic capability	Microfoundation	Managerial questions
Sense	Customer-linked service sensing	1. Who interacts with the customer and how do we systematically capture and relay that information?
	Service system sensing	1. Who interacts with service partners and suppliers, and what lateral roles and processes do we have in place to capture this? 2. Do we have service-dedicated roles and teams?
	Internal service sensing	1. What interfaces do we have between central and local service units and between functions?
	Technology exploration	1. What new-to-industry technologies are emerging, from which we could derive service value in our specific context?

2.4.2. SEIZE

Kindström et al. (2012) present four microfoundations as part of the seizing capability, the first one being *service interactions*. This ability involves interacting and co-developing with customers and partners such that value propositions can be understood, visualized, and delivered (Kindström et al., 2012). Kindström et al. (2012) argue that close interaction creates an ability to efficiently exploit opportunities that might arise. Further, the authors explain that this microfoundation requires processes, roles, and skills to interact and change together with customers. Den Hertog et al. (2010) claim that since service innovation is combinatory in nature, it implies that service providers must co-design and co-produce service innovation with their suppliers and partners. Two critical questions management should ask themselves identified by Kindström et al. (2012, p. 1067) are: 1) "what are we good at and what can we benefit from letting others do?"; and 2) "who owns the customer interface?".

Secondly, Kindström et al. (2012) present *managing the service delivery process* as a micro-foundation to the seizing capability. The authors describe this microfoundation as the ability to restructure internal and external resources rapidly for the delivery of new or improved services. Momme (2002) underlines the importance of being able to continuously, rapidly and efficiently change the organization, operations, customer segments etcetera, or else the firm will be unable to respond to internal and external conditions. Further, Kindström et al. (2012) argue that roles dedicated to services should exist at both an operational and a strategic level. This ability demands decisions to be made such as where should in-house service units

belong, e.g. headquarters vs. locally, and which services should be outsourced vs. conducted in-house (Kindström et al., 2012). Kindström et al. (2012) argue that well-managed provision of services today is the basis for efficient seizing of future opportunities. Kindström et al. (2012, p. 1067) present three questions management should ask themselves: 1) "who assumes the risk and the ultimate responsibility?"; 2) "do we or should we own our own service function?"; and 3) "what type of services should we perform in-house?".

Next, *structuring the service development process* is defined by Kindström et al. (2012) as a microfoundation. Kindström et al. (2012) explain that in many cases, companies develop services on an ad-hoc basis, often leading to customization that is unplanned and unprofitable. To avoid this, the service development process should be well-structured, but also flexible as the process develops (Kindström et al., 2012). Another issue identified by Kindström et al. (2012) is that companies apply a product development approach to service innovation, underestimating the impact of service-specific challenges and the difference between the two contexts. As previously mentioned, Gallouj and Djellal (2010) state that service innovation, compared to product innovation, is characterized by intangibility, non-stockability, co-production with clients, and heterogeneity. Therefore, it has been argued by, for example, Damanpour et al. (2009) and Miles (2008) that the service innovation processes should be dealt with differently than the product innovation process. Agreeing with this, Kindström et al. (2012) suggest that the service development approach might have to be separated from the product development approach. The critical managerial questions identified by Kindström et al. (2012, p. 1067) are: 1) "how should we develop services (e.g., milestones, gates, structure)?"; and 2) "what are the linkages to the product development process?".

The last microfoundation under the seizing capability explained by Kindström et al. (2012) is *adopting new revenue mechanisms*. Kindström et al. (2012) argue that for a company to fully seize a service innovation, they must be able to extract revenue from it. This includes the ability to visualize the value of new services for a wide set of actors in the service-delivery system such that possible revenue streams can be realized (Kindström et al., 2012). New revenue mechanisms based on availability, customer productivity or some other service value might be relevant (Kindström et al., 2012). Hallencreutz and Parmler (2019) indicate that an increasing amount of customer-satisfaction measurements are being deployed on the market, since they function as valuable indicators on future financial performance and thereby may help a firm to understand which services drive revenue and which do not. In the study conducted by Kindström et al. (2012) for example, two case companies based their earnings on the productivity their services lead to for the customers' organizations, and one case company based their revenues on the availability of their product. Three key managerial questions identified by Kindström et al. (2012, p. 1067) are: 1) "what value are customers interested in?"; 2) "how can we communicate our value?"; and 3) "what changes in the revenue streams can we introduce?". In Table 2.4, the microfoundations and managerial questions relevant for seizing according to Kindström et al. (2012) are presented.

Table 2.4: Microfoundations and managerial questions for seize, adapted from Kindström, Kowalkowski, and Sandberg (2012)

Dynamic capability	Microfoundation	Managerial questions
Seize	Service interactions	1. What are we good at and what can we benefit from letting others do? 2. Who owns the customer interface?
	Managing the service delivery process	1. Who assumes the risk and the ultimate responsibility? 2. Do we or should we own our own service function? 3. What type of services should we perform in-house?
	Structuring the service development process	1. How should we develop services (e.g., milestones, gates, structure)? 2. What are the linkages to the product development process?
	Adopting new revenue mechanisms	1. What value are customers interested in? 2. How can we communicate our value? 3. What changes in the revenue streams can we introduce?

2.4.3. TRANSFORM

Within the transforming capability, Kindström et al. (2012) identified three microfoundations, *orchestrating the service system* being the first one. Kindström et al. (2012) explain that this microfoundation includes the ability to manage and transform the service system, especially managing external actors who may have a great impact on the performance of a firm's services. Den Hertog et al. (2010) agree with the importance of this ability, explaining that managing service innovation across the individual firm and engaging in networks is key for being able to put a new service concept on the market. Firms must be able to manage and orchestrate the service coalitions they are in (Den Hertog et al., 2010). Wiesner and Thoben (2017) for example, emphasize that as firms become increasingly servitized, their supply chains will have to evolve from being fixed and linear into becoming new, flexible, dynamic and open business ecosystems that yield new economic opportunities. This concept is referred to as manufacturing service ecosystems (Wiesner & Thoben, 2017). Kindström et al. (2012) further explain that there is often a need to convince external and internal actors of the value of a service innovation. For example, one case company selling through dealers in the study conducted by Kindström et al. (2012) had to create incentive systems that benefited both the end-customer and the dealer when introducing performance-based systems. Moreover, orchestrating the service system requires the ability to extend the resource base into new markets and services, incorporate complementary services, and transform roles, center of

control and power in the service system (Kindström et al., 2012). This microfoundation closely relates to the first microfoundation presented under seize, service interactions (Kindström et al., 2012). The four critical questions identified by Kindström et al. (2012, p. 1068) are: 1) "what partners should we have?"; 2) "how much risk are we willing to take on?"; 3) "what roles and structures can we implement?"; and 4) "should we, for example, create new roles and teams focused purely on services?".

Secondly, Kindström et al. (2012) present *balancing product- and service-innovation related assets* as a microfoundation. The authors explain that this microfoundation requires the ability to maintain a balanced relationship between the service function and product function of an organization. Often, service-related activities and their demand is subordinate to product development (Kindström et al., 2012). In fact, a recent study performed by Hallencreutz and Parmler (2019) indicated that service quality substitutes product quality as a main driver for customer satisfaction, hence, "this finding should perhaps serve as a 'wake up call' for many organizations, focusing mainly on product characteristics and technology investments in the era of digitalisation, instead of servitization and customer relations" (Hallencreutz & Parmler, 2019, p. 7). Kindström et al. (2012) argue that companies should create formal roles designed for services at both an operational and a strategic level to deal with this issue. Two questions management should ask themselves are according to Kindström et al. (2012, p. 1068) are: 1) "how do we simultaneously encourage product and service development?"; and 2) "what new reward systems can we introduce?".

The last microfoundation for the transforming capability presented by Kindström et al. (2012) is *creating service-oriented mental model*, also referred to as a service logic. Kindström et al. (2012) explain that this is one of the most difficult and time-consuming elements of transforming, but it is crucial for long-term success and continuous service innovation. The authors explain that the microfoundation implies learning and a willingness and ability to unlearn obsolete routines, which in turn can lead to adoption of more effective behaviours. Other researchers have also brought up learning and adapting as a dynamic capability. For example, Den Hertog et al. (2010) argue that deliberate reflection and learning of the way service innovation is managed can be an important asset. Kindström et al. (2012) explain that the microfoundation requires the process of changing internal norms, values, and business logic towards a more service-oriented mindset. The critical managerial question identified by Kindström et al. (2012, p. 1068) is: "how do we change the mental model of a primarily production-oriented organization?". The microfoundations and associated managerial questions as presented by Kindström et al. (2012), are summarized in Table 2.5.

Table 2.5: Microfoundations and managerial questions for transform, adapted from Kindström, Kowalkowski, and Sandberg (2012)

Dynamic capability	Microfoundation	managerial questions
Transform	Orchestrating the service system	1. What partners should we have? 2. How much risk are we willing to take on? 3. What roles and structures can we implement? 4. Should we, for example, create new roles and teams focused purely on services?
	Balancing product- and service-innovation related assets	1. How do we simultaneously encourage product and service development? 2. What new reward systems can we introduce?
	Creating service-oriented mental model	1. How do we change the mental model of a primarily production-oriented organization?

2.5. SYNTHESIS OF THEORETICAL FRAMEWORK

The aim of this section is to compile a synthesis of the theoretical framework. The synthesis explains how the theory will be used in the analysis to answer the research questions of the study. The framework is based on two main models, however, more concepts from the theoretical framework will be used to support the analysis. The two main models were chosen because they were deemed to be relevant for the aim of the project. The service quality framework could be used to understand in what way the challenges experienced by the Service Centers hinder them from meeting customer needs and thereby cause customer dissatisfaction. The dynamic capabilities framework was chosen since it enables an understanding for the underlying reasons of lacking service quality. The framework aims to develop an organization capable of continuous service innovation which goes in line with the aim of the project.

The first and second research question will in many ways be answered in the empirical findings even though the analysis will contribute to a deeper understanding of them. The main focus of the analysis will however be to answer the third research question ("what capabilities should TruckCo's functions serving the aftermarket develop in order to match current and future service needs?") with the support of the theoretical framework.

First off, the five gaps model presented by Zeithaml et al. (1988a) will be used. In Chapter 4. Empirical Findings, current challenges are sorted into four categories. Namely, *back-end, Service Center, dealer* and *end-customer*. Challenges are arranged into the categories to show where they occur. To understand how the challenges affect the service quality, each challenge will be analyzed in relation to any possible gap. Thereby, an understanding of which gaps are most evident, and likely urgent, at TruckCo can be gained. A visualization of this is presented

in Figure 2.2. Thereafter, the individual gaps can be used to understand the fifth gap which represents the overall service quality. Hence, the challenges identified in the empirical study can be related to how they affect the current service level.

	Back-end challenges	Service Center challenges	Dealer challenges	End-customer challenges
Gap 1: The knowledge gap				
Gap 2: The standards gap				
Gap 3: The delivery gap				
Gap 4: The communications gap				

Figure 2.2: A framework for applying the four gaps introduced by Zeithaml, Berry, and Parasuraman (1988a) into TruckCo's aftermarket communication chain

The understanding of current challenges and gaps can give an idea of what needs to be improved at TruckCo. However, the third question concerns *how* this should be achieved by asking what capabilities must be developed. To answer this question, the model presented by Kindström et al. (2012) concerning dynamic capabilities for service innovation will be utilized. When challenges and gaps are analyzed, the dynamic capabilities for service innovation will be used as a way to explain the underlying reasons of the issues. Through realizing the underlying reasons that inhibit the service delivery today, what capabilities must be developed to improve the service delivery can be understood. The five gaps model and the dynamic capabilities for service innovation can in union explain what works well, what does not work well, and what must be changed to enhance the service quality in the future.

3. Methodology

In this chapter, the methodology for the study is presented. First, the research strategy and approach are described, followed by a brief outline of the research process. Thirdly, the research methods are presented. Thereafter, the research quality is evaluated including the process of data analysis, the study's trustworthiness and authenticity as well as the ethical aspects of the research.

3.1. Research Strategy and Approach

The research strategy can be either quantitative or qualitative (Bryman & Bell, 2011). In a qualitative study, the research is centered around the researchers' interpretation of the thoughts and experiences of the participants (Bryman & Bell, 2011). Kumar (2011) also mentions how a qualitative study aims at studying a situation with flexibility in order to be able to identify and describe diversity and variation to best ability. A quantitative study on the other hand, is focused on quantitative measurements and statistical analysis (Bryman & Bell, 2011). Due to the exploratory nature of the thesis, a qualitative strategy is more suitable than a quantitative, and was therefore deployed.

Bryman and Bell (2011) introduce the research approach as being either of a deductive or inductive nature. Bryman and Bell (2011) explain that an inductive approach focuses on the generation of theory, where concluding remarks can be drawn from interviews and observations in a social context. In contrast, a deductive approach starts from a hypothesis that is either confirmed or rejected from theory and data collection, which is why it is usually referred to as a method that tests theory (Bryman & Bell, 2011). Bryman and Bell (2011) state that an inductive approach is often used for a qualitative study whereas a deductive approach is most frequently used for a quantitative study. Although, in practice a combination of the two is often employed (Bryman & Bell, 2011). Such an approach is called abductive and was used for this project. It is based on an iterative approach on collecting information from literature and empirical studies (Bryman & Bell, 2011).

3.2. Research Process

The research process followed an iterative rather than a linear approach. Dubois and Gadde (2002) emphasize that a change of the research scope's direction is common, and for that reason the process cannot be linear. It is also described by Bryman and Bell (2011) that an inductive approach can be iterative, where earlier theory and new findings from data are continuously combined. The different stages of the process for this specific thesis are: *the pilot phase, the execution phase* and *the compilation phase*, as is seen in Figure 3.1. In this section, the process will be generally described concerning the aim and content of each step. In Chapter 3.3, a more detailed description follows.
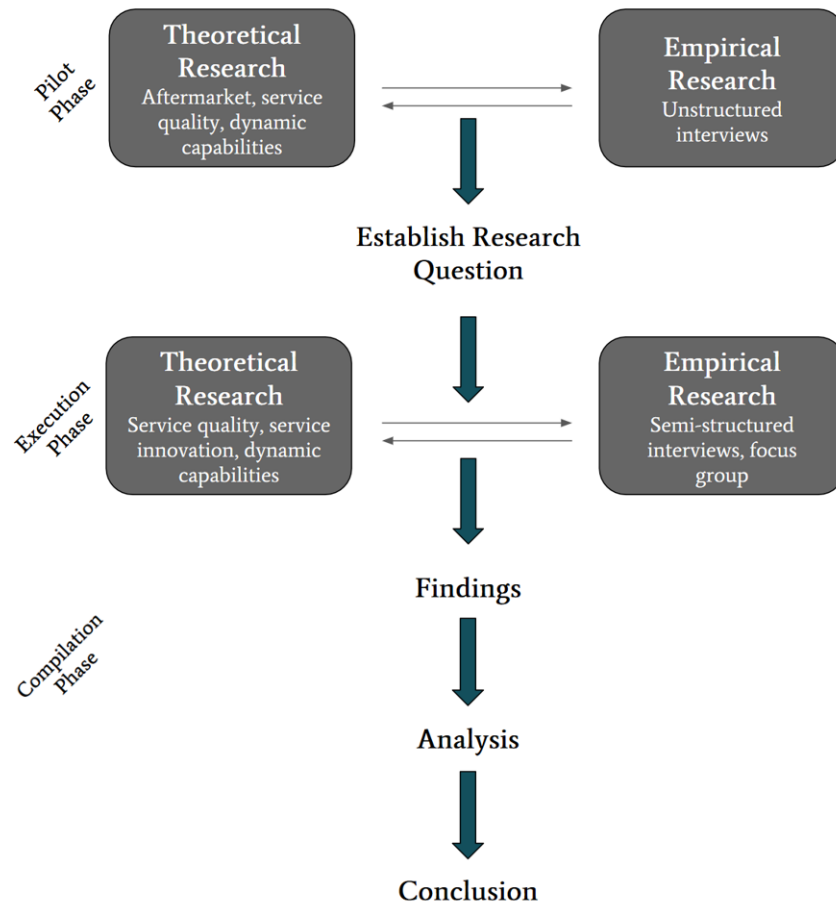
Figure 3.1: Research process

During the pilot phase, the main focus was to gain a deeper understanding of the field of research and the research problem. By combining theory and empirical findings, the research questions could be established. A first round of unstructured interviews with key personnel at TruckCo was performed. They provided insights to the company structure and a varied set of problems. A study visit was made at a TruckCo warehouse in Europe, since it has a key role in the aftermarket service offering. At the warehouse, interviews were performed with TruckCo personnel, and observations of the processes that are part of the aftermarket function were made. An initial literature study was also made on the research subject and later formed the basis for the theoretical framework as was presented in Chapter 2.

In the execution phase, the main data collection commenced. It consisted of two central pillars: a more in-depth literature study and an empirical study which in turn consisted of semi-structured interviews and a focus group session. The literature study started from the theory that had been compiled during the pilot phase, and evolved as more knowledge was collected through the empirical study. The new insights provided guidance for other

theoretical areas to look into such as service innovation. The interviews were held with both internal TruckCo personnel and external people who are experts on topics related to the subject at hand. The information collected was used to write a first draft of the findings in the final report. Another activity was that the researchers shadowed a Service Center employee in Sweden while she was working. This was done in order to understand the process and observe how she solved different cases. While she worked, she explained thoroughly what she was doing, and the researchers could continuously ask questions to get a clear picture. A study visit was also made at a TruckCo dealer to be able to get his view on the performance of the Service Centers. The focus group conducted was held with personnel at TruckCo to validate, discuss, and give further input on the findings. Finally, the compilation phase began, during which the findings, analysis and conclusions were compiled.

3.3. Research Methods

The data collection in the project contained a qualitative study and a literature study. The method of conducting these will be explained below, including information about the interviewees, number of interviews, length and similar, as well as how the literature study was performed.

3.3.1. Qualitative Study

The qualitative study consisted of both primary and secondary data. Primary data is collected solely for the purpose of the reserach at hand (Eriksson & Wiedersheim-Paul, 2008), and entailed face-to-face and video interviews with TruckCo personnel and external individuals as well as a focus group. Secondary data is not created for the purpose of the study (Eriksson & Wiedersheim-Paul, 2008), and was e.g. company documents from previous projects concerning the Service Centers that supported the findings of the primary data.

The interview process was iterative. During the pilot phase, a first round of interviews (n=13) was performed with key personnel to provide the researchers with more knowledge of the current situation in the Service Centers. The questions were open-ended due to the exploratory nature of the thesis and since such questions encourage the interviewees to share more rather than less on the subject (Flick, 2014). Something which according to Flick (2014) enables the researcher to better understand contextual regards, such as work culture or similar. In Appendix A, an interview template is presented. The company supervisors were responsible for identifying the interviewees since they possessed the knowledge as to who were the most relevant for the study. The interviews were either face-to-face or via video-call, depending on the geographical location of the interviewee. The interviews in the pilot phase are presented in Table 3.1 with information on the interviewees' positions, field of work and length of interview.

Table 3.1: List of TruckCo employees who were interviewed during the pilot phase.

Job Title	Field of Work	Length
Business Logistics Manager	Manages the dealer contact from a sales perspective and performs strategic improvement projects for the aftermarket	1 hr 25 min
Customer Satisfaction Manager	Conducts and analyzes the annual dealer satisfaction survey	45 min
Manager Supply & Distribution	Previous experience from a distribution center abroad and its adjacent Service Center	45 min
Head of Innovations & Concepts	Manages innovation projects for the aftermarket	35 min
Manager Service Center Nordic	Manages the Northern Service Center in terms of performance, improvement projects and similar	1 hr 5 min
Manager Service Center Int. & Disc.	Manages an international Service Center and a discrepancy team handling requests from dealers concerning e.g. transport follow-up or financial checks	40 min
Process & IT Manger	Acting manager for Service Centers in Europe, working strategically with e.g. improvement projects	35 min
Manager Shipping	Responsible for the planning and execution of shipping from the central warehouse	40 min
Business Process Developer	Improves processes concerning export and transport of parts on the aftermarket	45 min
Acting Manager Customs	Focuses on customs, trade and customer compliance	30 min
Business Analyst Warehouse	Developing a corporate management system focusing on e.g. best practice and customer loyalty	45 min
Group Leader Delivery & Planning	Works on improvement projects in the central warehouse to minimize deviations in lead time and has previous experience as a Service Center employee	40 min
Manager Transport Parts Management	Solves recurring issues in transportation of parts from the central warehouse and performs quality checks on carriers	35 min

After five weeks, the researchers experienced a sense of saturation, meaning that little new knowledge was gained from the interviews using the current interview template. Therefore, the execution phase was commenced. During the execution phase, a second round of inter-

views (n=12) was performed for a period of seven weeks. The interviews were held when the interviewees were available, hence, the period in-between interviews were spent reflecting on the findings so far, refining the interview design and reading additional literature so as to continuously improve the knowledge of the field of research.

The interviews were semi-structured, with the aim of providing the researchers with more in-depth information. Semi-structured interviews use both open and closed questions, which gave the researchers a more flexible approach to the interview since the format mimics a real conversation while maintaining a structure (Hague, 1998). It makes the information collection process both qualitatively and quantitatively easier (Hague, 1998). The interview questions were inspired by the interview templates suggested in Kindström et al. (2012) and Janssen et al. (2016), as well as the findings from the pilot-phase interviews. In Appendix B, the interview template is presented. The interviews were conducted with people from several backgrounds so as to get several perspectives on the research area. Personnel at different organizational levels in TruckCo and dealers who were suggested from the company supervisors, and experts from academia who were suggested by the university supervisor or identified by the researchers themselves constituted the interview objects. They were performed either via face-to-face communication or video-call. The internal and external interviewees are presented in Tables 3.2 and 3.3 respectively.

Table 3.2: List of TruckCo employees who were interviewed during the execution phase.

Job Title	Field of Work	Length
Service Center Employee	Service Center employee managing e.g. ETA communication to and requests from dealers	45 min
Manager Service Center EU	Manages a European Service Centers in terms of performance, improvement projects and similar	45 min
Manager Back-order Recovery	Manages the back-order team that handles VORs that cannot be solved by Service Centers	55 min
Senior Excellence Manager	Distributes best practice processes in the aftermarket	35 min
Director Order and Distribution	Manages the order and distribution process in the aftermarket from an end to end-perspective seeing to e.g. logistic decisions, returns etc.	30 min
Manager Service Center Nordic	Manages the Northern Service Center in terms of performance, improvement projects and similar (2nd interview)	30 min

Table 3.3: List of external people who were interviewed during the execution phase.

Job Title	Area of Expertise	Length
Doctoral student	Organizational implications of servitization and digitalization	50 min
CEO at a market research company	Drivers for customer satisfaction	50 min
Professor in psychology	Customer experiences, change management, and service innovation	50 min
Professor in industrial marketing	Service growth strategies, service innovation, the interplay between digitization and servitization, dynamic capabilities	20 min
Aftermarket solutions analyst and industrial doctoral student	Servitization and solutions in business networks in an aftermarket context concerning improving maintenance, uptime and productivity in road transport industry networks	45 min
Head of Digital Business Development at a postal and logistics company	Works with innovation within the e-commerce sector for both the consumer and commercial market	25 min

Neither the pilot phase nor execution phase interviews were transliterated. However, notes were taken during the interviews and after each interview, a conclusion was written by the researchers of interesting remarks and takeaways. Additionally, each interview was recorded with the permission of the interviewee. Bryman and Bell (2011) emphasize that interview recordings help in the verification of ensuring that the interviewee is interpreted correctly. Parts of the recordings were later listened to by the researchers such that direct quotes could be noted and used in the report.

At the end of the execution phase, a focus group was held with three people. Two of them had previously participated in the study, and one of them was new to the project. In Table 3.4, the participants and their field of work is presented. Hague (1998) mentions how focus groups can deliver qualitative data with detailed descriptions, where questions are presented to the group so that the subject is covered from all points of view. Knodel (1993) explain that focus groups can give researchers an insight into a range of opinions and an understanding of why they get these responses. Hague (1998) argue that focus groups are ideal for testing concepts, which is why a focus group was considered to be a suitable method to test the findings that had been compiled by the researchers so far. The participants worked within different functions and at different organizational levels in TruckCo, hence, they could provide several perspectives on the issues at hand.

Table 3.4: Focus group participants

Job Title	Field of Work
Service Center Employee	Service Center employee managing e.g. ETA communication to and requests from dealers
Senior Excellence Manager Warehouse Specialist	Manager of two warehouses and a Service Center in Central and Eastern Europe
Director Order and Distribution	Manages the order and distribution process in the aftermarket from an end to end-perspective seeing to e.g. logistic decisions, returns etc.

The focus group session lasted for 90 minutes and consisted of two main sessions. In Appendix C, the agenda for the focus group is presented. The first session aimed at validating the current challenges at the Service Centers that had been found by the researchers up to that point. The participants were encouraged to share their thoughts by, for example, reformulating the challenges or giving suggestions on other challenges that had not been presented. The second session aimed at evaluating future potential directions. A list of potential directions that could improve the service delivered had been compiled by the researchers and sent out to the focus group participants in advance. The improvement ideas were based on both internal and external interviews and the ideas the interviewees came up with. During the session, the participants were instructed to group several improvement ideas that had been compiled by the researchers from the interviews, and place them in an impact and feasibility matrix. The matrix consisted of a x- and y-axis ranging from zero to seven in order to facilitate the grouping process for the participants, and it is presented in Appendix D. Arguments for each improvement idea's placement in the matrix were written upon post it-notes. This matrix could later be used as a basis for section 4.4, Potential Directions in the empirical findings. The researchers participated actively in both the first and second session by e.g. asking the participants to elaborate more on a certain statement or giving their own views on a certain discussion point. The reason for this being that the researchers could share insights that had been gained during the research process.

For a focus group to generate in-depth qualitative results, Knodel (1993) discuss several policies to follow. The author states that guidelines should be kept brief such that the objective of an in-depth examination of concepts covered can be achieved. To comply with this, the agenda of the focus group was only overarching, allowing the details of what was to be discussed to be influenced by the participants. Further, when discussing potential directions for improving the service, e.g. offering information via phone applications, the participants were only given a short introduction to each concept. Thereby, the positive and negative aspects of each concept was determined by the participants and not the researchers. Knodel (1993) also point out that researchers should clarify that they want to hear different opinions, so that failure to disagree is not mistaken for actual consensus. To ensure this, the researchers introduced the focus group as an opportunity for them to gain new insights and explained that each opinion was

of value and that achieving consensus was not necessary. When analyzing focus group data, Knodel (1993) argue that interpretation of results should be conducted independently by each researcher. To thereafter compare results and discuss potential disagreement will generate greater reliability of the results (Knodel, 1993). Complying with this idea, the researchers individually analyzed findings from the focus group and then compared the conclusions. The results were also validated by one of the TruckCo supervisors who was unable to attend the focus group. The supervisor looked over the placement of each concept and the arguments for it. The supervisor agreed with most placements and could give additional arguments. However, the supervisor argued that the concept *internal SLAs* should be moved which is was after consolidation with the second TruckCo supervisor.

3.3.2. Literature Study

The literature study was similarly divided into two blocks; pilot and execution. The piloting research study aimed at collecting enough information to understand the basic research field and problem. Searches were made on Google Scholar and Chalmers library search using keywords such as *aftermarket, service quality* and *dynamic capabilities*. During the execution phase, more in-depth literature searches were made based on the findings from the research process so far. For instance, the expert interviews provided insights into other research areas that up to that point had not been looked into by the researchers. Keywords used during the literature searches were for example *service innovation, aftermarket service quality, dynamic capabilities service innovation, servitization* and *service ecosystem*. So called snowball sampling was used, which is a method where a reference leads on to additional references (Bryman & Bell, 2011). That is, new references can be found through the identification of an initial reference (Lewis-Beck, Bryman, & Futing-Liao, 2004).

3.4. Research Quality

Bryman and Bell (2011) emphasize the importance of evaluating the quality of a research process. To ensure the validity and reliability of the research that has been performed in this project, several methods have been used. First, the method for analyzing data will be presented. Second, the data analysis will be evaluated together with the overall trustworthiness and authenticity of the research. Thirdly, ethical aspects of the research will be presented.

3.4.1. Data Analysis

Coding and analyzing qualitative data is not a straightforward task, as stated by Bryman and Bell (2011). Well-established and accepted rules for qualitative data analysis are lacking, hence, the researcher "must guard against being captivated by the richness of the data collected, so that there is a failure to give the data wider significance for the business and management community" (Bryman & Bell, 2011, p. 571). It is however clear that in practice, the process of analyzing data is more often than not of an iterative nature, meaning data collection and data

analysis is a simultaneous business. This was also true for this project, where the researchers continuously altered between collecting data (as presented in the previous chapter) and analyzing data.

Although the data collection has been informed and structured in accordance to previous research, the method used for analyzing the data was inspired by the so called *grounded theory*. It is a well-known approach for coding qualitative data, even though it is often adapted to the specific research situation (Bryman & Bell, 2011). In Figure 3.2, the grounded theory process is visualized as it was adapted for this project. During the pilot phase, steps one to four were performed in accordance with the inductive approach as was presented in Chapter 3.1, and is indicated by the double arrows. During the coding process in step four, the data was deciphered into component parts (called concepts), and could be all types of issues that were found. After each interview, a conclusion was written (as was explained in Chapter 3.3.1) where all concepts found were highlighted using bold font. It could for example be "traceability is lacking".
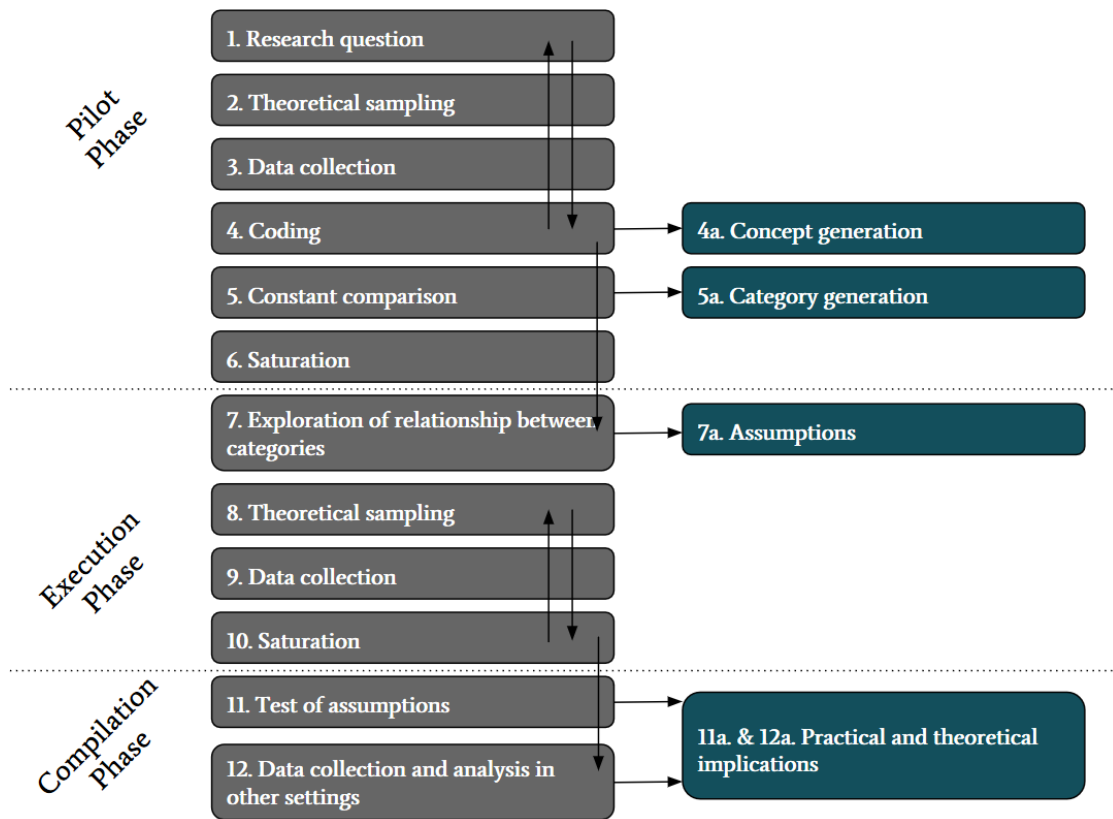

Figure 3.2: The process for grounded theory adapted from Bryman and Bell (2011)

As more data was collected, step five was commenced where the concepts were compared and compiled into different categories. However, only the most critical concepts where translated

into categories since it was important that they were inside the scope of the project. Both the academic supervisor and the company supervisors helped in the process of creating categories by providing feedback and guidance. The focus group also functioned as a validating process of the categories. Further, the category compilation was dynamic since new insights were gathered from the ongoing interviewing process. As the sixth step was reached, the researchers experienced saturation, meaning that "you reach a point where there is no further point in reviewing your data to see how well they fit with your concepts and categories" (Bryman & Bell, 2011, p. 577). An example of a category is "back-end communication", which contained (among others) the concept of "traceability is lacking" as was mentioned above.

With the initiation of step seven, the pilot phase was completed and the execution phase began. Moving from the categories and their respective concepts, the researchers formed several assumptions about the relationships between the categories. For example, "back-end communication" heavily affected the outcome of another category called "problems are recurring", and a hypothesis was formed stating "TruckCo has many good ideas for service improvements, but have limited capabilities to go through with them". Other assumptions were also formed. These helped the researchers to establish a direction for the second round of data collection during which a new interviewing template was used. Steps eight and nine were performed where new concepts were added to the categories, and the categories themselves were updated. For example, several interviewees shared improvement ideas for the Service Centers that could be compiled into new categories. These were in turn addressed during the focus group session. Finally, saturation was reached, which in this case means that "once a concept or category has been developed, you may wish to continue collecting data to determine its nature and operation but then reach a point where new data are no longer illuminating the concept" (Bryman & Bell, 2011, p. 577).

Steps eleven and twelve formed the compilation phase of the research process. When saturation had been reached, a case specific analysis could be developed from the updated categories (see Chapter 5). By also having performed external interviews with e.g. people from academia and other industries, the researchers could generate practical and theoretical implications. These implications are not first and foremost related to the research area at hand, but apply to other areas as well and contribute to existing theory. These are presented in the discussion (see Chapter 6).

To ensure quality of the research, Bryman and Bell (2011) introduce two criteria for evaluating a qualitative study in terms of its validity and reliability. Namely, *trustworthiness* and *authenticity*. Each criteria will be explained below with practical examples from the research process on how measures have been taken to fulfill the criterion in question.

3.4.2. TRUSTWORTHINESS

The degree of trustworthiness of a study depends on the four criteria *credibility, transferability, dependability* and *confirmability* (Bryman & Bell, 2011). Credibility implies how believable a study is and it can be controlled via two techniques, *respondent validation* and *triangulation*

(Bryman & Bell, 2011). Respondent validation was used continuously during the research process. Weekly meetings were held with the company supervisors who could provide feedback on the findings and conclusions made by the researchers. Additionally, during the focus group, the participants were able to provide feedback and contribute to the validation of the findings. This was especially beneficial since the majority of the focus group participants had been interviewed previously during the study, and thereby could validate that their individual accounts had been interpreted correctly. A mid-term presentation was also held with other master thesis students at TruckCo and their TruckCo supervisors, who could give feedback and suggestions for improvement on the method used and the findings compiled so far.

Triangulation was utilized, meaning that multiple approaches were used to collect data (Salkind, 2010). Interviews, company documents and a focus group were used in combination throughout the thesis period. The interviews were performed on several levels of the organization in order to make sure that several perspectives were given on a specific issue. Bryman and Bell (2011) emphasize that triangulation is a way of cross-checking data. For example, a Service Center challenge was deemed to have more reliability if it was mentioned by both a manager working at a strategic level as well as an employee working at an operational level in the Service Center. Likewise, experts and scientists who themselves had performed case studies using similar theoretical frameworks as was used in this study were interviewed and encouraged to give feedback on the findings, which gave credibility to the study.

Transferability refers to a studies applicability to other contexts than the field of study (Bryman & Bell, 2011). Bryman and Bell (2011) encourage researchers to provide detailed descriptions of the culture under study, which in turn makes it possible for others to make judgements of the studies applicability to findings in other contexts. Therefore, the researchers were careful to provide rich descriptions of the study's settings. For example, by giving clear accounts to the current communication process combined with TruckCo's aftermarket overall objectives for operational improvement, as is found in Chapters 4.2 and 4.1 respectively. Further, the external interviews provided insights into a business to consumer, hereafter referred to as B2C, setting by e.g. giving examples of service innovations occurring within this area and translating them into a business to business, hereafter referred to as B2B, setting. Therefore, the findings in the project are in some instances transferable to a B2C-context. A mid-term presentation was also held at the university with two other pairs of master thesis students, who could provide input on the project from another point of view. This later proved to be beneficial for the development of a formal theory, as is mentioned in Chapter 3.4.1 and presented in Chapter 6.

A study's dependability depends on its auditing approach (Bryman & Bell, 2011). It entails that the researchers should keep clear records of all phases during the research process (Bryman & Bell, 2011). From the beginning of the study, the researchers kept records using a logbook. It contains information on e.g. when and with whom the interviews were performed. All interviews were recorded so that the researchers were able to go back an re-listen to certain parts that were of interest, and conclusive notes were taken after each interview. This process also helped with the confirmability of the study, since the possibility to return to the collected data allowed the researchers to maintain an objectiveness of what had actually been said. Further, the findings from the interviews could be confirmed when the researchers shadowed

a Service Center employee and could observe her way of work, as well as when a study visit was made to a TruckCo dealer and a TruckCo warehouse was visited.

3.4.3. AUTHENTICITY

Authenticity concerns several aspects, namely *fairness, educative authenticity, ontological authenticity, tactical authenticity* and *catalytic authenticity* (Bryman & Bell, 2011). According to Bryman and Bell (2011) the criteria address the issues concerning the broader political impact. Fairness implies that "the research fairly represent different viewpoints among members of the social setting" (Bryman & Bell, 2011, p. 398). Since the majority of the interview suggestions were given from the TruckCo supervisors, there is a risk of bias. However, when seeing to the fact that the interviewees were located at different levels and sites of the company and were working within different areas, the risk of bias was deemed to be low. Also, external interviews were performed with people outside TruckCo who could provide new viewpoints on the issue at hand.

Educative authenticity concerns if "the research help members to appreciate better the perspectives of others" (Bryman & Bell, 2011, p. 399). The criteria was fulfilled when seeing to the fact that several people from different settings were involved in the project. That is, the project may provide new insights for the participants because other perspectives than their own will have been addressed and elaborated on. For instance, managers at TruckCo may better appreciate the challenges faced by the Service Center employees, and vice versa. Further, ontological authenticity implies that "the research help members to arrive at a better understanding of their social milieu" (Bryman & Bell, 2011, p. 399). This is true for similar reasons as presented in the previous criteria. For example, the research addresses the organizational culture at TruckCo and can therefore generate new insights for TruckCo employees. Finally, tactical authenticity and catalytic authenticity refer to if the research "empowered members to take the steps necessary for engaging in action", respectively "acted as an impetus to members to engage in action to change their circumstances" (Bryman & Bell, 2011, p. 399). Since the project provides suggestions on future ideas and concepts as well as development areas in terms of organizational capabilities, it can act as a springboard for TruckCo when they decide to take action.

3.4.4. ETHICS

Bryman and Bell (2011) describes four primary ethical principles: *harm to participants, lack of informed consent, invasion of privacy* and *deception*. During the project, ethical principles were considered for both individuals and TruckCo as a company. Interview objects are kept anonymous. Their position and work role is described since it was deemed to bring an understanding to their input. But names and other detailed information were kept anonymous both from the university supervisor and in this report. In advance of an interview (both internal or external) the interviewee was asked if they approved of the interview to be recorded in order to ensure that there was consent. The recordings were only listened to by the researchers.

Further, the goal of the project was always disclosed such that there was no deception. To ensure that no sensitive information was released, supervisors at TruckCo were asked to review the information before it was disclosed. To ensure protection of data, only that which was deemed relevant for this specific project was included in the final report.

4. Empirical Findings

This chapter presents the findings from the empirical study. They are based on the information given from the interviews and focus group, as well as internal documents provided by TruckCo. First, TruckCo's objectives for operational improvement for 2019 are presented. The objectives can give an understanding of the importance of the Service Centers' performance improvement. Second, the current communication process between different stakeholders is described as well as the current means of managing service innovation. An outline of the current challenges identified that relate to the Service Centers and their work follows. Thereafter, potential directions for the Service Centers are given in terms of concepts and ideas, which in turn are ranked in an impact and feasibility matrix.

4.1. Objectives for Operational Improvement

TruckCo has set two main objectives for the aftermarket operational focus for 2019: *uptime* and *cooperation*. The aim is to improve these two factors over the whole aftermarket organization, including the Service Centers. Uptime concerns the fact that trucks should have a minimal amount of time when they are not operational. To achieve this, TruckCo wishes to have minimal back-order aging, meaning that back-orders should be solved quickly. Further, estimated time of arrival (ETA) for components should always be given, and the outbound delivery precision should be perfect. To achieve these goals, the Service Centers play a critical role. The function deals with solving back-orders and giving ETAs, so improving these measures overall in the organization requires Service Centers to improve their performance. TruckCo believes that for the goals to be achieved over the whole aftermarket, many functions within and outside TruckCo must cooperate. For example, internal functions such as procurement and transportation, and external actors such as carriers and dealers. Through cooperation, TruckCo believes that the performance of the aftermarket can be better understood and ultimately improved. Increasing speed, eliminating waste, better coping with volume fluctuations, investing in people development, and preparing for future technologies are seen as key factors here.

The aim of cooperation concerns collaboration between both internal and external stakeholders. Firstly, the goal is for employees to enjoy working in their teams. Moreover, Service Level Agreements (SLAs) should be built with key stakeholders, and cooperation between international functions and the cross-functional cooperation should be further developed. One of TruckCo's customer commitments is *a warm welcome*, meaning that customers should always be met in a polite and professional manner. Having cooperation as an objective for the aftermarket and a warm welcome as one of the customer commitments is noticeable in the Service Centers. Both internal and external interviewees described the employees at the Service Centers as engaged and friendly, already living up to the objective set. Yet, there is potential for improvement within this area. Both managers and an employee at a Service Center acknowledged that the team spirit is good, even though the workload can be stressful.

In conclusion, it is the uptime goal that is the most critical to improve from a Service Center perspective.

4.2. CURRENT PROCESS

In this section, the process from a truck owner having a problem to it being solved will be explained. The process can be quite complex and take many possible directions depending on the issue at hand. For the aim of this report, it is not necessary to outline all details of what could occur. Instead, the general process will be explained. In Figure 4.1, a visualization of the process is depicted. In the report, the process is referred to as *the aftermarket communication chain*. When this term is used it does not refer to all activities in the aftermarket, rather it indicates the chain that the Service Center is a part of.
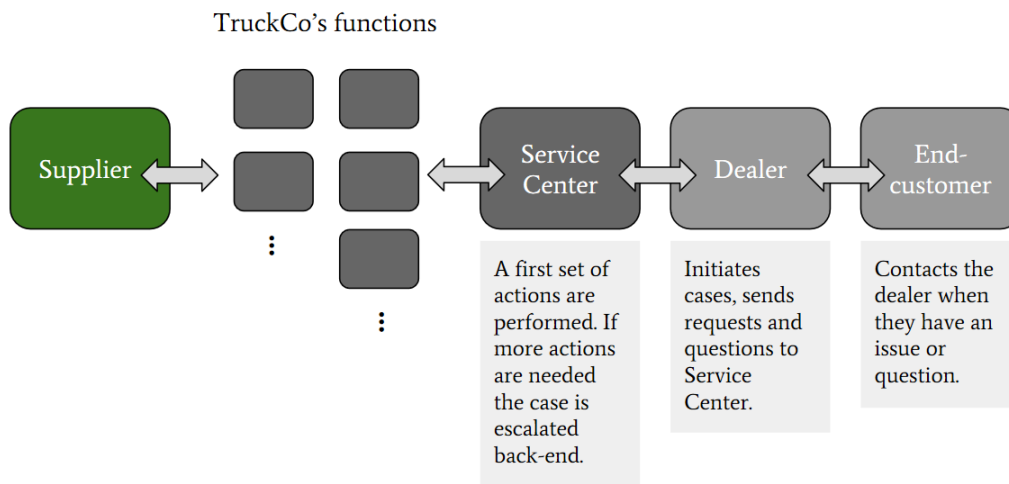
Figure 4.1: An overview of the process of solving customer issues in TruckCo's aftermarket communication chain

TruckCo has an agreement with their dealers where TruckCo is responsible for storage replenishment at the dealer. A concept called Vendor Managed Inventory (VMI). The bulk of the spare parts distribution from TruckCo to dealer are controlled through the VMI-process. Dealers have standard spare parts at their sites and the technical knowledge required to perform maintenance, which means that many problems can be solved directly. This is especially true for planned maintenance where dealers know in advance which components they require. However, there is an enormous set of spare parts, as is the general case for the aftermarket, and not all parts can be readily available at the dealer. This report deals with cases that are out of the ordinary, hence, the VMI-process is not explained further and the focus is put on those out of the ordinary cases.

The process starts when a truck owner has a problem, such as a minor or major break down. The point of contact for a truck owner is a dealer. If the dealer cannot solve the problem

directly, they will in turn contact TruckCo. The relationship on the aftermarket between end-customer, dealer and TruckCo is more or less linear. The employees at TruckCo that were interviewed said that they had no contact with the end-customer and rather saw the dealer as their customer. Moreover, TruckCo receives limited feedback directly from end-customers, instead they must rely on the dealer's feedback representing both end-customer and dealer needs. Further, TruckCo does not control the service performance of the dealer and therefore have limited insight into the actual service delivered by the dealer. It was however mentioned by interviewees that the relationship with the dealer is good and they trust their expertise. Hence, the dealer is a middleman with a lot of power and an actor that TruckCo has confidence in.

The reason for a dealer contacting TruckCo could be that the they require spare parts, but it could also stem from the dealer or end-customer having questions about price, returns, availability, delivery time of already placed orders etcetera. Regarding spare parts, if they are available at the regional distribution center (DC) that supports that dealer or at the central distribution center (CDC) in Europe, the dealer can place an order directly. If not, they contact their appointed Service Center, which depends on the dealer's geographical location. Other questions, concerning e.g. price or availability, are also directed towards their Service Center.

The dealer contacts the Service Center via an online system, here referred to as Epsilon. One TruckCo employee explained that Epsilon is more of an advanced email-system. Epsilon does not update any systems or do anything beyond being a means of communication. In Epsilon, the dealer creates a case where they enter information about the issue at hand. Depending on the problem type, more information is asked for such as vehicle type or urgency of the case. The most urgent case type is called vehicle off road (VOR) which occurs when the end-customer is unable to use the truck. The most common type of case that the Service Centers deal with is VOR. For one Service Center, 35% of the cases were VORs during the first three months of 2019. There is a VOR policy in place at TruckCo which states when a breakdown can be deemed to be a VOR. However, for each individual case it is the dealer that makes the judgement regarding which cases are VORs, following the VOR policy. A truck that is not running costs a lot of money for the end-customer, hence, the VOR cases are given more resources than regular cases by TruckCo. Another type of order that a dealer can place is a so called day order. This order type is not given the same priority as a VOR case in terms of resource usage, yet it is still classified as an urgent order.

In Europe there are several Service Centers, each receiving hundreds of cases each week. A Service Center typically has five to ten employees and serve several countries each. There are five general types of cases: *before order, order entry, follow-up order, order at dealer* and *back-order*. Examples of each type are described in Figure 4.2. Depending on the urgency of the case, the Service Center must respond within a certain time frame set by a SLA. For example, Service Centers must give some update on a VOR case within two hours.

To solve cases, Service Centers can take several actions. Apart from Epsilon, they have access to internal documents and online systems which can provide useful information, such as availability of a component at other regional DCs or dealers. If a component is available, they can order a delivery to the specific dealer that requires the part. Thereby, they have ways to

Before order
E.g. for requests on lead time or availability of an article, procurement are contacted.

Order entry
E.g. for requests on exports, export control are contacted to check the dealer's credit limit.

Follow-up order
E.g. for requests regarding the whereabouts of an order, transport management, shipping or DC outbound are contacted.

Order at dealer
E.g. for delivery feedback, the DC quality team are contacted, and for requests on discrepancies the discrepancies team are contacted.

Back-order
When parts cannot be found for a VOR, plants, other DCs, or dealers are contacted. Or the BOR team takes over the case.

Depending on the request, the Service Center can take actions alone or get support from back-end functions. If the case remains unsolved, the case is escalated further back-end to a function with more mandate. For example, the back-order-recovery team or procurement. However, the Service Center always has responsibility for the direct communication with the dealer.
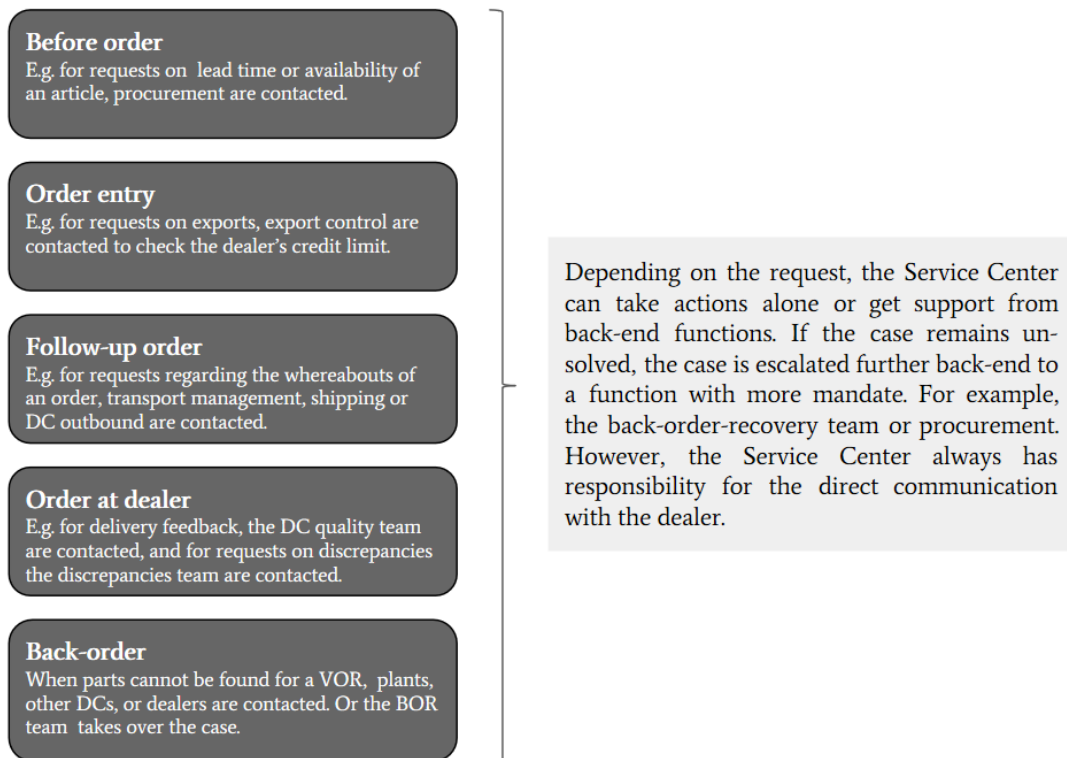
Figure 4.2: A description of cases that may be assigned to Service Centers

directly solve cases. Service Centers can also contact back-end functions in TruckCo to get support on cases. The support mainly consists of Service Centers getting information, but could also include e.g. back-end personnel manually checking inventory levels. Depending on the type of case, different back-end functions could be relevant to contact. For example, for questions on availability, procurement can be contacted and for questions regarding shipment status, shipping can be contacted. This contact is first and foremost conducted via email. A Service Center employee can directly email an individual they know might have an answer to the question. For some back-end functions there are also functional mailboxes. These functional mailboxes can be read by several people in the department, making them less dependent on a single individual. However, there are no directives set on who the contact person/-s should be for all possible issues dealt with. When an employee at a Service Center was asked about how they know whom to contact, the employee answered "I don't always know, but then I mainly ask one of my colleagues [in the Service Center] and most of the time they know whom I should contact".

There are some limitations to the actions a Service Center can take. TruckCo is a company with many employees and contact points. Therefore, it is viewed as unviable that the few people working in the Service Centers should be aware of all functions and suppliers. So, if the Service Center is unable to solve the case directly or with the support of the back-end functions they

are in contact with, the case is escalated further back-end. Procurement can support Service Centers by contacting suppliers and getting availability prognoses of components that are out-of-stock at TruckCo. Service Centers are never themselves in direct contact with suppliers. For VOR cases that have not been solved, they are escalated to a back-order recovery team. This team can contact suppliers, production plants, DCs outside of Europe and more in an attempt to solve the case. These functions can be viewed as a second layer within TruckCo that have further contact points.

However, even if another function takes over the task of solving the case, the Service Center is still involved as the main point of contact. For example, the back-order recovery team work in their own IT-system where they enter updates about the case. These updates are automatically transferred into Epsilon (the online system that is the interface between dealers and Service Centers). But such information is not directly given to the dealer. Instead, the Service Center works as an intermediary that translates the information into the dealers native language and clarifies the information so that it fits their context.

In conclusion, cases can be solved by Service Centers taking direct actions, Service Centers solving cases with support from back-end functions, or back-end functions taking over cases and solving them but Service Centers still being the main point of contact. The wide range of cases Service Centers handle and the variety of ways to solve them result in that it is a highly complex mission.

4.2.1. CURRENT MEANS OF MANAGING SERVICE INNOVATION

During the internal interviews, TruckCo employees were asked about the current service innovation process and factors surrounding it. Developing services could change the way cases are solved and service innovation is a way to handle the challenges that will be described in the next section. First off, it became clear from the interviews that little attention is put on monitoring or keeping track of the service competitors provide. Overall, there is little knowledge on how TruckCo performs compared to competitors in terms of services. Several interviewees also explained that the business to business-market (B2B) that TruckCo operates within is often behind business to consumer-markets (B2C) and more slow moving in terms of developing the service offering, implementing new communication channels etcetera. This could explain why several interviewees were familiar with technologies and solutions that could be relevant for TruckCo, since they had come in contact with these in their private life. A professor in industrial marketing and the head of digital business development at a postal and logistics company that were interviewed agreed that B2C can be a source of inspiration. They explained that B2C and B2B are not always so different in terms of customer needs.

One Service Center manager explained how her team works with incremental improvements concerning their way of work and improving the service provided. Every week, the team discusses challenges together and share improvement ideas. The team therefore manages to continuously make small improvements to their offering and find ways to work more efficiently. Another team at TruckCo works with spreading and implementing a wide variety of

improvements, service being one part of it. This team uses roadmaps to organize and follow up on different initiatives. However, there are no overarching guidelines or processes for service improvement or service innovation for the whole aftermarket organization at TruckCo. Instead, the processes are based on decentralized initiatives.

Several experts interviewed have emphasized that having service dedicated roles and teams at both operational and strategic levels are important factors for successful service innovation. At an operational level at TruckCo there are service dedicated roles and teams, such as Service Centers. On a strategic level on the other hand, service dedicated roles are limited at TruckCo's aftermarket functions. In the team working with spreading and implementing improvements, only one person is fully dedicated to service. Other employees at TruckCo work with service as part of their job, but their time is not fully dedicated to services.

Interviewees were asked about how easy they felt it was to bring up improvement ideas and generate changes. Most explained that smaller initiatives were quite easy to implement. Smaller initiatives could concern who takes responsibility for what or in which order different tasks should be conducted. A Service Center manager explained that it is just a matter of walking across the hall or call the person that is affected, and explain why a change needs to be conducted. As another example, one employee working with spreading solutions across the organization said that Service Centers are keen to make changes, especially if it means that they can save time. However, most interviewees attested to that larger changes were difficult to enforce. For example, implementing new software systems. Most employees referred to the fact that TruckCo is a large firm that is quite slow-moving and larger changes therefore takes a lot of time.

4.3. Current Challenges

During the thesis process, the main challenges for the aftermarket communication chain that the Service Center function is involved in were comprehended. These can be categorized into the different stages in the aftermarket communication chain. Namely, *back-end, Service Center, dealer* and *end-customer*, as is seen in Figure 4.3. The challenges are placed where they are noticeable or are causing problems.

4.3.1. Back-end

There are several challenges arising from the back-end processes. They mainly relate to the fact that mistakes are made which later cause problems for the dealer, and that is when they contact a Service Center. Several interviewees mentioned the question "where is my part and when will it arrive?" as the most common one asked by dealers. One issue among the back-end functions is the high degree of manual processes. Meaning for example that there is no track and trace-system in the central warehouse or during transportation. In other words, it is not possible to efficiently trace an article neither in the warehouse nor when it is transported by a carrier. Consequently, when the Service Center is contacted by a dealer about a part that has

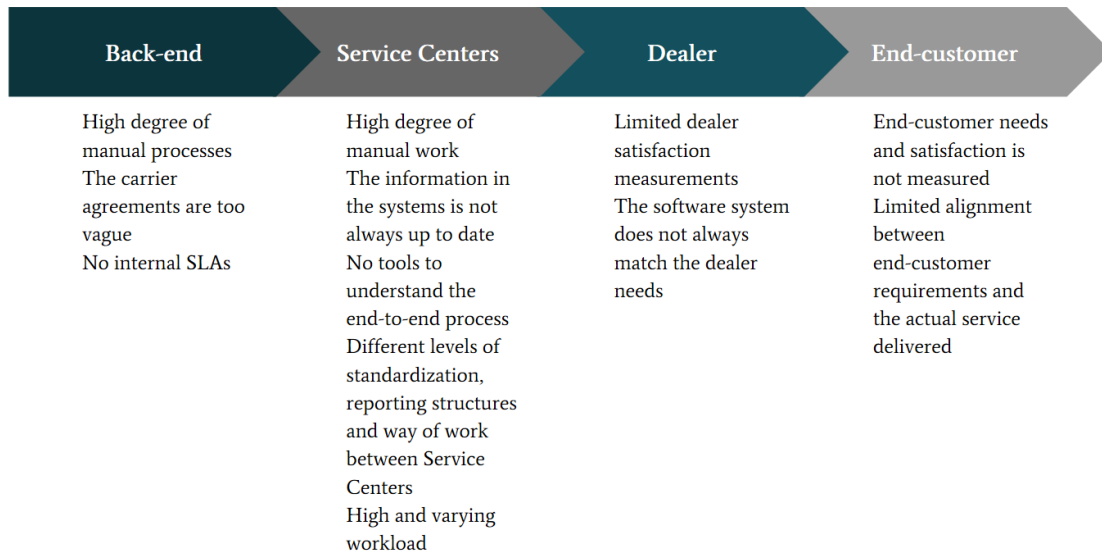| Back-end	Service Centers	Dealer	End-customer
High degree of manual processes	High degree of manual work	Limited dealer satisfaction measurements	End-customer needs and satisfaction is not measured
The carrier agreements are too vague	The information in the systems is not always up to date	The software system does not always match the dealer needs	Limited alignment between end-customer requirements and the actual service delivered
No internal SLAs	No tools to understand the end-to-end process		
	Different levels of standardization, reporting structures and way of work between Service Centers		
	High and varying workload		

Figure 4.3: Current challenges identified in the aftermarket communication chain

not arrived, they will not know whether it is still in the warehouse, in the outbound area, with a carrier, in a hub, or similar. This in turn makes it difficult for Service Centers to act fast or give a correct estimated time of arrival (ETA). ETA is critical information for dealers, since knowing when parts arrive indicates when they can conduct maintenance and allows scheduling of other resources, such as mechanics.

TruckCo conducts a yearly dealer-survey, asking questions on how pleased dealers are with certain factors and allowing them to rank how important that factor is. Information on ETA for urgent back-orders such as VORs, which is often handled by Service Centers, is consistently mentioned as one of the most important questions. At the same time, it is one of the lowest ranked questions in terms of how pleased the dealers are. This can, at least partly, be explained by the lack of track and trace. The head of innovation for aftermarket activities stated that some scanning is performed on components, but that it is made on the wrong checkpoints. He exemplified: "scanning is made when the box is packed, but we want to know when it is shipped. [...] So we get the wrong checkpoints". The manager of the shipping department added:

> "Trucks are loaded from a loading list [...] and the loader has to find the goods and load them on the truck. If he puts more or less on it – which happens – we will still assume it is loaded when it is not loaded. The driver who is signing all the transport documents, will say he received [the goods], but he is not aware because he was not present during the loading. So can we guarantee [that the correct items are loaded]? No. The system allows too many mistakes."

In other words, the information given from the back-end functions to the Service Center is not always correct due to the fact that the activities are usually manually executed. This affects the

dealers negatively. The manager of shipping emphasized that since too many mistakes can be made today, visibility needs to be increased. The statement was strengthened by a business process developer within the central warehouse who said that "with increased visibility, you can send information to dealers. Today, they only get information from the carriers – if even that!".

However, it was emphasized by a group leader within delivery and planning that the back-order processes, and especially the processes within the central warehouse, are highly complex. For example, the warehouses deal with an enormous amount of SKUs and a large number of suppliers. Components and information can pass many functions within TruckCo before reaching the dealer or Service Center. This makes it difficult to be properly aligned in terms of information transfer and allocation of responsibilities. Hence, the information that is needed by the Service Center to communicate to the dealer may exist, but the Service Center does not know how to find it, or the information is not given to them when needed.

Furthermore, no internal SLAs exist between the Service Centers and the back-end functions. Therefore, the time a dealer has to wait for further information from the Service Center in the case of a back-order varies. A Service Center manager said that "when we have transferred the case [to the back-order-recovery-team], it can take everything from ten minutes to ten weeks [before we get an answer]". Something which can cause irritation for the Service Center and dealer.

It was also mentioned during the interviews that the carrier agreements are currently too vague. For example, there is no clarity as to how fast returns should be picked up and transported back to the warehouse or how and when the carrier should inform TruckCo of transport deviations. The manager of transport parts stated that "you have discussions about things that should have been agreed upon from the start".

4.3.2. Service Center

The employees at the Service Centers face several challenges. Their task is highly complex since many stakeholders are involved and Service Centers must manage that complexity and the communication between the stakeholders. Several interviewees also mentioned that the software systems Service Centers use to solve cases can be a hindrance. The employees in the Service Centers must use several systems and at times compare information between systems. A manager at a Service Center explained: "we do a lot of manual checks in our processes [...]. Why not let the system do the work for you?". This increases the complexity of the work tasks since it requires a lot of knowledge and experience from the employee, as was stated by another Service Center manager. To gain the experience needed to properly handle all types of problems have been acknowledged to take a lot of time by several interviewees. For example, a Service Center employee said that "it took a year before I felt like I knew what I was doing".

Another system issue is that it relies on the fact that all information is up to date, which is not the case today. Otherwise, the Service Centers will not be able to give correct information, such as ETAs, to the dealers. This was emphasized as one of the most important issues by a

Service Center manager. It relates to a back-end complexity in which some back-end functions use the same software system (Epsilon), whereas other functions have their own systems and ways of storing information. A manager of transport parts added that "if everybody used the same communication tool, it would be easier by eliminating steps and saving time". A business process developer in the central warehouse further accentuated that there are no tools to understand the end-to-end process. Before a spare part arrives at a dealer, it passes several physical and administrative steps. Such as ordering, quality check, transportation between and within external and internal facilities, pick and pack, and so on. Without any tools to follow this whole process, the Service Center employees must themselves manage this complexity.

At times, there is a misalignment between the different Service Centers. This is due to different levels of standardization and different reporting structures. The Service Centers could transfer cases to each other if, for example, the workload is abnormally high for a specific region. But their way of work is often too different so this possibility is not utilized. However, different ways of work is not always a drawback. A Service Center manager explained that their ways of work must be different to some extent, since the dealers in the regions have different needs and different expectations on services due to e.g. culture, language and politics. Some dealers require information in their native language and thereby need assistance from an employee who speaks that language. Another example is that dealers in certain countries require complex import documents which a limited number of employees know how to handle.

TruckCo's business is going well, partly due to a growing world-economy. Simultaneously, part of their truck fleet is aging. More sales equal more trucks on the road, and an aging fleet means problems occurring on older trucks. This in turn increases the workload in the Service Centers. A manager at a Service Center said that "people get sick from such a workload. They cannot do a good job [...] and you cannot force people to work overtime. From the moment they sit down at their desks they work as hard as they can and barely take any breaks". A Service Center employee said that "sometimes it feels like as you extinguish one fire, another one pops up". This has resulted in a risk of increasing personnel turnover, which further escalates the challenges for the Service Centers. Experience and knowledge may be lost. A business process developer in the central warehouse conveyed that they get questions from the Service Centers that should not be asked since the employees themselves should know the answers, which is due to personnel turnover. "Not all Service Centers have the right level of competence", she explained.

The high workload also hinders the Service Center employees from working with improvement projects in a proactive manner. A Service Center manager said that "if we would have more time to work on developments, I think we could. But last year was a complete hell hole so we barely managed to survive [...]. There is no time whatsoever to be creative". Another Service Center manager emphasized that they should be able to work proactively by knowing for example if an order will not arrive in time before the dealer, as opposed to today when the dealer has to call the Service Center and ask where the order is. "We are behind already when we arrive in the morning", the manager said.

4.3.3. DEALER

The dealer issues mainly relate to a mismatch between what TruckCo offers and the dealers' needs. Although, it was emphasized by an innovation manager that "the dealers have very different needs so it is difficult to standardize the service offering at the Service Centers". Though, TruckCo's insight into dealer needs is limited. The annual dealer survey demonstrates that dealers want more accurate ETAs. However, the level of detail is limited and it could therefore be difficult to find patterns. Several experts interviewed mention continuous feedback from customers as an important factor. Explaining that this can generate more detailed information to the company. Also, continuous feedback enables companies to see result of their efforts faster.

When a dealer is in contact with a Service Center, information is attainable through Epsilon. But not all dealers are satisfied with this system. One reason is that the system is not flexible, where for example, only one picture can be uploaded. Several interviewees mentioned that this results in that when the dealers find it too difficult to explain their issue at hand, they instead call or email the Service Center. Another Service Center manager stated that Epsilon is "a love and hate relationship. It blocks the social contact [...] and sometimes it feels like you are talking to a screen all the time". Also, the communication system is computer-based, but few dealers are by their computers at all times. Therefore, they do not get updates on cases until they log on to their computers. Additionally, dealers use a couple of systems when contacting TruckCo, Epsilon being only one of them, and finding the right information about e.g. ETA or tracking orders can be difficult. Another hindrance in the request for accurate information is the fact that the Service Centers and dealers have different opening hours. The Service Centers are only manned on daytime Monday to Friday, whereas some dealers are open twenty-four hours a day and may need assistance during out of office hours. However, one Service Center employee stated that this was not a problem. The employee explained that there is an understanding among dealers for the limited opening hours.

4.3.4. END-CUSTOMER

One challenge concerning the end-customer is that the Service Center process is not focused on the truck owner. For example, the KPIs that are used in the Service Centers are not directed at the end-customers but at the dealers. Further, no surveys similar to the annual dealer survey, or collection of information is made about the end-customers. This creates a risk that the services offered by the Service Centers do not provide the anticipated value for the end-customer. However, this issue was not recognized by a majority of the employees interviewed at TruckCo. Only one employee interviewed brought this up as an issue. Instead, it was mainly the experts interviewed who stated that this is a major issue. The employee that did see this as a problem stated that "the dealer in-between can make you lose focus". For example, a recurring issue is that dealers label orders as VORs even though they are not. The Service Centers do not perform any controls as to whether the order is approved for VOR according to the VOR policy or not, and therefore treat it as a VOR order. The case is subsequently given high

priority and a lot of resources are put onto solving the case, which in the long-term drive a cost increase for TruckCo and in turn a price increase for the end-customer. A back-order-recovery manager stated that often both the dealer and the end-customer are unaware of the efforts put in to get the spare part.

Another risk with dealer focus rather than end-customer focus is misalignment between end-customer expectations and actual service delivered. This was emphasized during the expert interviews. Firstly, TruckCo is unaware of the actual service the end-customer gets. Secondly, when selling trucks, TruckCo offers some different choices of contracts. Among other things, these contracts involve factors such as warranties, preventive maintenance included and promises on minimum downtime. However, in the support flow which the Service Center is involved in, no differentiation is made between different dealers or different end-customers. A manager in back-order-recovery stated that: "we give the same service to everyone regardless of how much revenue [they contribute to]". An employee at a Service Center also stated that no differentiation is made in the service given depending on the end-customer. A risk is that this is not aligned with end-customer expectations since end-customers with a more expensive contract probably expects better service. Further, there is no service differentiation neither between a one week old truck or a 20-year-old truck, nor between an end-customer who often buys trucks or an end-customer who is unlikely to buy a truck again.

A business process developer emphasized that "we often forget there is a story behind [every order]". According to a Service Center manager, they perform visits to dealers but never to end-customers. By understanding the end-customer better, the Service Center manager believed that it would be easier to understand the business behind, but also to give a higher sense of importance to the job. To some extent, Service Center employees are aware of urgency for the end-customer. For example, a Service Center manager explained that they know which end-customers that have vehicles in connection with the mining industry, where each hour of downtime is extremely costly. Therefore, the manager explained that they will make an extra effort to accommodate the needs of that end-customer. However, apart from that example they were not particularly aware of specific end-customer's requirements or needs. Regarding overall end-customer needs, an example of misunderstanding is the issue concerning ETAs. An innovation manager said that "we are a group of engineers here [at TruckCo] who think that an ETA must be correct. But for the end-customer, it does not always have to be correct. It may be enough for him to know if he gets it today or tomorrow", and added, "we are too defensive in this area and must separate our internal ETAs from what the customer actually wants".

4.4. POTENTIAL DIRECTIONS

In this section, concepts and ideas for improving the service delivered by the Service Centers will be presented. Each potential direction stems from one or several interviewees (both internal and external), and are grouped into three categories. Namely, what is delivered, how is it delivered, and how is follow-up conducted. First, the concepts within each category are briefly explained, where the aim is not to develop detailed descriptions of how the actual implementations would look like but mainly to find the most relevant concepts and ideas for

TruckCo's Service Centers. Thereafter, the concepts are placed in an impact and feasibility matrix in accordance with what was said during a focus group session held with employees at TruckCo.

4.4.1. WHAT IS DELIVERED?

Potential directions on what level of service that should be delivered by the Service Centers have a direct impact on dealers and/or end-customers. The six concepts presented below relate to altering the service that is delivered.

Differentiating the service offering. Today, Service Centers put the same effort into each case no matter which contract the end-customer has, how old the truck is etcetera. Differentiating the service offering concerns the possibility to differentiate the service given by the Service Centers. This could, for example, entail that the promised response time is different or that the types of components an end-customer is allowed to put as VOR orders depend on the contract or age of the truck.

Look over the VOR policy. Several of the interviewed employees mentioned that dealers order VORs on cases where the truck is not technically off the road. For example, one employee at TruckCo had received a VOR order on a wiper, meaning that the truck was perfectly able to be driven. Therefore, TruckCo might have to update the VOR policy, or change how it is used.

End-customer centric view. The Service Centers and other functions are focused on providing services towards the dealer. There is little knowledge about the end-customer. This potential direction involves having a larger focus on the end-customer through, for example, having direct contact with end-customers or measuring and understanding end-customer needs. The end-customer would in that case be included in the aftermarket communication chain from TruckCo.

Information to dealers or end-customer via phone application. The communication system between dealers and Service Centers, Epsilon, is computer based. This potential direction involves developing a phone application such that dealers can get updates on availability and ETA even if they are not by their computer. There is also a possibility of utilizing a similar solution for end-customers.

Chatbot. At times, Service Centers receive questions that the dealers should know themselves but cannot find due to the complexity of using several systems. For example, asking about ETA when the information is readily available. If an automated chatbot existed, the dealer could first ask the question to the chatbot, and only contact the Service Center if the chatbot failed to retrieve an answer.

Connected vehicles. TruckCo is currently developing connected vehicles. Meaning that there are sensors in the vehicles that can measure factors such as temperature whilst the vehicle is in use. In the aftermarket, this information could be utilized to inform end-customers that maintenance is needed before a breakdown occurs. That is, the service needed can be

predicted. Accidents and unforeseen breakdowns will still occur, requiring the assistance of Service Centers, but the overall service delivered will change.

<center>4.4.2. How is it Delivered?</center>

Potential directions related to how the service is delivered directly impacts the organisation or the processes that deliver the services. This could indirectly affect dealers and/or end-customers. For example, if the Service Centers' work tasks become less time-consuming, more efforts could be dedicated to relationship-building activities with the dealers. Or, with better processes, dealers and end-customers could get faster and more accurate responses. Seven different concepts identified during the interviews relate to how the service is delivered.

Closer cooperation between Service Centers. Closer cooperation implies a more similar way of working, reporting structures etcetera. This could enable the Service Centers to help and support each other to a greater extent by taking over cases from each other, for example during periods of high workload or sick leave.

Adapted opening hours. The Service Centers' opening hours do not match dealers' opening hours. This concept entails adapting the opening hours to better fit the dealers.

Internal SLAs. Service Centers often ask questions and require support from back-end functions, but there is lack of SLAs stating how fast they should get a response. This potential direction concerns having internal SLAs regulating response time and possibly including alerts that let the receivers know how urgent the case is.

One system for the whole process. To solve cases, a number of different systems can be used by different functions. Service Centers use Epsilon and several inventory systems to track articles, the back-order-recovery team uses another system, and so on. Having one system covering the whole process might simplify it by having more transparency.

Robotic Process Automation. Service Centers conduct a lot of manual work when they search for information in several systems. Robotic Process Automation could be used to collect all data in one place. For example, if Service Center employees wanted to know the availability of a component, they could enter the article-number and receive an easy-to-read summary of all locations where the part available, including e.g. phone number to the dealers who have the spare part.

Track and Trace. Having track and trace would enable Service Centers to better answer dealer questions regarding arrival time and location of goods. Additionally, Service Centers might become more proactive, letting customers know in advance if the order will not arrive in time.

3D printing. 3D printing could be used to print spare parts at, for example, regional warehouses. This would enable a shorter supply chain and faster delivery of spare parts requested by dealers. It would also be beneficial if the TruckCo employees themselves could print components when suppliers are out of stock.

4.4.3. How is Follow-up Conducted?

One concept related to follow-up was identified during the interviews. The main goal of better follow-up is to gain an understanding of whether dealers and/or end-customers are pleased or not so that TruckCo knows more in detail what they must improve.

Instant feedback on cases. Currently, there is a yearly dealer survey in place, but is difficult to get any detailed results from it. For example, in terms of what exactly dealers are satisfied or unsatisfied with. This potential direction entails sending out questions to dealers directly after a case is finished to generate more detailed feedback. The number of questions should be low so that the dealers perceive it as an easy task. The suggestion is focused on the dealers, but end-customers could also be included.

4.4.4. Impact and Feasibility

In Figure 4.4, the different concepts and improvement ideas are placed into clusters in an impact and feasibility matrix, based on the discussions and, eventually, consensus in the focus group. Feasibility implies how easy it would be to implement the concept. This could relate to cost of implementation, how many functions at TruckCo must be involved or how difficult it is to develop the necessary technology. Impact entails how much value the proposed concept or idea is believed to generate for the Service Centers in terms of serving their customers. Below, each cluster is presented, including arguments for placing each improvement idea into the specific cluster.

In cluster A, the improvement ideas *end-customer centric view, closer cooperation between the Service Centers, internal SLAs* and *instant feedback on cases* are placed. The cluster indicates ideas with both high feasibility and impact. A *end-customer centric view* was highlighted to be very important due to the fact that it would enable a better understanding of how to design the service offering in terms of realizing customer needs. It was believed to be feasible since it can be implemented to a small degree in the beginning, for example by establishing a few KPIs directed at end-customers. The possibility to have a *closer cooperation between Service Centers* was accentuated by a Service Center employee to have big impact, especially in the case of one Service Center employee calling in sick. A director of order and distribution stated that the degree of feasibility is high if the Service Centers do not have to be able to take over all cases from each other, but only some types of cases. For example, the more generic ones where similar routines are used across all Service Centers.

Further, *internal SLAs* was put into cluster A. The impact of internal SLAs was discovered to be different for different Service Centers. A Service Center employee located in Northern Europe conveyed that they did not experience the lack of internal SLAs as an issue, whereas a senior excellence manager warehouse specialist located in Western Europe stated that they see this as a great challenge since the back-end functions take too long before they respond to Service Center requests. Therefore, establishing internal SLAs was deemed to have big impact on Service Centers overall. The effort of creating internal SLAs was considered to be somewhat
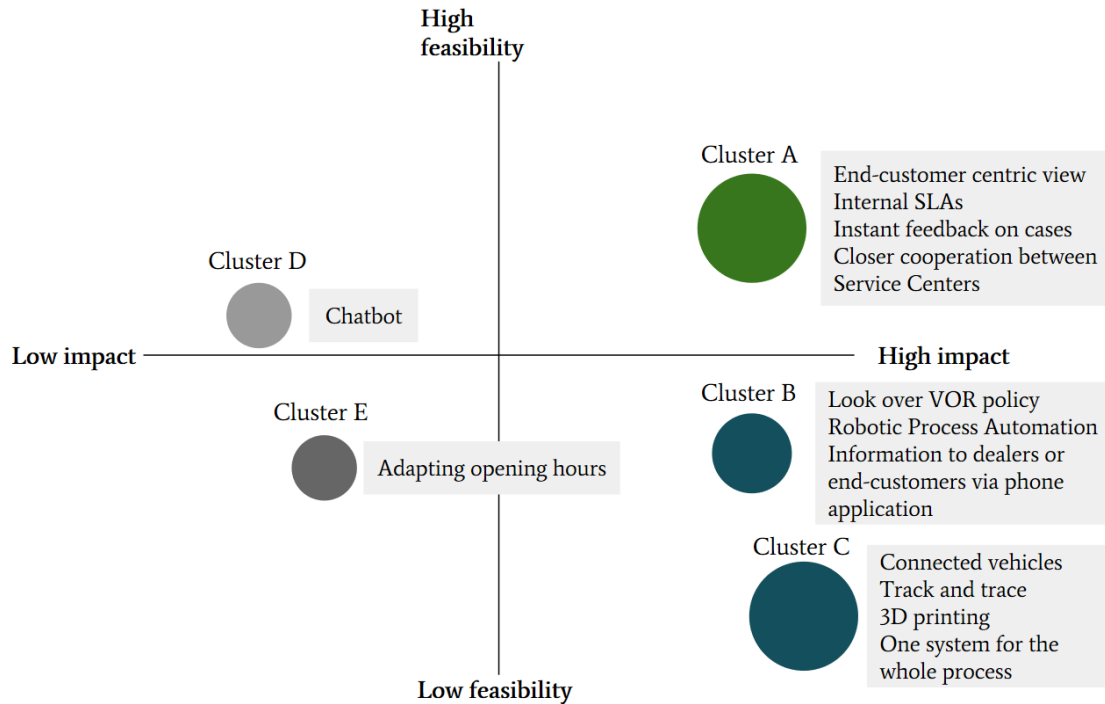
Figure 4.4: The different concepts and improvement ideas grouped into clusters in an impact and feasibility matrix.

high since it would require coordination and agreement between several back-end functions, but that it could be gradually implemented for the different Service Centers. Hence, it is a feasible project.

Instant feedback on cases, also placed in cluster A, was deemed to have a high impact due to the fact that dealer needs could be better understood. All focus group participants agreed that the annual dealer survey is flawed since it collects feedback too rarely. A Service Center employee added that today, much feedback is given via phone and is therefore not logged in the systems. One way of collecting such feedback would be to have instant feedback mechanisms in place. Such a feedback mechanism was believed to be feasible for the same arguments as the two previous improvement ideas, namely that it could be implemented gradually. Additionally, instant feedback could also be extended to the end-customers in the future, strengthening the feasibility of a end-customer centric view.

Cluster B contains three different improvement ideas. Specifically, *look over the VOR policy, information to dealers or customers via phone application* and *Robotic Process Automation*. These ideas were considered to have high impact for the Service Centers' performance, but would require more efforts from TruckCo to implement than those in cluster A. *Look over the VOR policy* was emphasized by a Service Center employee to be very important when seeing to the fact that there has been an increasing stream of VOR cases during the past years. However, a director of order and distribution underlined that the overuse of VOR orders is first and

foremost a symptom of low availability in TruckCo's aftermarket process. Therefore, it is not only important to change the VOR policy itself but also to create a new type of order that is given higher priority than a normal day order, but still a lower priority than a VOR order by the Service Centers.

Giving *information to dealers or customers via phone application*, also placed in cluster B, was believed by all participants to generate high value. Mainly due to the fact that such a solution would make it possible to push information to a higher degree concerning e.g. transportation delays or updated ETAs, and because it would solve the issue of dealers always having to be near a computer to have access to Epsilon. However, the application would have to be connected to all the systems currently used by the Service Centers in order to send out the right information, hence, the feasibility of such an implementation is relatively low.

Finally, *Robotic Process Automation* was placed in cluster B, since it would save a lot of time for the Service Center employees according to the participants. A Service Center employee stated that the complexity of dealing with several different systems would be minimized. The reason for it being ranked at a lower degree of feasibility is the same as for the phone application. That is, connecting it to all Service Center systems was considered to be a relatively large technical challenge.

In cluster C, the four improvement ideas of *connected vehicles, one system for the whole process, track and trace* and *3D printing* are found. In short, these ideas were deemed to have very high impact for the Service Centers, but that they will not be possible to realize in the near future. This is mainly due to technical constraints and the fact that they will require a vast transformation in terms of processes and ways of work across several TruckCo functions. *Connected vehicles* and *3D printing* were believed to completely change the role of the Service Centers. Having connected vehicles would e.g. enable TruckCo's aftermarket functions to act proactively and order spare parts for dealers before the end-customers themselves even realized that they had a malfunction. *One system for the whole process* and *track and trace* were also accentuated as ideal states since they would dramatically reduce the complexity that the Service Centers currently have to deal with. A Service Center employee emphasized that track and trace for example, would save them a lot of time since they would not have to track lost goods.

Cluster D contains *chatbot*, which was considered to not have a high impact and a medium level of feasibility. There are some technical challenges relating to the chatbot gathering the correct information from the systems, but no substantial change or integration is needed. However, the participants thought it was too much of an effort compared to other easier solutions to the same problem. For example, a senior excellence manager specialist mentioned how a Western Europe Service Center had compiled a list containing default answers to certain dealer requests that could simply be pasted into Epsilon. Concerning the impact of implementing a chatbot, a Service Center employee explained that they received very few questions from dealers concerning information they already have (which is when a chatbot would be relevant). Therefore, a chatbot would have a small impact.

In cluster E, *adapting opening hours* is placed. According to a senior excellence manager warehouse specialist, this suggestion has been discussed on several occasions and the same conclusion has always been reached. Namely that there will not be enough work tasks for the Service Center employees who remain after office hours since the other TruckCo functions in the aftermarket (i.e. the warehouses, the back-order recovery team etcetera) will not be open. To reach the desired outcome in terms of dealer satisfaction with this change, the rest of the aftermarket functions would therefore have to adapt their opening hours as well, making it a relatively large effort for TruckCo while not having a substantial impact.

Differentiating the service offering could not be placed in the matrix by the focus group participants since they disagreed on what impact a differentiation would have. For example, a director of order and distribution argued that since the end-customers have different contracts, they could expect to get different services. On the other hand, a senior excellence manager warehouse specialist explained that when end-customers need spare parts, they all need it just as urgently no matter who they are. He emphasized that end-customers would get upset if another truck-owner got better service. In the end, consensus was reached in that TruckCo needs to know the end-customer better before any decisions regarding differentiation can be made.

5. ANALYSIS

This chapter analyzes the empirical findings in relation to the theoretical background that was presented in the theoretical framework. The first two research questions were in many ways answered in the empirical findings even though the analysis will contribute to a deeper understanding of them. Question number one ("what current challenges are Service Centers experiencing that hinder their ability to support external customers at the service level they demand?") was covered in Section 4.3. Current Challenges. Question number two ("what concepts and ideas could help the Service Centers to better tackle the challenges they are experiencing?") was dealt with in Section 4.4. Potential Directions. The main purpose of the analysis is instead to discuss research question number three. Namely, "what capabilities should TruckCo's functions serving the aftermarket develop in order to match current and future service needs?".

To answer this question, the current process and challenges are analyzed from a service quality perspective using the five gaps model. As was presented by Zeithaml et al. (1988a), there are four different gaps that affect a customer's perception of the quality of a service. Namely, the knowledge gap, the standards gap, the delivery gap and the communications gap. Each gap defined in theory have different effects on the total service quality (Zeithaml et al., 1988a). Based on the challenges identified at TruckCo, the service quality gaps have been discerned and are visualized in Figure 5.1. The gaps have been plotted into the different stages of TruckCo's aftermarket communication chain according to where they materialize. In this chapter, each column will be analyzed in terms of its challenges, the relating service quality gaps, and what the underlying causes might be in terms of the dynamic capabilities for service innovation framework (Kindström et al., 2012). Thereafter, a summary of the gaps identified will be given followed by a compilation of the capabilities needed.

	Back-end challenges	Service Center challenges	Dealer challenges	End-customer challenges
Gap 1: The knowledge gap			X	X
Gap 2: The standards gap	X	X	X	
Gap 3: The delivery gap	X	X		
Gap 4: The communications gap				X

Figure 5.1: The four service quality gaps as introduced by Zeithaml, Berry, and Parasuraman (1988a) and their existence in TruckCo's aftermarket communication chain

Before beginning the analysis, a brief explanation will be given on who the customer is in TruckCo's aftermarket communication chain. In the theoretical framework, the basis for analysis is made from a customer perspective, whereas in the case study, both the dealer and the end-customer are viewed as the customers. The Service Centers and other back-end functions directly serve the dealers. The dealer is the party requiring something and TruckCo

will provide services according to that. Nevertheless, it is the end-customer who in the end pays for the service, and the service required stems from an end-customer's needs. Therefore, both the dealer and the end-customer will be taken into account in the analysis.

5.1. BACK-END CHALLENGES

The challenges stemming from the back-end functions mainly relate to the standards and the delivery gap. That is, the service quality specifications are either incompatible with managers' perception of service quality expectations, or the service quality specifications are not met in terms of the actual service delivered (Zeithaml et al., 1988a). To begin with, the lack of track and trace system inside the central warehouse and during transportation of components makes it difficult for the Service Centers to perform well, which may cause the delivery gap to grow. It was emphasized by Zeithaml et al. (1988a) how tools and techniques must support the employee in performing the job. Without a sufficient *technology-job fit*, the decision-making mechanism is disabled (Grönroos, 2015) and the employees are overall incapable of performing (Zeithaml et al., 1988a). Seeing to the fact that track and trace was identified as an improvement idea implies that TruckCo has been able to sense this technology when considering the dynamic capabilities framework, and more explicitly, the microfoundation called *technology exploration*. It is rather the seizing capability that may be the hindrance in this case, since the technology has not been prioritized.

Moreover, because of the use of manual processes rather than e.g. track and trace, the current systems allow human-related mistakes. Hence, there is an overhanging risk of transferring the wrong information from the back-end functions to the Service Centers. The complexity of the back-end processes further makes it difficult for the Service Centers to obtain the relevant information since they do not know where to find it. These two issues exist due to the fact that there might be a low degree of *task standardization* concerning the information transfer, which affects the standards gap (Zeithaml et al., 1988a).

Too vague carrier agreements generate problems in the service delivery. It creates *role ambiguity* within the Service Centers since correct information about lost spare parts cannot be retrieved. When considering the dynamic capabilities, it can be argued that TruckCo does not fully meet the seizing microfoundations referred to as *managing the service delivery process* and *service interactions*. Kindström et al. (2012) explain that companies must understand and manage all actors who are part in delivering the services. Managing the service delivery process is defined as the ability to restructure internal and external resources, and service interactions is the ability to interact and co-develop with partners (Kindström et al., 2012). The vagueness of the carrier agreements may signal that TruckCo does not efficiently handle the service delivery process since they do not take enough responsibility for the carriers' part in the service delivery. When for example, a spare part is lost, the dealer will be dissatisfied regardless of who is responsible for the error. This may in turn imply that the two parts are not cooperating, i.e. interacting, as much as they should. The issue can be related to *team-work* and to which extent employees consider other employees as customers (Zeithaml et al., 1988a). The relationship between the carriers and TruckCo's back-end functions and Service

Centers ought to be improved, or the service delivery gap may increase. Further, when the level of cooperation is low it can make it more difficult to spread new service innovations to other actors. This can be related to the microfoundation *adopting new revenue mechanisms*, entailing that in order to derive value from a new service, the firm must have the ability to visualize the value to the actors within the service-delivery system (Kindström et al., 2012).

The lack of internal SLAs between TruckCo's functions relate to two gaps within service quality. First, the standards gap could in this case be affected by *goal setting*. It implies that goals must exist so that the employees understand how managers want for them to deliver (Zeithaml et al., 1988a). Since there are no internal SLAs at TruckCo, the different back-end functions do not always know how fast they must act upon requests from the Service Centers. Second, the delivery gap may be increased due to the fact that the back-end functions do not always consider each other as customers when there are no internal SLAs in place. In other words, it relates to *teamwork*. When a back-end function makes decisions on which actions to take next, they may undermine the importance of answering a request from a Service Center if they are not fully aware of the importance of that activity. From a dynamic capabilities perspective, this can be argued to concern the microfoundation *managing the service delivery process* from an internal viewpoint. The reason being that even though the Service Centers own the dealer interface, all back-end functions have some impact on the service delivered and they should therefore be taken into account when designing the service delivery process. It may also otherwise lead to challenges when seeking to improve the service offering since it becomes difficult to spread and implement changes internally, as was mentioned by Kindström et al. (2012). This leads on to the *supervisory control system* which entails that there must exist rewarding systems for actions which increase the service performance (Grönroos, 2015). A SLA may serve as such a supervisory control system, hence, it can encourage back-end employees to prioritize Service Center requests.

5.2. SERVICE CENTER CHALLENGES

As for the challenges in the Service Centers, they relate to the standards gap and the delivery gap. Firstly, the high degree of manual work implies an insufficient *technology-job fit*, leading to a risk of the delivery gap. The several software systems that are used by the Service Center employees increase the complexity of the job and thereby hinder the Service Centers to perform according to set service quality specifications. Likewise, the absence of tools to understand the end-to-end process of the aftermarket supply chain is another challenge that increases the complexity, and can be related to a low technology-job fit. From these challenges, it can be concluded that TruckCo is not fully *managing the service delivery process* in terms of the dynamic capability seizing. Ideas on how to improve exists, e.g. Robotic Process Automation, meaning that sensing has been conducted to some degree, but the ideas have not been implemented. Momme (2002) highlighted the importance of continuously and efficiently change the organization and its operations to respond to internal and external conditions. In this case, TruckCo has not yet made investments into technology that could simplify the work tasks for the Service Centers.

Furthermore, the systems used by the Service Centers are not always up to date which has a negative effect on *perceived control* in the delivery gap. Zeithaml et al. (1988a) state that when the level of perceived control is high, employees consider situations to be less stressful. Today, however, several employees in the Service Centers mention that they feel strained from the high workload. The issue may also cause *role ambiguity*, such that the employees cannot perform well due to the lack of necessary information (Zeithaml et al., 1988a). An improvement idea concerning the high workload experienced by the Service Center employees, was to establish a closer cooperation between the Service Centers. But currently, the Service Centers have different levels of standardization, reporting structures and ways of work which hinder them from cooperating. Thereby, *teamwork* and *task standardization* is low, resulting in a risk of the delivery and standards gap occurring. Further, there is a lack of formal goals that all Service Centers must follow, meaning that the *goal setting* is limited which also might contribute to the standards gap.

The Service Centers are unable to perform well during periods of high workload, since they do not have the means to do so. The issues mentioned above exemplify this dilemma. It appears that the service delivery process first and foremost relies on the Service Centers and that few service dedicated roles exist at a higher organizational level. It was emphasized by Kindström et al. (2012) that such roles should exist, or else the company will be unable to efficiently seize future service opportunities. This may for example occur if the Service Centers lack support from higher instances in the organization when wanting to change the service offering. In more detail, lack of service dedicated roles on a strategic level could, for example, affect the microfoundations *internal service sensing* and *structuring the service development process*. According to Kindström et al. (2012), internal service sensing entails that new ideas regarding service may come from the service providers themselves, i.e. the Service Centers, and that they should be managed in a structured and formal manner by the organization. Otherwise, services are developed on an ad-hoc basis, which corresponds to an insufficient structuring of the service development process (Kindström et al., 2012). When seeing to the fact that few service dedicated roles exist at a strategic level, few improvement ideas can be lifted to higher instances within TruckCo's organization. Several employees explained that currently, ideas concerning larger changes are difficult to bring to a higher level.

5.3. DEALER CHALLENGES

The dealer challenges identified relate to the knowledge gap and the standards gap. That is, that customer expectations might be inaccurately understood by management, and that the service quality specifications run a risk of being inconsistent with management perception of service quality expectations. First off, TruckCo conducts a yearly dealer survey, while several experts interviewed agreed that continuous feedback is better. Having only a yearly survey means that there may be a limit to how well the dealers' expected service is understood. This issue can be related to a lack of *marketing research orientation* as presented by Zeithaml et al. (1988a). The amount of marketing research aimed at understanding dealers' needs is limited at the Service Centers, leading to a risk of the knowledge gap being present.

Further, seeing to the fact that the dealer can be viewed as both a customer and a partner, the lack of marketing research aimed towards the dealer can be related to a lack of *customer-linked service sensing* and *service system sensing* (Kindström et al., 2012). Even though Service Centers and dealers have good relationships, there are few structured ways beyond the dealer survey to sense changes, opportunities or threats relating to services. Without ways of structuring e.g. suggestions on improvements given by dealers, it is difficult to realize how many dealers need or want a certain change. This can further make seizing difficult, since it demands that the firm is able to understand which services drive value for the customers (Hallencreutz & Parmler, 2019). Thereby, the limited measurement of dealer satisfaction may lead to an increased knowledge gap and a lack of sensing service innovations stemming from dealer needs or ideas, as well as an inability to seize service innovations that could bring value to the dealers.

Another challenge identified was that the software systems do not always match dealer needs. Several interviewees at TruckCo were aware of these problems, and potential directions were suggested on how to solve them. For example, by sending information to dealers via a phone application. However, the systems are complex and costly to change, hence, investments have not been made. Therefore, it appears that it is not the sensing capability that is the problem in this case, but rather commitment to change. This can be related to lack of *management commitment to service quality*, meaning that it may be the willingness to put resources on improving service quality that is the hindrance at TruckCo. Something which means that seizing of service innovations has not occurred, which in turn increases the risk of the standards gap.

5.4. END-CUSTOMER CHALLENGES

The challenges related to the end-customer in the aftermarket communication chain mainly affect the knowledge gap and the communications gap. Relating to the knowledge gap is the fact that end-customer needs or satisfaction are not measured by the Service Centers. This corresponds to *marketing research orientation*, which implies that TruckCo might not fully understand end-customers' expectations on aftermarket services. Additionally, not measuring end-customer satisfaction or including end-customers in the communication chain may result in a lack of *customer-linked service sensing* as was introduced by Kindström et al. (2012). Without sensing opportunities, changes or similar regarding the end-customers, there can only be limited understanding of which service innovations they require. For example, one potential direction was to differentiate the service offering, but it could not be placed in the impact and feasibility matrix since the focus group participants were unsure of how end-customers would respond to changes in the service offering. Further, the limited measurement of end-customers indicate that TruckCo does not consider the whole service ecosystem. Understanding the service ecosystem has been mentioned by several researchers as a key in service provision (Wiesner & Thoben, 2017; Kindström et al., 2012).

Limited alignment between customer requirements and the actual service delivered was identified as another challenge. This might contribute to the communications gap, i.e. that the service delivered is inconsistent with what is communicated about the service specifications

to customers (Zeithaml et al., 1988a). Zeithaml et al. (1988a) underline the need for *horizontal communication* in an organization, especially between customer-contact employees and the advertising department. At TruckCo, the horizontal communication is to some degree limited. For example, marketing and sales may develop contracts including promises on performance to end-customers without ensuring that the aftermarket can live up to those promises since the communication between the departments is scarce. Overall, it can be argued that this attests to a limited management of the service system internally, relating to the microfoundation *managing the service delivery process.* Several functions are involved in the service delivery performance and they should not work independently. Without a way to manage the service delivery efficiently, seizing new service innovations can become more difficult (Kindström et al., 2012).

5.5. GAPS IDENTIFIED

In this section, the gaps will be summarized. A risk of all gaps as presented by Zeithaml et al. (1988a) have been identified at TruckCo's Service Centers, but it is important to note that this does not concern the actual occurrence of the gaps. For example, although the end-customer's expected service is not measured, it is not certain that TruckCo's management does not understand it. Nevertheless, since there are several indications for each gap, it is likely that they are all present in some form at TruckCo. This in turn yields a presence of the fifth gap, meaning that customers' expected service level does not always match the customers' perceived service level, which concerns both the dealer and the end-customer. In Table 5.1, the gaps and their underlying reasons are presented.

Table 5.1: The gaps identified at TruckCo and their underlying reasons

Gaps Identified	Underlying Reasons
Gap 1: The knowledge gap	•Marketing research orientation
Gap 2: The standards gap	•Management commitment to service quality •Goal setting •Task standardization
Gap 3: The delivery gap	•Teamwork •Technology-job fit •Supervisory control system •Role ambiguity
Gap 4: The communications gap	•Horizontal communication •Propensity to overpromise

5.6. CAPABILITIES IN NEED OF IMPROVEMENT

Next, a concluding analysis will be made concerning the underlying reasons for the service quality gaps found at TruckCo. This provides opportunities for discussing the capabilities

that are in need of development when seeing to the Service Centers and their ability to meet current and future customer needs. First, it is evident that the sensing and seizing capabilities are present to some extent within TruckCo, but should be improved. The sensing capability needs to be better structured when seeing to the fact that there are limited systematic means of collecting improvement ideas from internal or external sources. For example, improvement ideas stemming from the Service Centers concerning *technology exploration* are not spread in the organization even though they exist. This relates to the microfoundation *internal service sensing*. Similarly, the limited measurement of dealer and end-customer satisfaction hinders TruckCo from sensing service innovations externally in terms of *customer-linked service sensing* and *service system sensing*.

Likewise, the seizing capability is limited from both an internal and external perspective. This applies to all the microfoundations introduced by Kindström et al. (2012). Namely, *service interactions, managing the service delivery process, structuring the service development process* and *adopting new revenue mechanisms*. Investments in the Service Centers and their resources have not always been highly prioritized, for example when seeing to technical standards. However, it is evident that investments concerning the Service Centers and their performance may yield several benefits. For example, Gaiardelli et al. (2007) emphasized that the aftermarket is a touch-point for customer satisfaction and loyalty. Further, Breitschwerdt et al. (2017) underlined how new technologies change the aftermarket industry and thereby the competitive climate. In other words, it can be argued that matters concerning e.g. the technology-job fit within the Service Centers ought to be given higher priority.

For TruckCo to better sense and seize service innovations, the microfoundations that were mentioned should be improved. Service dedicated roles are needed on a strategic level so that service innovations that are sensed by either dealers, end-customers, carriers or employees are systematically captured. Kindström et al. (2012) argue that if the service provision is not managed in a structured and formal manner, improvement ideas will get little attention from management even though the impact may be large in terms of e.g. profitability. Consequently, if the Service Centers were to have better support from higher organizational levels, the chances of TruckCo investing in their improvement suggestions may increase.

Although, in order for this to work, a structured way of managing service innovation must exist to begin with. Kindström et al. (2012) emphasize that well-structured processes are needed to interact and change together with customers and partners in terms of services. In the case of TruckCo, it would be highly beneficial to design such a process while considering service ecosystems as mentioned by Wiesner and Thoben (2017). That is, since the Service Centers are interacting with several actors (i.e. back-end, carriers and dealers), the service innovation process must be able to capture all these perspectives. Den Hertog et al. (2010) explain that engaging in networks is key for being able to successfully introduce a new service.

Such an effort could improve the service delivery process overall for the Service Centers since all actors linked to the aftermarket would be included. It would entail that the ultimate responsibility for the service delivery would not only lie on the Service Centers anymore, but that the responsibility could be shared by several actors. Something which in turn might increase the chances of the organization investing more resources into the Service Centers.

For example, by establishing internal SLAs to gain better back-end support, introducing end-customer centric KPIs and instant feedback on cases to improve customer-linked service sensing, generating clearer carrier agreements to avoid blame games, or installing track and trace to be able to give more accurate information to dealers.

Moreover, for companies to gain full advantage of what has been sensed and seized, they might need to reshape themselves and their ecosystem. This is defined as the transforming capability (Schoemaker et al., 2018; Teece, 2007; Kindström et al., 2012). In the case study of TruckCo however, few insights have been gained into how well the transforming capability is developed. In spite of this, a general analysis can be made. The first microfoundation introduced by Kindström et al. (2012) within transforming is *orchestrating the service system*. This microfoundation entails the ability to manage and transform the service system, especially managing external actors. Considering the conclusions drawn for TruckCo's ability to manage the service delivery process and service interaction, which closely relate to this microfoundation, it is likely underdeveloped at TruckCo. The second microfoundation *balancing product- and service-innovation related assets*, is outside the scope of this project since no product innovation efforts were researched. Concerning the last microfoundation, *creating service-oriented mental model*, the study indicates it is not well developed. Few investments have been made regarding aftermarket services. Additionally, initiatives for learning and developing are mainly decentralized, adaptions of the service offering has been limited, and the view of services as value creating is still quite low. Taking into account that the insights into the transforming capability are limited, no direct conclusion of what must be improved and changed can be drawn. Though, the changes suggested for sensing and seizing are likely to improve TruckCo's ability to transform as well since all capabilities are related to each other. When TruckCo has come further in developing their service innovation capabilities, more details related to challenges and opportunities with transforming capabilities could perhaps be identified.

6. Discussion

In this chapter, a discussion is presented. Practical implications are outlined in terms of the study's specific answers to the research questions and its general applicability for a practitioner. Second, theoretical implications are presented concerning the study's contribution to the area of research as well as the applicability of the theoretical frameworks that were used. The chapter ends with suggestions for future research.

6.1. Practical Implications

This section firstly answer the study's research questions. These correspond more to the specific case study and result in recommendations of actions the case company should take. After answering the research questions, the more general practical applications of the study are presented.

6.1.1. Case Specific Implications

1. What current challenges are Service Centers experiencing that hinder their ability to support external customers at the service level they demand?

The challenges experienced by the Service Centers were categorized into the different stages of the aftermarket communication chain at TruckCo. When seeing to the back-end challenges, they relate to a high degree of manual processes, too vague carrier agreements and the absence of internal SLAs. The Service Center challenges likewise entail a high degree of manual work, information not always being up to date in the systems, lack of tools to understand the end-to-end process, different levels of standardization, reporting structures and way of work between the Service Centers, and a high and varying workload for the employees. Challenges concerning the dealer include limited dealer satisfaction measurements in place at TruckCo and that the software system does not match dealer needs. Lastly, the end-customer challenges relate to that end-customer needs and satisfaction is not measured and the fact that there is limited alignment between end-customer requirements and the actual service delivery. In the analysis, these challenges were related to a potential presence of a knowledge gap, standards gap, delivery gap and communications gap as presented in the model by Zeithaml et al. (1988a), which in turn generates a gap between customers' expected service level and the perceived service level. The focus for TruckCo should be to solve these issues and thereby minimize the gaps.

2. What concepts and ideas could help the Service Centers to better tackle the challenges they are experiencing?

The short term recommendation is to implement the potential directions placed in cluster A in the impact and feasibility matrix. These concepts were deemed to have both high impact and high feasibility. The cluster includes a more end-customer centric view, closer cooperation

between Service Centers, establishing internal SLAs, and implementing instant feedback om cases. All four of these concepts are possible to gradually implement and test in pilot studies. For example, SLAs can be developed with one back-end function before it is spread in the organization. Gradual implementation and piloting also enables the details of the concepts to be developed. For example, how many and which questions that should be asked in an instant feedback setting.

The long term recommendation is to first implement the concepts found in cluster B, and second the concepts found in cluster C. Cluster B includes looking over VOR policy, sending information to dealers or end-customers via phone application, and Robotic Process Automation. These concepts were deemed to have high impact but the feasibility was lower than in cluster A. Lower feasibility entails that they require a larger effort to implement. However, they should be kept in the pipeline for development ideas due to their high impact. Some pilot studies could be relevant in the short term to determine the feasibility in more detail. Cluster C includes connected vehicles, one system for the whole process, track and trace, and 3D printing. These concepts require a substantial effort but would have a high impact. Therefore, they should be kept in mind for implementation or pilot studies.

The potential directions in cluster D (chatbot) and cluster E (adapting the opening hours) are not recommended to be implemented due to their low impact. It should however be noted that as a more end-customer centric view is established and the end-customer needs are better understood, the impact of different concepts might be altered. Thereby, the content of each cluster might change.

3. What capabilities should TruckCo's functions serving the aftermarket develop in order to match current and future service needs?

Improving continuously, and not just in terms of occasional efforts, is key in developing according to current and future service needs. To achieve this, organizational changes are required at TruckCo. From the analysis, three main course of actions to improve the service innovation capabilities at the firm have been identified. Firstly, having service dedicated roles on a strategic level could make sensing more structured and seizing easier. Secondly, by considering the whole service ecosystem, a better understanding of end-customer needs could be generated through e.g. measuring and a better control and understanding of e.g. carriers' impact on service. Additionally, by also considering the service ecosystem from an internal point of view could be beneficial in terms of e.g. internal functions seeing each others as customers. Thirdly, a structured service innovation process has been stated as an important factor by Kindström et al. (2012) since it can simplify seizing. The second and third point correlate with each other since a structured process could make managing the ecosystem easier. Further, having an ecosystem view enables the service innovation process to capture different perspectives.

The proposed changes would begin now but also enable TruckCo to continuously change. Therefore, there will be a positive impact in both short term and long term. The capabilities mainly relate to sensing and seizing (as introduced by Kindström et al. (2012)), which is due to the fact that few practical examples were found that confirmed or refuted the presence of

the transforming capability. However, TruckCo are recommended to regularly evaluate their dynamic capabilities in the future in order to be able to find new improvement areas.

6.1.2. GENERAL IMPLICATIONS

Several insights were gained from the case study that may be applicable to other instances relating to the aftermarket. Nevertheless, it is important to note that the implications from the study may not be straight-forwardly applicable to all types of cases. The context in which this study was set in was relatively specific, and it is therefore probable that adjustments ought to be made to fit other settings.

To begin with, the challenges experienced by the Service Centers were in many cases relating to low technology standards. It was found that one reason as to why investments had not been made into aftermarket-related technology was due to lacking support from higher instances within the organization. Hence, it is important that aftermarket service providers within manufacturing firms have sufficient management support. To achieve that type of support, management must be aware of the benefits that can be gained from aftermarket services. Without sufficient arguments as to why an investment is deemed to improve the service offering, chances of getting management support are small (Zeithaml et al., 1988a).

But while the technology standard is low, the Service Centers still has good relations with the dealers. For example, the Service Center employees took it upon themselves to serve the dealers via telephone communication when the software system Epsilon fell short. It seems that lacking standards in tangible assets, which in this case refers to technology, can be saved by higher standards in intangible assets, which in this case relates to the service mindset of the employees. In other words, the service quality in the aftermarket depends on a balance between the tangible and intangible assets. It must however be emphasized that focus should be to optimize both parts, and not rely on one asset compensating for the other.

Furthermore, in the aftermarket context it is exceptionally important to consider the entire service ecosystem. Since many actors are involved in the total service delivery, e.g. suppliers, carriers, the focal company, Service Centers etcetera, improvement efforts cannot be made merely to one part of the ecosystem. The entire chain of events ought to be taken into account, or else the proposed benefits of changes to the service offering may be unrealized.

6.2. THEORETICAL IMPLICATIONS

The study applied literature on service quality and service innovation in an aftermarket context. The five gaps framework presented by Zeithaml et al. (1988a) and the dynamic capabilities for service innovation framework developed by Kindström et al. (2012) were the main theoretical pillars, even though additional literature was used as well. The models supported an understanding and evaluation of current issues, underlying causes, and potential improvement areas. Therefore, it is deemed that the models are fit to use in an aftermarket context. However, when considering the complexity of an aftermarket, some alterations had

to be made. For example, there existed no obvious single customer, hence, both dealers and end-customers had to be considered for this role. This entails that in general, using the models in a certain case requires some modifications to fit the specific context. Below, the two main frameworks' strengths and weaknesses from the perspective of this study will be further explained.

Analyzing the challenges identified in a gaps perspective lead to insights about why and how the challenges lead to a lacking service quality. Thereby, the model can support identification of why service quality is low also in an aftermarket context. However, the model rather showed the symptoms than the underlying causes for low service quality. To better understand the underlying factors, other theory was used. The downside of the model is therefore the lack of detail about the issues and therefore also the fundamental changes that might be required in an organization.

To better understand the underlying issues in lack of service quality and service innovation, the dynamic capabilities for service innovation supported the reasoning. The framework is useful for understanding larger changes that must be made, rather than one-time solutions. When considering the management of the service delivery system, the framework is mainly focused on controlling external actors. In the case company however, there were also problems with controlling the internal actors. The framework could therefore benefit from an expansion to also understand the internal service delivery system. This is especially interesting in an aftermarket context where several functions within a company might need to be involved due to their different areas of expertise.

Moreover, the dynamic capabilities for service innovation framework considers the balancing of product- and service innovation efforts. Though, when focusing on the aftermarket alone, there is limited product innovation. There is rather a balancing of improving tangible (e.g. logistics) or intangible (e.g. customer treatment) assets. This is another difference that might need to be considered when applying the framework to an aftermarket context. Additionally, the sensing capability in the framework regards different sources of information. Though, in the case study there was a lot of knowledge in the organization, but a structured way of capturing it was lacking. To better support this issue, the framework could be more focused on how to capture the information. Lastly, the service ecosystem thinking supported the analysis well. The aftermarket context includes many actors with different roles and considering the ecosystem can help realize different perspectives.

6.3. FUTURE RESEARCH

This study was based on a single case company which enabled a depth of the analysis. However, it is uncertain to which extent the results are applicable to other companies. To further gain insights into service quality and service innovation in the aftermarket, future research would provide opportunities to evaluate and compare several companies. Thereby, differences and similarities in e.g. customer needs and capabilities needed may be identified. It would also

make it possible to see if and how service in the aftermarket context is different from other markets.

Further, the study at hand originated from the supplying company's perspective. Another interesting angle to take would be to analyze service from a customer perspective. Customer needs and which capabilities are most relevant for high quality services could be realized from a customer perspective. Though, underlying reasons may be harder to interpret with limited insight into the supplying company, hence a combined analysis could also be beneficial.

Lastly, the case company operates within a B2B setting. During the study, it was discovered that TruckCo's market is often behind the B2C market. Therefore, many solutions that could be relevant were already known by the employees. In a B2C market however, new technologies and solutions can be harder to realize and thereby, the capabilities required, the gaps present, and more may be different. Hence, a similar study of service in the aftermarket in a B2C setting would be interesting.

7. Conclusions

The aim of the project was to identify current challenges found at the TruckCo Service Centers, give suggestions on how to tackle these challenges in terms of different concepts and ideas, and give an indication on which capabilities should be developed in order to better serve the customers. Several challenges were identified that related to e.g. the current technology level in TruckCo's aftermarket communication chain and way of work inside the different functions. Four short term suggestions were given on how to tackle the challenges, namely by establishing a more end-customer centric view, internal SLAs, instant feedback on cases and closer cooperation between the Service Centers. Finally, to better serve customers in the future, TruckCo was recommended to implement service dedicated roles on a strategic level, regard the whole service ecosystem and structure the service innovation process. This could e.g.increase the chances that investments into service are prioritized, and generate a better understanding of how changes in the service provision affect all actors in the aftermarket communication chain.

This thesis aspired to generate valuable insights not only for the case company, but for academia and companies in general as well. For example in terms of the applicability of the frameworks used and the study's implications for companies in general. The frameworks that were utilized, the five gaps model presented by Zeithaml et al. (1988a) and dynamic capabilities for service innovation introduced by Kindström et al. (2012), were deemed to be applicable to the aftermarket context. Even though some alterations might be required to the specific case. For companies in general, this study indicates that it is important for service providers to have management support, balance tangible and intangible assets, and consider the entire service ecosystem and not only an isolated actor or function.

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Appendices

A. Interview Questionnaire Pilot Phase Interviews

The questions asked during the pilot phase interviews looked different from interview to interview. This was because the participants came from different parts of the company, hence, they had different insights into the challenges of the Service Centers. However, some generic questions were asked to all interviewees and they are presented below. Follow-up questions were asked when needed in order for the researchers to fully understand the issue.

- What is your position at the company?

- What does your work tasks include?

- What would you say are the biggest challenges your department faces?

- What does your department need to be able to work more efficiently or in other ways improve your performance?

- How is your work related to the Service Centers?

- What are, in your view, the main challenges for the Service Centers?

- What are, in your view, the main opportunities for the Service Centers in the future?

In some cases, more specific questions were asked. For instance:

- Can you explain the process of how a dealer gets in contact with the Service Center?

- Do you have any ideas about new technologies or way of work that could be implemented in the Service Centers?

- What weaknesses and strengths do you see with the annual dealer survey?

B. Interview Questionnaire Execution Phase Interviews

During the execution phase interviews, a more elaborate interview template was developed. The template is presented below. However, the researchers did in some instances change the order of the questions due to the fact that e.g. the interviewee him- or herself touched upon a question while answering another one, or because another type of order felt more logical. Also, the researchers had to be prepared to exemplify what was being meant with some of the questions since not all interviewees were familiar with the terms that were used.

Introduction questions

- What is your position at the company?

- What does your work tasks include?

- How are they related to the service centers?

Questions related to sensing

- Who would you say are your customers?

- Do you distinguish different users and market segments?

- How do you work in order to understand customer needs?

- Is customer information captured and used? If yes, how?

- Do you analyze the actual use (for the customers) of your services?

- What new technologies are emerging that you think could improve your service offering?

- Do you know how your competitors organize and work with customer service?

- Do you follow which technologies your competitors use?

- If you have suggestions on improvements concerning your service offering, do you feel those suggestions are brought up to a higher level? How?

- How do you communicate with the carriers?

- Do you have roles and processes in place to capture that information? Clarify.

- How do you communicate with the dealers?

- Do you have roles and processes in place to capture that information? Clarify.

Questions related to seizing

- In your view, are you good at initiating and maintaining partnerships with dealers and carriers?

- In your view, does collaboration with other organizations help you improve or introduce new services?

- Are you, in your view, good at coordinating service innovation activities involving several parties (internal and external)?

- What values are the customers interested in? How do communicate your value?

- If an improvement has been decided to be implemented, how does the implementation process work (e.g. do you have milestones, gates, etc.)?

Questions related to transforming

- Are you, in your view, good at stretching a successful service over your entire organization? For example, if you have found a good improvement in one Service Center, are you good at spreading that to other Service Centers?

- How do you promote your new services to the rest of the organization? (How to you get people to starting working differently)

2nd tier questions, asked if time allowed it

- What interfaces are used between central and local service units and functions?

- Do you use different information sources to identify possibilities for new services?

- In your view, are you innovative in coming up with ideas for new service concepts?

C. Focus Group Agenda

The focus group was held on the 11th of April, 14.30-16.00. The agenda for the focus group is stated below.

Welcome and Introduction 14.30-14.50

- Individual presentations

- Background to and aim of the project

- Current state of the project and reason for the focus group

Discuss Challenges 14.50-15.10

- We will present the challenges identified

- Questions to discuss: Do you recognize it? Anything missing? How are they connected? Should there be another way of categorizing them? (Perhaps discussing level of importance of each challenge)

Discuss Potential Directions 15.10-15.50

- Attempt to sort the improvement ideas

- Are the axes relevant (impact and feasibility)? Other factors that could be more relevant?

- Place each concept in impact and feasibility diagram

    1. Discuss positive and/or negative impacts

    2. Rank in diagram

    3. Discuss and write down reasons for ranking

Wrap-up 15.50-16.00

D. FOCUS GROUP IMPACT AND FEASIBILITY MATRIX

During the focus group, the participants were instructed to rank the suggested potential directions inside an impact and feasibility matrix. The matrix was drawn up on a white board so that it was possible to write notes and add post-it notes to the matrix. In Figure D.1, the matrix as it was constructed is presented. The axes were ranging from (-3) to (3).
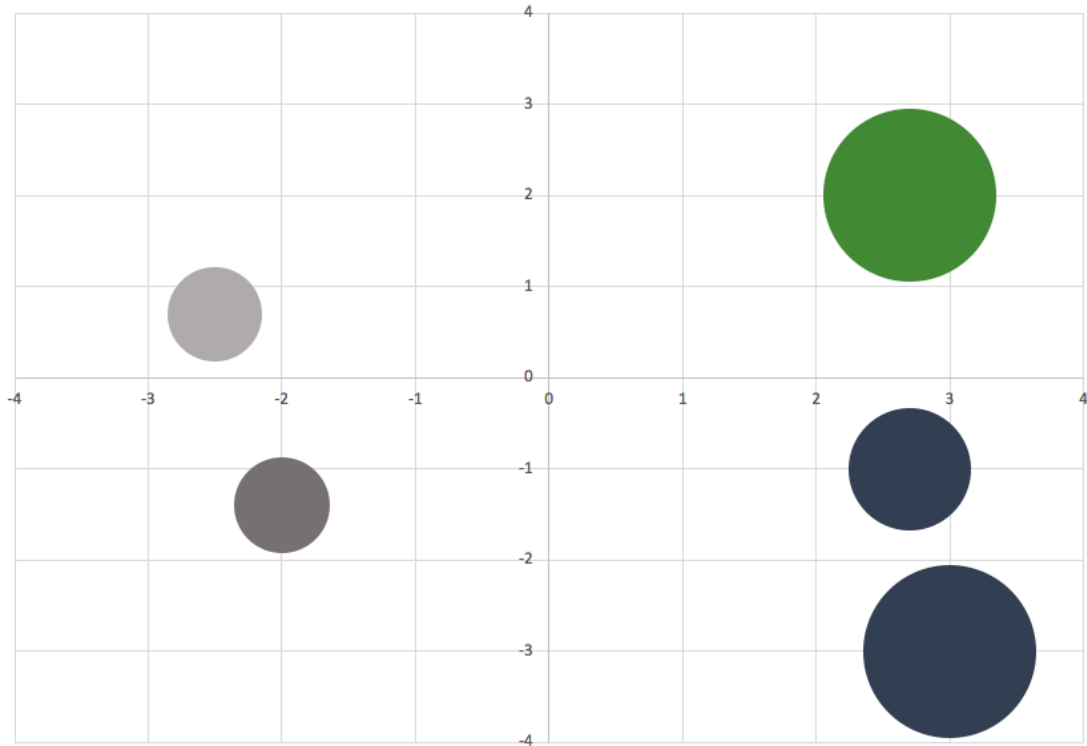

Figure D.1: The feasibility and impact matrix as it was designed during the focus group session.