



CHALMERS
UNIVERSITY OF TECHNOLOGY

Servitization From a Customer Perspective

- Investigating why companies buy advanced services

*Master's Thesis in the Master's Programme
Management and Economics of Innovation*

**SANNA BERGSTEDT
DAVID ÅSENHIELM**

Department of Technology Management and Economics
Division of Innovation and R&D Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2018
Report No. E 2018:032

Servitization From a Customer Perspective

- Investigating why companies buy advanced services

SANNA BERGSTEDT
DAVID ÅSENHIELM

Tutor, Chalmers: Siri Jagstedt

Tutor, company: Anna Trysberg

Department of Technology Management and Economics
Division of Innovation and R&D Management

CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2018

Servitization From a Customer Perspective

- Investigating why companies buy advanced services

SANNA BERGSTEDT & DAVID ÅSENHIELM

© SANNA BERGSTEDT & DAVID ÅSENHIELM, 2018.

Master's Thesis E 2018: 032

Department of Technology Management and Economics
Division of Innovation and R&D Management
Chalmers University of Technology
SE-412 96 Gothenburg, Sweden
Telephone: + 46 (0)31-772 1000

Acknowledgements

This master's thesis was written during spring 2018 at the Department of Technology Management and Economics at Chalmers University of Technology.

We would like to express our sincere gratitude and appreciation to everyone who helped make this thesis possible. Firstly, we would like to thank our supervisor Siri Jagstedt at Chalmers University of Technology for all the support, feedback and valuable insights received throughout the spring. We would also like to thank Anna Trysberg and Sofia Eklund at Triathlon Group for the support and guidance and for providing this thesis opportunity. Lastly, we would like to express our gratitude to all interviewees at the case companies who shared their valuable expertise and insights with us.

A handwritten signature in black ink, reading "David Åsenhielm", written on a light blue rectangular background.

David Åsenhielm

A handwritten signature in black ink, reading "Sanna Bergstedt", written on a light blue rectangular background.

Sanna Bergstedt

Servitization From a Customer Perspective

- Investigating why companies buy advanced services

SANNA BERGSTEDT & DAVID ÅSENHIELM

Department of Technology Management and Economics

Chalmers University of Technology

Abstract

Problem

Manufacturing companies today are transition from being pure product suppliers, to include services as a value-adding part of the core offering. This trend is commonly termed “servitization” and is penetrating almost all industries. Servitizing the business is a deliberate strategy to improve competitiveness and shown to be a way to increase revenues and gain higher margins compared to only selling products. However, many companies fail to realize expected economic benefits. To succeed with servitization, a supplier must gain a profound knowledge of customer operations, customer demand and customer value. The topic of servitization has been well studied from a manufacturing perspective, but little research has been focused on a customer perspective.

Purpose

The purpose of this report is to investigate why companies choose to buy advanced services by investigating the different drivers, how advanced services are evaluated and how the results from buying advanced services are perceived and measured.

Method

The study has been of a qualitative character using semi-structured interviews. The purpose and research questions have been investigated by interviewing four companies each from two different industries, Public Transport and Logistics. Within Public Transport, Public Transport Operators (PTOs) have been interviewed regarding the purchase of their buses together with advanced services. The logistics companies were similarly interviewed regarding their warehouse forklifts and services.

Result

Even though the two studied industries have several similarities, such as that the studied companies are service providers using different types of rolling vehicles to transport different objects, the result reveal very different purchasing behaviors. The two industries show very different contexts, where the Public Transport industry is very politically driven, and the Logistics industry is vastly affected by the growing e-commerce. The perceived outcome from purchasing advanced services differed between the two industries, where the logistic companies to a higher degree made use of advanced services, with satisfying results. The PTOs however used less advanced services and were not as pleased with the outcome.

Conclusion

The study concludes that the drivers to buy advanced services to a high extent is affected by the industrial context in which the companies operate, in terms of for example high precision requirements or volatile demand. Further, the study identifies that the characteristics of the industrial context, such as standardization or customization of products, largely affect the customer perception and the feasibility of advanced services.

Keywords: *Servitization, Customer perspective, Advanced Services, Outsourcing, Service Purchase*

Table of contents

1 Introduction	1
1.1 Background	1
1.1.1 The Trend of Servitization.....	1
1.1.2 The Challenges with Servitization.....	2
1.1.3 The Customer Perspective.....	2
1.2 Purpose	3
2 Literature Review	4
2.1 Servitization: The Manufacturer Perspective	4
2.1.1 Drivers of Servitization	4
2.1.2 Different Types of Services.....	5
2.1.3 Solutions Selling Process	6
2.2 Servitization Through an Outsourcing Lense: The Customer Perspective.....	7
2.3 The Customer Solution Buying Process.....	8
2.3.1 Initiating Service Purchase	9
2.3.2 Evaluation and Decision Making	11
2.3.3 Results and Follow-up.....	11
2.4 Research Questions	13
3 Method	15
3.1 Research Strategy	15
3.2 Research Design	15
3.3 Research Process	16
3.4 Data Collection.....	17
3.5 Processing and Analysis of Empirical Data	20
3.6 Research Quality	22
3.6.1 Construct Validity	22
3.6.2 Internal Validity	23
3.6.3 External Validity	23
3.6.4 Reliability	23
4.1 Logistics	24
4.1.1 Company S	25
4.1.2 Company T	30
4.1.3 Company U.....	36
4.1.4 Company V.....	40

4.2 Public Transport	46
4.2.1 Company W.....	46
4.2.2 Company X.....	51
4.2.3 Company Y.....	55
4.2.4 Company Z.....	61
5 Analysis.....	66
5.1 Logistics	66
5.1.1 Industry Challenges.....	66
5.1.2 Service Set-up.....	67
5.1.4 Evaluation.....	71
5.1.5 Results and Follow-up.....	72
5.1.6 Future Service Trend	74
5.2 Public Transport	75
5.2.1 Industry Challenges.....	76
5.2.2 Service Set-up.....	77
5.2.3 Initiators.....	78
5.2.4 Evaluation.....	80
5.2.5 Results and Follow-up.....	81
5.2.6 Future Service Trends.....	83
5.3 Comparing Industries	85
5.3.1 Different Drivers in Industries Give Different Service Needs	85
5.3.2 Differences in Industry Settings Give Different Purchasing Behaviors	87
5.3.3 Different Organizational Impact From Purchasing Services.....	88
5.3.4 Different Service Requirements Give Different Levels of Follow-up	88
5.3.5 Future Outlook For Advanced Services in Both Industries.....	89
6 Discussion	91
6.1 Why is the Purchase of an Advanced Service Initiated?	91
6.1.1 The Different Levels of Service Use	91
6.1.2 The Different Drivers of Sourcing Services	92
6.2 How is the Purchasing Decision Evaluated?	93
6.2.1 Different Requirements and Settings for Service Delivery	93
6.2.2 Cost Focus in Evaluation of Offers	95
6.3 What are the Results From Buying an Advanced Service and How is this Followed-up?.....	96
6.3.1 The Relational Aspect of Sourcing Services	96
6.3.2 Varying Degree of Monitoring Related to Organizational Change.....	98
7 Conclusion.....	100

7.1 Managerial Implications	101
7.2 Future Research.....	102
References	103
Appendix	107
Appendix I – Interview Guide	107

1 Introduction

The following chapter describes why this study is conducted by explaining the background of the subject servitization. The introduction ends with the purpose of the study.

1.1 Background

The background aims at explaining the concept of servitization, the current challenges with servitization and to present the customer perspective of servitization.

1.1.1 The Trend of Servitization

A clear trend can be seen in today's industry, where manufacturing companies transition from being pure product suppliers, to include services as a value-adding part of the core offering. This trend is called "servitization" and can be described as a trend where manufacturing companies introduce more and more service components in their offerings (Desmet et al., 2003). Servitizing the business can be perceived as part of a deliberate strategy to improve competitiveness and is penetrating almost all industries (Vandermerwe & Rada, 1988).

Traditionally, companies have been classified as either product suppliers or service suppliers (Vandermerwe & Rada, 1988) but with the trend of servitization, companies are now offering combinations of products and services. Baines and Lightfoot (2013) distinguish between three types of services; basic, intermediate and advanced services. A basic service is characterized with a "do it yourself approach" while an intermediate service stretches beyond the provision of a product or spare part and serves to maintain the product throughout its lifecycle (Baines & Lightfoot, 2013). Lastly, an advanced service shifts focus from the product to focus on the customer enabled capabilities delivered through the performance of the product in-use (Baines & Lightfoot, 2013). Characterizing these advanced services is that the customer usually wants the supplier to take over parts of their operations, requiring a high degree of service commitment and close relations between supplier and customer.

The drivers for a manufacturing firm to transition into also becoming a service provider are to a great extent related to strategic, marketing and financial factors (Baines et.al, 2009). Offering services, separate or connected to a product, is according to Baines and Lightfoot (2013) a way for companies to compete with the increasing competition from low-cost countries and to keep or develop new customers. From an economic standpoint, including services in the company's core offering is a way to increase revenues and gain higher profit margins compared to only selling products (Slack, 2005). Selling services connected to a company's installed base of products, also gives an opportunity to capitalize on products during the entire life-cycle (Olivia & Kallenberg, 2003), providing more evenly distributed and predictable revenue streams (Gebauer & Fleisch, 2007). Further, offering services entails close collaboration with customers (Baines, et al., 2007), enabling development of deeper knowledge about the customers' needs.

In this report, unless otherwise stated, the term *service* refers to the activities a manufacturing company offers as a complement to their products, in accordance with the definition used by Baines & Lightfoot (2013).

1.1.2 The Challenges with Servitization

As explained, the benefits of servitization are several. However, research have shown that many large servitized manufacturing firms fail to realize the expected economic benefits of servitization (Neely, 2008), something commonly referred to as the “service paradox” (Gebauer et.al., 2005). One of the causative factors to this failure is the difficulties in, and the importance of understanding what value means to customers and consumers instead of focusing on producers and suppliers. According to Beuren, Ferreira and Miguel (2013), more aspects than merely economic gains should be considered in the development of offerings including both products and services, requiring an increased understanding of the customer demand. As described by Baines & Lightfoot, (2013) the more advanced services offered, the higher the requirements on close relationships between the customer and supplier. Similarly, Mathineu (2001) describes services supporting the customer as characterized by a high level of relationship intensity, requiring profound knowledge of the customer’s operations.

1.1.3 The Customer Perspective

According to Vandermerwe and Rada (1988) servitization is a customer-demand driven process that partly evolved due to that customers become more informed and hence, their demand on services increase to fully be able to utilize the products. Vandermerwe and Rada (1988) concludes that servitization is driven by customer convenience and that servitization often requires a high level of customization to meet a customer’s specific needs. Likewise, Kindström and Kowalkowski (2009) states that there is a big need for customization and hence extensive customer involvement in the development of a service.

The drivers for a customer company to transition from buying pure products, towards buying bundled offers including both products and services are also mainly related to economic factors and market factors (Slack, 2005). Buying services can offer a way for customers to reduce the overall cost base and to be able to predict cost (Slack, 2005). As the supplying company takes over some activities previously handled by the customer, buying services also enables the customer to reduce risks and to focus on its core business (Slack, 2005, Tukker, 2004).

In addition to the discussions of servitization as a driver of financial and market values, research has highlighted servitization as a way of increasing sustainability values, e.g. environmental performance (Goedkoop, et al., 1999). As suppliers change their business models, and customers revise the way they look at ownership, servitization has the possibility to reduce environmental impact with a “doing more with less” approach. Customers and suppliers are today more aware of sustainable values (Chou, et.al., 2015) and being sustainable can work as a competitive edge in today’s society.

The existing theoretical frameworks on the subject of servitization often focus on the drivers behind and means for product suppliers to expand their offers into services and become service providers, even though servitization is described as a customer-driven process (Vandermerwe & Rada, 1988). To succeed with servitization, a supplier must gain a profound knowledge of customer operations, customer demand and customer value (Beuren, Ferreira & Miguel, 2013; Mathineu, 2001; Baines & Lightfoot, 2013). Also, Baines et al, (2017) emphasizes that there is a lack of research on customer behavior and customer acceptance in regard to service offerings. Therefore, there is a need to take a customer perspective to examine the drivers and demand behind buying services.

This research will take a customer perspective investigating why companies choose to buy advanced services in an attempt to expand the knowledge of the customer drivers and demand on buying services. This is done in order to contribute to manufacturers future service expansions. In particular, this study will aim to explore the drivers for customers to purchase advanced services.

1.2 Purpose

The purpose of this report is to investigate why companies choose to buy advanced services. Thereby, expand the knowledge about customer drivers and demand for advanced services, to contribute to manufacturing firms in their servitization process.

2 Literature Review

In the following chapter, theory and previous literature about servitization is reviewed. To enable the customer perspective of the process of starting to source products as services, outsourcing literature will be used. The chapter however starts with the more traditional manufacturers perspective, and then switches focus into to customers perspective.

2.1 Servitization: The Manufacturer Perspective

Manufacturing companies today are increasingly including services as a value-adding part of the core offering (Vandermerwe & Rada, 1988). Traditionally, services have been viewed by manufacturing companies as merely an add-on to the products (Gebauer & Friedli, 2005), but are now becoming a main differentiator in the manufacturers' total offering (Baines, et.al, 2009). This trend of transitioning from being pure product suppliers to include services is called "servitization" and can be described as *"a trend where manufacturing companies adapt more and more service components in their offerings"* (Desmet et al., 2003, p. 49). Baines et.al (2009) describe how servitization can be seen as a way of developing organizational processes and capabilities in order to create mutual value through offerings integrating both products and services. These offerings are easier to defend from the competition stemming from low-cost economies and usually have a longer life cycle (Baines, et.al, 2009). Vandermerwe & Rada (1988) explain how servitization is penetrating almost all industries and can be perceived as a deliberate strategy to improve competitiveness.

The following chapter explains the drivers behind the process of servitizing the business from a manufacturer's perspective and distinguishes between different types of services. Lastly, the process of selling combined product-service offerings is explained.

2.1.1 Drivers of Servitization

Offering services, separate or connected to a product, is a way for companies to compete with the increasing competition from low-cost countries and to keep or develop new customers (Baines & Lightfoot, 2013). Low-cost countries today are able to outcompete western manufacturers to a large extent mainly due to low-cost labor and resources and adding services to the offering is a way to respond to this threat. Offerings combining products and services tend to be less sensitive to price-based competition (Malleret, 2006) and Wise & Baumgartner (1999) explains how offering services as a fundamental value-adding component in the value proposition can be seen as the most effective way to enable future business.

From an economic standpoint, including services in a manufacturer's core offering is a way to increase revenues and gain higher profit margins compared to only selling products (Slack, 2005). In some cases, selling services has been shown to generate twice as much revenues as compared to only selling products (Wise & Baumgartner, 1999). Selling services connected to the company's installed base of products, also gives an opportunity to capitalize on products

during the entire life-cycle (Olivia & Kallenberg, 2003), providing more evenly distributed and predictable revenue streams (Gebauer & Fleisch, 2007).

On the market side, offering services entails close collaboration with customers (Baines, et al., 2007) and enables development of deeper knowledge about the customers' needs. As such, by adding different services to different customers connected to the product, suppliers have the possibility to answer to each customer's specific need (Baines, et.al, 2009). Furthermore, service elements are more difficult to imitate, given a high level of labor dependency, and can thus be a source of differentiation and thereby competitive advantage (Olivia & Kallenberg, 2003).

2.1.2 Different Types of Services

Traditionally, companies have been classified as either product suppliers or service suppliers (Vandermerwe & Rada, 1988) but with the trend of servitization, companies are now offering combinations of products and services. These combinations may range from products where additional services are added, to complete solutions where the product is merely a part of the offer that aims to solve a customer's problem (Baines, et al., 2009).

The extent to which companies incorporate service offerings differ, and services can be categorized in many different ways. Baines and Lightfoot (2013) distinguishes between three types of services; basic, intermediate and advanced services. Basic services are characterized by a low level of service commitment and are usually related to customers with a "do it yourself" approach (Baines & Lightfoot, 2013). Such services can be delivering the product, delivering spare parts, or warranties connected to the product. Intermediate services stretch beyond the mere provision of the product and serves to maintain the condition of the product throughout its lifecycle (Baines & Lightfoot, 2013). Such services include for example scheduled maintenance, condition monitoring, and in-field service and entails closer relations between supplier and customer as customers want to do the tasks together with the supplier. Lastly, advanced services shift focus from the product to the customer enabled capabilities delivered through the performance of the product in-use (Baines & Lightfoot, 2013). Characterizing these advanced services is that the customer usually wants the supplier to take over parts of their operations, requiring a high degree of service commitment and close relations between supplier and customer. Such services include risk and reward sharing contracts, rental agreements, and customer-support contracts (Baines & Lightfoot, 2013).

Another definition is used by Mathineu (2001), who distinguished between services supporting the product and services supporting the customer. Services supporting the product are services where the main goal is to facilitate customer access to a product and to ensure proper functioning of the product (Mathineu, 2001). These services are typically standardized and require low level of customization and intensity of relationship. Given their characteristics of focusing on the product, services supporting the product could be related to the basic and intermediate services defined by Baines and Lightfoot (2013). Services supporting the customer are more complex and are aimed at supporting the client's core activities (Mathineu, 2001).

Similar to advanced services described by Baines and Lightfoot (2013), these services require profound knowledge of the customer's operations and are characterized by a high level of relationship intensity and customization.

Olivia & Kallenberg (2003) explain how the servitization transition can be structured according to a continuum ranging from pure-product supplier to pure-service provider, see Figure 1 below. The authors describe the transition as a process in which manufacturing companies are moving along the axis of the continuum through different stages, incorporating more and more product-related services into their offerings. Gebauer et.al (2008) similarly describe how companies are redefining their level of service infusion over time and deliberately move towards increased service dominance through a dynamic process.

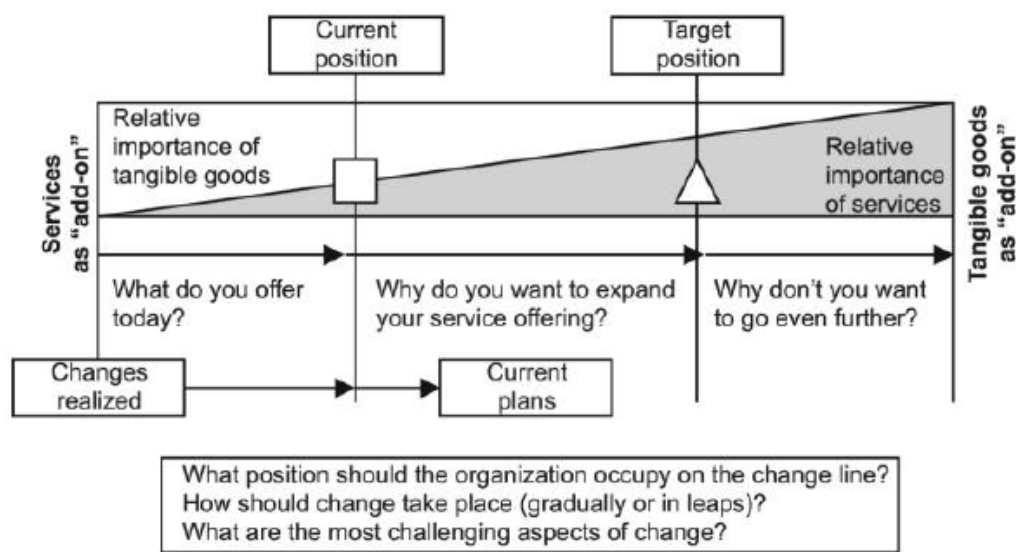


Figure 1- The product-service continuum as explained by Olivia & Kallenberg (2003)

2.1.3 Solutions Selling Process

Selling solutions is a complex activity, in which conflicting requirements from multiple stakeholders at a customer organization needs to be considered (Tuli, Kohli & Bharadwaj 2007). Defining and analyzing customer need is integral to develop a competitive and efficient service delivery process (Kumar et.al., 2004), with great importance of cooperating with the customer in doing so. Selling solutions can according to Storbacka (2011) be viewed as a process involving several interconnected and iterative steps. Four different process categories can be defined for a solution business model; develop solution, create demand, sell solution, deliver solution.

Further, Storbacka (2011) identifies cross-functionality as a decisive capability for a solution selling organization and categorizes commercialization, industrialization and solution platform as three distinctive clusters of cross-functional issues that may arise. *Commercialization* is referring to the ability of a selling organization to understand the process of which the customer create value, *industrialization* refers to the ability to effectively produce and deliver solutions and *solutions platform* refers to the creation of support infrastructure and systems for an

effective solutions business model. Tuli, Kohli and Bharadwaj (2007) describe a solutions effectiveness as the extent to which a customer's need is fulfilled. This in turn is described as solution providers abilities to define customer requirements, customize and integrate goods and services to address a customer need, deploy goods and services to address customer need and provide post-deployment support according to customer need (Tuli, Kohli & Bharadwaj, 2007). A comprehensive view of the solution business model as a process, by Storbacka (2011), is illustrated in Figure 2.

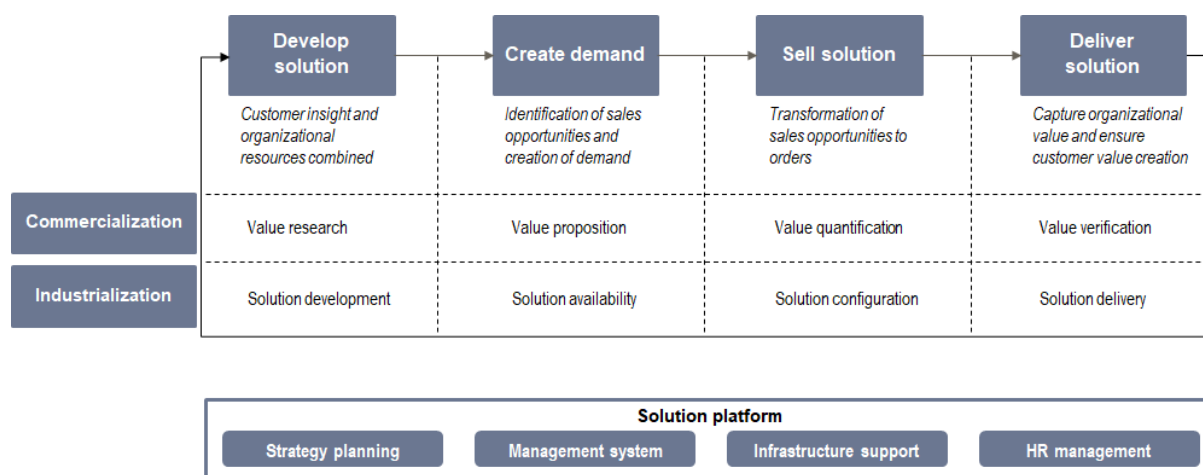


Figure 2 - The solution business model by Storbacka (2011)

2.2 Servitization Through an Outsourcing Lense: The Customer Perspective

On the other side of a solutions selling process, there is a solution purchasing process. Customers in industrial B2B markets have been described to increasingly demand services (Oliva and Kallenberg, 2003), due to underlying need such as a demand for increased flexibility and increased focus on the core business (Slack, 2005). As the purpose of this report is to investigate why companies choose to buy more advanced services, a customer perspective of the servitization process is needed. However, the literature investigating servitization and the purchasing of services from a customer perspective is sparse. As outsourcing, similarly to purchasing an advanced service, means that an external supplier will take care of certain customer operations (Van Weele, 2014), the following chapter begins with describing literature on outsourcing to turn the perspective from the supplier to the customer.

In a situation where a company starts to buy a more advanced service the customer company decides to transfer the responsibility of an activity previously carried out in-house to the supplier, using the definition by Baines & Lightfoot (2013). A similar occurrence can be identified with outsourcing, defined as *“The practice of buying goods and services from outside suppliers, rather than producing them within a firm”* (Black, Hashimzade & Myles, 2017). According to van Weele (2014) the four main characteristics of outsourcing is: the transferring of activities previously carried out in-house to an external supplier, the transferring of assets and knowledge to an external supplier, the existence of an extended relationship over a longer period, and finally the exposure to new risks and cost profiles for both the customer and

supplier. As explained by Baines & Lightfoot (2013), buying advanced services is similarly characterized by a transfer of responsibility of parts of the operations to the supplier and closer supplier-customer relations. Hence, buying an advanced service and outsourcing a service, both requires a transfer of the responsibility and operation of a service to another organization, with several implications following.

As for outsourcing, purchasing services is described to be more difficult than purchasing products (van Weele, 2014). Gallouj (1997) similarly states that the purchasing process for services activities differ from the purchasing process of manufacturing activities, due to higher levels of uncertainty and risk for the purchaser. Van Weele (2014) in turn explains that the difficulties arise since the specific requirements and the need initiating the purchase of a service, might not be very clear from the start.

2.3 The Customer Solution Buying Process

In this chapter, the process of buying solutions is accounted for from a customer perspective. This is to enable an understanding for the “make-or-buy” decision, discussed in outsourcing literature (Fill & Visser, 2000) that similarly occurs when a company decides to buy an advanced service. But also, to create an understanding of customer drivers and demand, insights into the supplier selection is required. In comparison to the solution selling process described previously, a traditional purchasing process spans from determining the purchasing needs to following up the purchase and ensuring a proper delivery and payment (van Weele, 2014). Van Weele (2014) roughly divides the service purchasing process into two main phases: the pre-contractual stage and the post-contractual stage. The pre-contractual stage includes: specifying and defining the scope of work for the service providers, selecting the service providers, and contracting. During the post-contractual stage, the actual delivery of the service occurs while the supplier and customer are having continuous interactions, monitoring and following-up key performance indicators (KPI's) (van Weele, 2014).

Hence, a generic process of purchasing services can be described as containing three main parts. Firstly, there is an initiating phase where a need and potential benefits are identified, initiating the whole purchasing process. This corresponds to the pre-contractual stage of the service purchasing process or the “create demand” phase of the solution selling process. Then, the need is translated into specifications and a purchasing decision is to be made. Lastly, during service delivery the customer company measures and monitors the service delivery to reveal to what extent the service provider fulfills its commitment (van Weele, 2014). During the evaluation of an offer a decision of whether to buy a service and evaluation of potential service provider is made. The evaluation and selection of service provider are according to Gallouj (1997) important issues to consider, for both parties in a purchasing process. When a purchase decision has been made and the service infrastructure is in place, the service is delivered and measuring and monitoring starts. However, as explained by MacDonald, Kleinaltenkamp and Wilson (2016) this process is often influenced not only by the quality of the suppliers' delivery, but also the customers processes. The three described phases of a service purchasing process are illustrated in Figure 3, which will also work as a framework for the study.

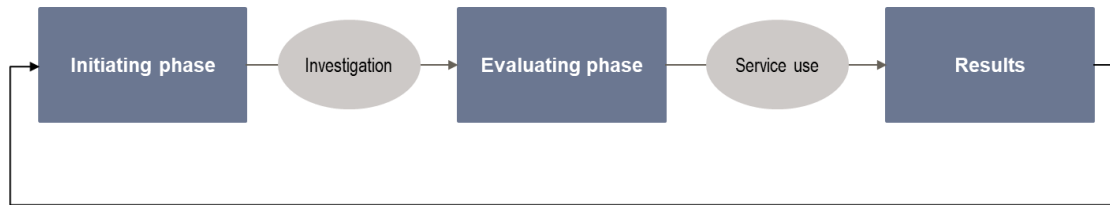


Figure 3 - The study framework illustrating a generic service purchasing process

This chapter will in further detail elaborate on these three phases of the service purchasing process to enable an examination of how the drivers to buy services translate into the evaluation of the service purchase decision and selection of a service provider, and lastly how the results from this is followed-through.

2.3.1 Initiating Service Purchase

Starting with the initiating phase, the following subchapter will explore literature and theories related to the drivers behind buying more advanced services and how this further relates to and requires service contract specifications to be in place.

From a customer perspective, the drivers of buying services are mainly stemming from economical and market aspects (Slack, 2005). Buying services can offer a way for customers to reduce the overall cost base and to be able to predict certain costs (Slack, 2005). As the supplying company takes over some activities previously handled by the customer, buying services also enables the customer to reduce risks and to focus on its core business (Slack, 2005, Tukker, 2004). Furthermore, MacDonald, Kleinaltenkamp and Wilson (2016) identify avoiding downtime, fast problem solving, low cost, reduced financial risk, fixed capital reduction, and increasing competitive advantage as potential benefits of buying services.

The rationales for outsourcing is according to van Weele (2014) divided into tactic and strategic reasons. Tactical reasons focus on cost reductions, freeing internal resources, receiving cash infusions, improving performance and managing functions that are out of control. Strategic reasons might instead be focused on improving company focus, gain access to supplier's resources and capabilities not available internally, improve customer satisfaction, increase flexibility and share risk. Kremic et al (2006) proposes a similar categorization and divides the outsourcing drivers into three different categories; cost driven outsourcing, strategy-driven outsourcing and politically driven outsourcing, whereas politically driven outsourcing relates only to public organizations. Kremic et al (2006) propose that the outsourcing drivers have been shifting from cost related to more strategic issues, such as flexibility and enabling focus on core competencies. Barthélmy and Quélin (2006) in turn, explain that the rationale for a company to proceed outsourcing is to increase profitability by using fewer in-house resources.

According to Bröchner (2006) reducing cost is one of the main drivers for outsourcing, but Hoecht and Trott (2006) emphasizes that focus should be on utilizing organizational knowledge and not to obsessively cut cost. Bröchner (2006) also describes aspects such as accessing new technology and competences and increasing service quality as important drivers for

outsourcing. However, according to Hoecht and Trott (2006) there exists risks related to for example information leakage, with outsourcing. According to Bröchner (2006) many managers consider different types of risks such as; reduced control, reduced flexibility, dependence on supplier and service failures when deciding to outsource. The inability, or the insecurities connected to identifying and quantifying risks are also considered by managers and might according to Bröchner (2006) constitute a barrier towards outsourcing, which is in line with what Gallouj (1997) explains regarding that a high degree of uncertainty is related to purchasing services. Further, according to Gallouj (1997) the information asymmetry between the supplier and customer might constitute a barrier towards sourcing a service, since the supplier usually is the expert and hence, has more information.

However, as explained, the identified benefits from purchasing a service or outsourcing an internal process could be many, and Van Weele (2014) describes that the identified service needs should be specified into purchasing requirements.

Regarding the specification of services, Axelsson and Wynstra (2002) argue that the scope can be defined in mainly three different ways; input specifications, throughput specifications and outcome specifications. Input specifications specifies what resources and capabilities the service supplier should make use of producing the service, throughput specifications focus on the processes that needs to be in place, for example that both supplier and customer agrees upon activities and plans. The output specifications specify the functionality rather than the activities of a service (Axelsson & Wynstra, 2002). Output specifications are usually agreed upon using Service level agreements (SLA), where e.g. maximum downtime could be defined (van Weele, 2014). A SLA is agreed upon by both supplier and customer in the contracting phase, and it describes what needs to be performed and delivered by the supplier (van Weele, 2014). SLAs might be connected to the payments by the customer, regulating the payment level depending on what is actually delivered (van Weele, 2014). Axelsson and Wynstra (2002) goes even further and defines outcome specifications that are related to the economic value that the customer gets from the provider activities.

According to van Weele (2014) a customer should always strive for output or outcome-based specifications since that enables the supplier to use the most expedient methods and organize in their most appropriate way. Further, it is important to ensure that a supplier has the capability to deliver the promised output and outcome (van Weele, 2014). However, according to Barthélmy and Quélin (2006) more complex contracts are also more expensive. Complex contracts are explained as contracts with elaborate clauses, e.g. specifying roles and responsibilities, measurements, detailing penalties. The conclusion stated by Barthélmy and Quélin (2006) is that each contractual clause has a cost related to it.

Furthermore, according to Barthélmy and Quélin (2006) several exchange hazards increase the contract complexity, and hence, they increase the ex-post transaction cost of an outsourcing agreement. These exchange hazards could be; high switching cost, high core-related specificity and a high uncertainty regarding an outsourcing business future. Core-related specificity suggesting that the closer an activity is to the core-business, the bigger the need for the

outsourcing business to control the vendor, which gives rise to detailed contracts. High uncertainty about future needs gives rise to more elaborate clauses to ensure that any unexpected contingencies are dealt with. High switching cost does according to Barthélmy and Quélin (2006) give rise to complex contracts to deal with potentially opportunistic vendors.

2.3.2 Evaluation and Decision Making

Transitioning to buying advanced services usually requires a transfer of internal activities to the suppliers control (Baines & Lightfoot, 2013) and thus includes a type of “make or buy” decision. The evaluation and selection of a service provider is according to Gallouj (1997) a linked process. Traditionally, the decision of “make or buy” has been a cost-based decision where outsourcing of operations has been closely related to cost reductions (Fill & Visser, 2000) with little considerations of strategic implications (Welch & Nayak, 1992). However, as advanced services aim to enable and improve customer capabilities and require a high level of supplier-customer interaction (Baines & Lightfoot, 2013), there are more factors than cost to consider when making the decision of buying advanced services. Beuren, Ferreira and Miguel (2013) describes how only considering economic gains usually fails to characterize a successful offer combining products and services. Maltz and Ellram (1997) explains that a total cost of ownership analysis may be used to not only include the cost, but also other factors into the decision.

According to Kremic et al. (2006) a company should consider not only risks and benefits with a potential outsourcing decision, but also include other factors. The factors described by Kremic et.al (2006) are divided into four different categories; strategy, cost, function characteristics and environment. Strategic factors include core competency considerations, human resource considerations, flexibility and impact on quality of the outsourcing decision. Core competencies are less favorable to outsource, given their implication for the organization to sustain a competitive advantage, whereas lack of human resources is a more favorable reason to outsource a function (Kremic, et.al, 2006). Kremic et.al further explains that impact of quality is important to consider as customer demand and organizational reputation might derive from the quality of an organization's offerings. Depending on impact on quality, outsourcing might therefore affect demand and reputation either negatively or positively. The last strategic factor proposed by Kremic et al. (2006) is flexibility, which also can be affected both positively and negatively by outsourcing.

Gallouj (1997) however emphasizes that there might arise difficulties in reaching an agreement between a service provider and a client, which is a necessity to enable the formulation of a service level agreement, as explained by van Weele (2014). These issues in reaching an agreement may arise from the high uncertainties related to the quality of the service and because the value attributing criteria may differ (Gallouj, 1997).

2.3.3 Results and Follow-up

The following chapter explores literature and theories related to the potential results of buying more advanced services. To understand the reasons for successful results from a customer

perspective, the factors affecting a successful solution offering is described from a supplier perspective. Furthermore, literature regarding the measurement of value creation from services is explored.

According to Storbacka (2011), a successful solution enables the improvement of value creation for the customer. However, to reach a successful solution business model, there is a need from a solution provider perspective to develop new capabilities and management practices (Storbacka, 2011). To understand the value creation process from a customer perspective is a crucial step in the development of integrated solutions (Brady et.al, 2004; Davies, 2004). To ensure in-depth understanding of what customers value and their concerns, a set of commercialization capabilities and management practices are necessary (Storbacka, 2011). To map the customer situation, regular cross-functional planning together with the customer should be conducted (Brady et.al, 2005; Storbacka et.al, 2001). Shawey (2006) in turn, talks about the importance of segmenting customer insights to avoid too much dependence on individual views. Involving lead customers in the early development phase and quantifying customer value at an early stage are other important steps (Storbacka, 2011). Quantifying customer value and specific value propositions should be linked to the individual customers' critical business concerns.

Moreover, customer insight and focus on customer's processes and financial drivers is identified as needed drivers of solution development that should complement e.g. technological innovation (Storbacka, 2011). However, there is a need to balance the demand for customization and need for standardization. According to Tuli, Kohli and Bharadwaj (2007) customization and integration are viewed as integral parts to a solution by both customers and suppliers. As a way of delivering more profitable solutions, Tuli, Kohli and Bharadwaj (2007) suggest that service providers should take a relational-process view on selling solutions.

As shown by Windahl and Lakemond (2006) external relationships and interaction have a positive effect on the success of developing an integrated solution, from the supplier's perspective. A customer judges a solution not only based on the supplier's processes, but also their joint processes (MacDonald, Kleinaltenkamp & Wilson, 2016) emphasizing the importance of joint resources integration between the customer and service provider. Similarly, Tuli, Kohli and Bharadwaj (2007) describes that effectiveness of a solution offering depends on adequate customer adaptiveness to the supplier. Integration and development of joint resourced enables customization and decisions regarding where to draw the line between the organizations (MacDonald, Kleinaltenkamp & Wilson, 2016). As a very close relationship requires careful management and clarification of where to draw the line between the organizations and their responsibilities is necessary (van Weele, 2014). However, it takes time to develop a constructive service-relationship (van Weele, 2014)

According to Bröchner (2006) most literature about outsourcing recommends a transition from contractual relationships, based on strict requirements, towards long-term relationships with a supplier. Bröchner (2006) explains that most research on the subject proposes that a company ideally should rely on only one supplier, or at least as few suppliers as possible. This is in strong

contrast with the move from traditional outsourcing, using one or a few long-term suppliers, towards strategic outsourcing, using several suppliers and short-term contracts explained by Hoecht and Trott (2006).

As a company may be impacted from changes in relation management and supplier base when sourcing products as advances services, it is of interest to also ensure that a service provider fulfills their commitment, as explained by van Weele (2014). The expected result from outsourcing, is according to Kremic et al. (2006) usually to achieve cost savings. But benefits such as increased flexibility, quality, realizing better service and refocusing resources on core business are also expected to be realized (Kremic et al., 2006). However, according to Gallouj (1997) it is difficult to both identify, measure and describe changes affecting either human or organizational systems, and relates this to the purchase of services. In a study of governmental contract performance, Brown and Potoski (2003) showed that by adopting monitoring, the chances of contract failure were reduced. However, the same research shows a relation between the ease of measurement and probability of actual measuring, indicating that the probability of monitoring decreases when the contracted service is either difficult to measure, or very simple to measure.

In line with Brown and Potoski (2003), monitoring of supplier performance is a vital question once a service is being delivered (Bröchner, 2006). However, the value of a solution to a customer over time, the value-in-use, does according to MacDonald, Kleinaltenkamp and Wilson (2016) arise from the perception of a solution components quality. The assessed value-in-use may arise from different constructs, the collective value-in-use arises from the organizational goals related to the operational performance of the customer firm and is evaluated on entities such as; avoiding down-time, fast problem solving, low cost, process improvement, reduced financial risk, dependence avoidance, fixed capital reduction, innovativeness and increasing competitive advantage (MacDonald, Kleinaltenkamp and Wilson, 2016). However, in contrast to the collective value-in-use, MacDonald, Kleinaltenkamp and Wilson (2016) also finds that the individual value-in-use is a part of the assessment of a solutions quality, the individual value-in-use relating to individual goals such as; task simplicity, pressure reduction and perceived control.

However, measuring and putting numbers on value created is difficult. There are few structured ways to measure created value (Sharma & Iyer, 2011), and often value is translated to increased revenue, profit or decreased costs (Bonnemeier, Burianek & Reichwald, 2010). Sharma & Iyer (2011) describes that the lack of ways to translate value created results in a situation where customers tend to divide solution offers into its constituents and judge it on their common price.

2.4 Research Questions

Previous chapters described servitization and accounted for the purchasing of services from a customer perspective using existing literature. Based on the framework described in chapter 2.3, one research question for each phase has been developed. This set-up provides an opportunity to study the service purchase from a process perspective.

As previously mentioned, the drivers of buying services from a customer perspective are mainly stemming from economical and market aspects, such as reducing risks and focusing on the core business. From the outsourcing literature, Van Weele (2014) divides the rationales for outsourcing into tactic and strategic reasons. However, as Ferreira and Miguel (2013) explain, suppliers' lack of understanding for customers value creation is one reason for why suppliers fail in developing offerings including products and services. As manufacturers many times fail to realize the expected financial benefits from servitization (Neely, 2008), this indicates that supplier companies fail in delivering according to the customers' requests and what they are willing to pay for. Hence, it is important to create an understanding of the customer drivers and what a customer seeks to gain from an advanced solution. This need is acknowledged through the first research question:

Q1: Why is the purchase of an advanced service initiated?

Transitioning to buying services includes a type of "make or buy" decision, as it usually requires a transfer of internal activities to the suppliers control (Baines & Lightfoot, 2013). As described, these decisions have traditionally been based on cost, with little considerations to strategic implications (Fill & Visser, 2000). However, as advanced services aim to enable and improve the customers' operations and capabilities, high levels of supplier-customer interaction are required (Baines & Lightfoot, 2013). Accordingly, there are different factors to take into consideration for the decision. Hence, to understand how customer companies evaluate the purchasing decision regarding an advanced service would further clarify what customer companies seek in an advanced service, and what they prioritize in potential offerings. This need is acknowledged through the second research question:

Q2: How is the purchasing decision evaluated?

As Storbacka (2011) explains, a successful solution enables the improvement of value creation for the customer. Value creation could come in many forms, but as Sharma and Iyer (2011) describe, there are few structured ways to measure created value. Further, as Gallouj (1997) explains, it is difficult to both identify, measure and describe changes affecting organizational systems and to relate these to a service purchase. As such, measuring the outcome of these types of services is not a standardized procedure, implicating there is an uncertainty for how companies should do it. Hence, to further investigate how companies follow up and values a delivered service is of interest to help create an understanding for customers' expectations. This is acknowledged through the third research question:

Q3: What are the results from buying an advanced service and how is this followed-up?

3 Method

The following chapter will present how the study was designed and conducted to fulfill its purpose and answer the research questions. The chapter also aims at inviting the reader into the process of the study to enable transparency.

3.1 Research Strategy

The purpose of this master thesis is to investigate the drivers behind the decision of buying advanced services, where product and services are bundled into one offer, instead of just buying products. Due to the complexity of the research topic and the investigating nature of the research, a qualitative study is the most appropriate in accordance with Bryman and Bell (2003). Further, Easterby-Smith, Thorpe and Jackson (2015) argue that qualitative research is well suited for open-ended research questions within areas where previous knowledge is limited. Hence, this study is of a qualitative character.

The study will take the form of a case study, as Yin (1994) proposes that case studies are appropriate for exploratory research questions aiming at answering questions such as “why” and “how”. Further, Yin (1994) emphasizes that decisions is one of the major focuses of case studies, and as this research aims at creating an understanding for the drivers behind the decision leading to the purchasing of more advanced services, and how these decisions later are followed up, a case study will be suitable. The study will consist of multiple cases since multiple-case studies according to Eisenhardt and Graebner (2007) are more robust and provide more generalizable results than single-case studies, hence, the study will include several case studies of different companies.

3.2 Research Design

In this study two different industries will be studied; Logistics and Public transport. This to enable the identification of similarities and differences between different industries with different contexts. Within Public transport, companies who conduct public transport on contract was chosen to be studied and within Logistics, warehouse logistics has been studied. These two industries were mainly chosen since more advanced services, such as operational leasing with full-service contracts or solely full-service contracts, are offered within both industries. Further, to enable comparisons between the industries, similar products with certain similarities in service-need was searched for. Buses and forklifts used in these two industries are different products in terms of usage and size, but both are considered heavy equipment or heavy vehicles, giving some similarities in service need due to similarities in components, as both are rolling vehicles transporting different objects. Hence, within Public transport, advanced services related to buses are studied and in Logistics, advanced services related to forklifts are studied. In each industry, four cases, or companies, have been studied. Related to the aim of the study, larger and well-known companies with a notable market share were firstly approached as they were easier to identify. When contacted, it was also clear that they had experience in purchasing the requested advanced services. However, a certain variety among the companies in terms of

size etc. does exist. Several other companies except those interviewed were contacted but are not included in the study, as they denied participation. Within logistics several companies denied participation and within public transport several explained that they have very little experience from purchasing the requested services, meaning they did not qualify for participation, or they denied participation.

At each company either one or several interviews with different persons have been conducted, and the variation exists due to that the different companies have different responsibility structures and roles. In some cases, one individual possessed the requested insights, while at other companies two or three individuals had to be interviewed to gain the requested insights. The aim of the interviews were to get insight into both the reasons for buying advanced service and the purchasing process of the company. However, the goal was to hold at least two interviews at all companies to collect different views on the same issues and enable a certain validation of answers since an interviewees context and viewpoint affects his or hers view on reality (Alvesson, 2003). But time constraints and unwillingness from companies and interviewees to participate hindered the interview process to proceed as planned. See Figure 4 for visualization of the research design with industries, cases and interviews.

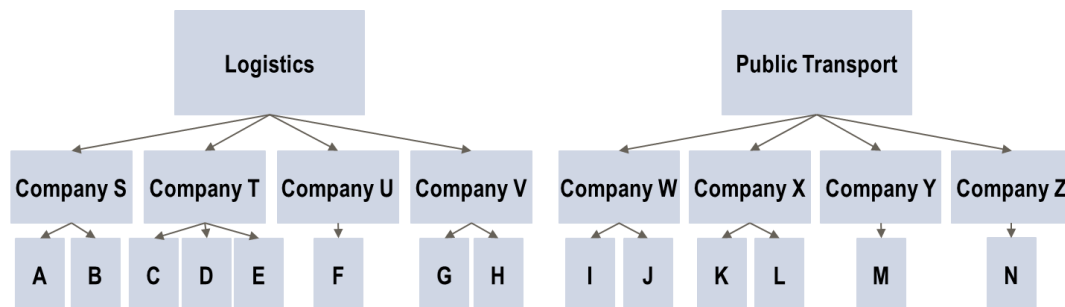


Figure 4 - Visualization of the industries, companies and interviewees included in the research.

3.3 Research Process

The process of the study has been of an iterative character. It was initiated with a literature study that in more general terms focused servitization, and identification of existing literature from the customer perspective. Thereafter, a draft of an interview guide was created, and some initial empirical observations was noted during the phase of reaching out to identified companies, since most interviewees were contacted by phone. This led to a second round of literature study, where the focus was on purchasing processes in general, and the purchasing of services in particular. At this phase the scope of the research became more clearly defined, from which both the interview guide and the literature study is structured. After the interviews were conducted, a third round of literature study was conducted to complement the existing frame of reference according to new insights from the gathered data.

The process where empirical findings influences the view on theory is defined by Bryman and Bell (2003) as an inductive process. Data might shed new light on the research and produce a new understanding for the theory (Bryman & Bell, 2003). With an inductive viewpoint, theory

is the result of data. However, an abductive viewpoint is according to Blomkvist and Hallin (2015), an approach that enables theory and data collection to influence each other. This iterative process of moving from theory, to data collection enables the researcher to expand his or hers understanding for both the theory and empirical data (Dubois & Gadde, 2002).

Hence, for this study, where previous research from the customer perspective is limited, the development of a hypothesis to test would not be feasible. Since the aim of this research is to develop an understanding and discover the variables affecting the customers decision process an abductive approach has been used. This iterative process enables the researchers to continuously expand the understanding for both theory and the empirical data, in line with what Dubois and Gadde (2002) propose. See Figure 5.

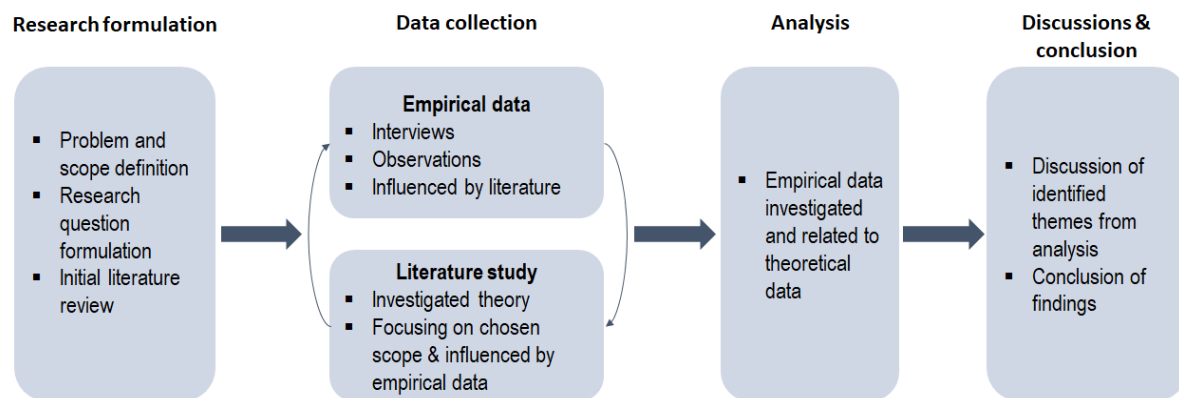


Figure 5 - Research process

As mentioned, the literature study and the creation of a frame of reference had the purpose of creating an understanding for the chosen topic to enable the iterative and abductive approach. In this study, mainly previous research and theories regarding servitization, different types of product-service bundles and purchasing together with the process of sourcing services have been studied to understand what these decisions was based upon. The frame of reference gives the subject a context and aims at addressing the gaps this study aims to fill, in line with what is proposed by Easterby-Smith, Thorpe and Jackson (2015). The literature study started off more broadly to continuously become narrower, which is in line with the process described by Easterby-Smith, Thorpe and Jackson (2015).

3.4 Data Collection

The initial empirical observations, mentioned earlier, mainly consisted of input from the interviewees during the phone calls when they were approached. To ensure that the interviewees had insights into at least one of our required viewpoints for the study, the topic was explained to the interviewee during the phone call. Many interviewees responded by explaining certain aspects of the advanced services they were sourcing and together with public information from company websites, this helped the researchers to gain an understanding for what types of services to be encountered during the interviews. Based on the answers during the initial phone

call, the researchers could judge whether the company would be a suitable case to investigate further.

All data documented and used in the research comes from the 14 semi-structured interviews conducted at the 8 different companies. A semi-structured interview has a prepared interview guide but offers flexibility in terms of the order of the questions and follow-up questions (Easterby-Smith, Thorpe and Jackson, 2015). A semi structured interview hence enables the interviewee to talk more freely, which according to Easterby-Smith, Thorpe and Jackson (2015) often gives more personal answers. Due to the interviews focus on complex decision processes and drivers, elaborative answers were requested and hence this was a suitable approach for the interviews. All interviews but three were conducted by both researchers, but the guidance of the interview guide ensured consistency between interviews.

The interview guide was, as previously mentioned, created after two rounds of literature search. The interview guide is structured according to the study framework, described in chapter 2.3, and aims at exploring the process of purchasing advanced services. The same interview guide was used throughout all interviews, and was used mostly just as a guide, for the interviewer to be able to keep track so that all questions were covered, since the semi-structured format at many occasions let the interviewees answer decide the question order.

During all the interviews the researchers took notes, however due to the risk of not being able to cover everything of interest during the interviews, all interviews were also recorded. This also enabled the researcher that was not present at three of the interviews to later listen to the whole interview and gain an understanding for the content. During the interviews with both researchers, one oversaw the interview and the interview guide, while the other researcher could focus more on follow-up questions and taking notes. To ensure that nothing of importance was missed out, all recordings was listened to and transcribed. Also, as explained by Bryman and Bell (2011) transcriptions of recordings allows for more thorough and repeated examinations of answers, since spoken language in interviews might be diffuse at sometimes. All interviews except two were held in Swedish and hence had to be translated into English.

Data collected from interviews should be used and interpreted carefully, as interviews are both socially and linguistically complex and an interviewees context and viewpoint influences his or her ideas of reality (Alvesson, 2003). Hence, Alvesson (2003) proposes awareness of the interviews complexity and even states that using interview data without theory is naive. These issues were considered by the researchers when conducting the interviews, by having a critical standpoint when assessing the interviewees answers. The interviewees in the study have various roles and titles. See Table 1 for a description of the interviewers and interviewees.

Table 1 - List of interviews

Industry	Company	Interviewee	Role/Title	Short description of role	Interview date (yyyy-mm-dd)	Interview length (hh:mm)
Logistics	S	A	Procurement Manager	Part of the centralized procurement group for the national market company. Negotiates framework agreements and creates purchasing directives for the rest of the market company. Does not work closely to the operational units.	2018-02-21	00:51
		B	Engineering & Equipment Manager	Responsible for purchasing forklifts for all terminals in Sweden. Played a big part during the sourcing of their first operational leasing agreements with service contracts.	2018-03-01	01:08
	T	C	Procurement Manager	Part of the centralized procurement group that negotiates framework agreements for the whole company, including the market companies.	2018-03-07	01:03
		D	Business Developer (third party logistics subsidiary)	Business developer working more closely to their customer side, with insight into how the company's procurement strategies effects their business offering and support to customers	2018-03-08	00:54
		E	Vehicle Specialist	Works with fleet management & purchase of heavy vehicles in the Swedish market. Responsible for forklift contracts	2018-04-09	00:37
	U	F	Technology and real estate manager	Has been part of the organization and involved in the purchase of forklifts for decades. Works closely to the operational units.	2018-03-02	01:06
	V	G	Terminal Manager	Responsible for purchasing forklifts for a specific terminal. Has to comply to the framework agreements and directive set-up by the centralised procurement, stationed elsewhere in europe.	2018-03-01	00:54

		H	Senior Procurement Manager	Responsible for commercial procurement (all non-IT spend categories) on group level, which includes forklifts.	2018-04-12	01:04
Public Transport	W	I	Fleet Manager	Overall responsible for several of the company's product categories, so among other products, the fleet manager is overall responsible for their total bus fleet in all countries that the company is present.	2018-02-20	00:56
		J	Procurement Manager	Responsible, together with the fleet manager, for all the bus purchases in the company.	2018-02-20	00:52
	X	K	Business Developer	Works with strategic development of the company as well as with securing their future business, responding to tenders. Responding to tenders includes purchasing a competitive fleet.	2018-02-19	00:55
		L	Purchasing consultant	Helps the company and a group of similar, small, companies within the industry to collaborate regarding general purchasing.	2018-02-19	01:10
	Y	M	Procurement Manager	Overall responsible for the purchasing of buses in Sweden. Also part in a global group within the company giving directions regarding strategic purchasing.	2018-02-16	01:24
	Z	N	Procurement Manager	Responsible for a number of purchasing categories, including buses, in the Swedish market.	2018-04-16	0:58

3.5 Processing and Analysis of Empirical Data

To enable analysis of the data, it was structured into case descriptions, one per company. The case descriptions are structured according to the topics of the interview guide and research framework. Hence, each case is structured into; initiating phase, evaluating phase and result. To contextualize a background and future heading was added. A common approach to qualitative analysis is the codification of data into its component parts at different levels (Bryman & Bell, 2011), where thematic analyses are used, striving to expose themes within the data.

To answer the research questions, the analysis is structured in the same way as the case descriptions, meaning that the first level of categorizing the data is into: background, initiating phase, evaluation phase, result, and future. The first level of codes are thereafter structured

within each of these categories, see Table 2. The coding of the cases was divided among the two researchers, but a first case was coded by both researchers to enable a discussion regarding the use of codes and hence ensure aligned ways of coding. Further, a case coded by one of the researchers, was in the next step processed by the other researcher to further ensure aligned coding. After the data was coded, it was structured according to the codes, per company and industry, into different documents to enable an overview for each code.

Table 2 - Data categories and codes

First level categorizing	Codes
Background	Internal context
	External context
Initiating Phase	Initiator
	Benefits
	Problems
Evaluation Phase	Evaluation criteria
Result	Organizational impact
	Measurement
Future	What is wanted
	What is required
	Service trend

Thereafter, the codes were structured according to industry, to get an overview of what was said regarding “background” and “internal context”. Within each category and code for each industry, key topics were identified. For example, a company mentioning that change in demand led to the purchase of services, will create the key-topic “Change in Demand” within the category “Initiating Phase” and code “Initiator”. These key-topics were structured into tables, with the companies in the columns and codes as rows and presented in Analysis chapter 5.1 and 5.2. See Table 3 for an example of key-topic mapping. This initial key-topic analysis was used as a basis for the written analysis.

Table 3 - Example of key-topic mapping

		Logistic			
		Company S	Company T	Company U	Company V
Initiator	Change in demand				
	External influence				
	Company strategy influence				
Benefits	Focus on core business				
	Flexibility				
	Risk reduction				
	Access to supplier competence				
	Cash flow management				
	Access to new equipment				
	Fleet management control				
Problems	Overall no problems				
	Supplier lock-in risk				
	Sometimes too expensive				
	Requires change management				

3.6 Research Quality

The quality of a case study, or the rigorness of it, is according to Gibbert, Ruigrok and Wicki (2008) commonly measured by; internal validity, construct validity, external validity and reliability. The following chapter discuss how this research will relate to these criteria.

3.6.1 Construct Validity

Construct validity measures to what extent a test or a study investigates what it claims to investigate (Gibbert, Ruigrok & Wicki, 2008). This requires the research both to be clear and specific regarding what is to be studied and to ensure that the selected measures are appropriate for that purpose (Yin, 1994). The construct validity in this research will be secured by that the collected data addresses the research questions and purpose. The study framework in chapter 2.3 plays a big role in ensuring this, since the research questions are related to the different phases of the process, and the interview questions are organized according to these phases.

Furthermore, by ensuring that both researchers continuously are involved in all parts of the data collection, and by enabling an assigned supervisor at Chalmers to revise and give input to this process, subjective judgements (Yin, 1994) will be minimized. The researchers have independently been conducting the research, but has continuously been sharing the process, both in terms of plans and discussions and in terms of written text, with the supervisor who continuously reviewed and gave input to the process. The progress of the research has continuously been documented by notes from meetings which creates a “clear chain of evidence” for the whole process and how the conclusions was made, in accordance with Yin (1994). However, only primary data will be collected in the interviews due to the limited access to secondary data, and data triangulation as proposed by Yin (1994), will be difficult to achieve.

3.6.2 Internal Validity

Internal validity refers to the causal arguments and logical reasoning throughout the research, and tests if these are strong enough to support the conclusion (Gibbert, Ruigrok & Wicki, 2008). According to Yin (1994) an important aspect of the internal validity is ensuring that the implicated causational relationship between variables is true, and fully investigated so that there is not an unknown variable actually accounting for the causations. By analyzing the data using different literature bodies and thereby enable different perspectives, the findings will be verified (Yin 1994). Also composing a comprehensive literature framework that demonstrates the variables and their connection will further help strengthen the internal validity (Yin, 1994). In accordance with what is proposed by Gibbert, Ruigrok and Wicki (2008) the matching and comparison of empirically studied patterns with previously studied patterns, and predicted ones, will strengthen the logical reasoning throughout the study.

3.6.3 External Validity

External validity is commonly referred to as generalizability and has to do with the extent to which the result, or generated theories are applicable and valid in other settings than the studied (Yin, 1994). Case studies are generally not generalizable to other settings than exactly those studied, and statistical generalizability is not relevant for a case study (Yin, 1994). However, analytical generalizability which refers to the generalization from the empirical observations and data to theory is relevant to consider (Yin, 1994). According to Eisenhardt (1989) a cross-case study with 4-10 cases is a good basis for generating generalizability, and in this research, eight different cases are included, four in each industry. However, the generalizability is limited, even for settings within the same industries as studied, and does not stretch beyond the boundaries of the studied industries. Further, as stated by Yin (1994) there should exist a clear rationale for the selection of cases. The selection of cases has not been in accordance with any statistical sampling. To investigate several industries, and several cases within each, does according to Eisenhardt (1989) enable replicable findings within each industry as well as generalizability between the different industries (Eisenhardt and Graebner (2007)). It also enables the identification of differences or similarities between industries, in accordance with Eisenhardt (1989). However, the aim of this study is not to achieve generalizability, but to explore the cases in question.

3.6.4 Reliability

Reliability refers to the absence of biases and errors in the research (Yin, 1994). High reliability means that if another researcher were to do the exact same study, they would end up with the same result (Yin, 1994). As a result, transparency and replication are important measures to consider (Gibbert, Ruigrok and Wicki, 2008). Transparency is achieved, as mentioned above, by continuous documentation and clarifications of how the research has been conducted. Replication is achieved in the same manner, by clearly communicate the process to enable replication.

4. Case Descriptions

In this chapter the result from the interviews will be presented as case descriptions, where each interviewed company is described as one case. For those cases where two or three individuals from the same company have been interviewed, their answers will be presented together in the same text. The cases will be presented based on the framework discussed in chapter 2.3, see Figure 6 below. The framework is extended to also include background information about each case, followed by a description of initiators and needs, the evaluation and decision making and the results from sourcing services. Finally, another extension is added as the interviewees views on future trends and requirements for sourcing even more advanced services are presented. Firstly, the companies within logistics will be presented, and thereafter the companies within public transport.

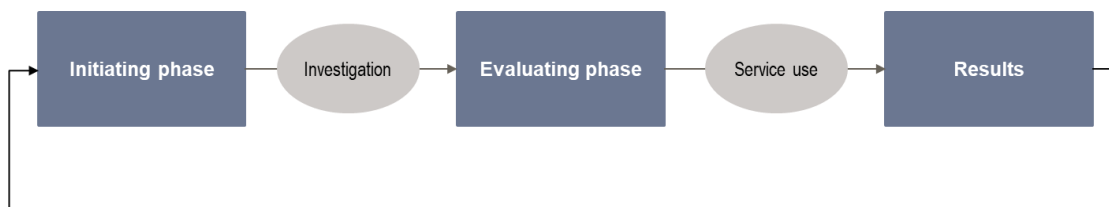


Figure 6 - The study framework, a generic service purchasing process

4.1 Logistics

The interviewed companies within the Logistics industry have been structured according to Table 4 below. The company and interviewee codes correspond to the description given in chapter 3.4.

Table 4 - List of interviewed companies and corresponding interviewees within the Logistics industry.

Company	Interviewee code	Title
S	A	Procurement Manager (centralized department)
	B	Engineering & Equipment Manager
T	C	Procurement Manager (centralized department)
	D	Business Developer (third party logistics subsidiary)
	E	Vehicle Specialist

U	F	Technology and real estate manager
V	G	Terminal Manager
	H	Senior Procurement Manager (centralized department)

4.1.1 Company S

In the following chapter, the case description of Company S, present within the logistics industry will be presented.

Background

Company S is a global player within logistics that offer a wide variety of logistic services, such as third party logistic, freight, express deliveries etc. They act both within the Business to Business, and Business to Consumer markets, which according to the interviewees are exposing them to a big trend – the growing e-commerce. This is shown by an increasing amount of both small packages, and large packages with furniture to private persons which is explained to be currently challenging company S's business. Interviewee B elaborates that the whole package-distribution system for private persons, using grocery stores will likely fail due to the increasing amount of goods. Since Company S's core business is logistics in a wide sense, this gives a wide variety of products connected to their core, where forklifts are explained as one important product used in their warehouses.

“With companies, the goods will arrive at our terminal and go away in the morning, the companies are open five days a week. When it comes home deliveries to private persons, it requires coordinating, since they are not at home at daytime”- Interviewee B

Company S has been sourcing their forklifts with operational leasing and service contracts for the past 10 years, using five-year contracts. According to Interviewee A, 99% of the forklifts are on lease with service agreements with the supplier, with monthly fees as a basis and guaranteed up-time. The service of the forklifts occurs in-house, having a representative from the supplier in each warehouse, responsible for both planned, and unplanned maintenance. Currently the company are only using one supplier to fulfill the demand for their about 500 forklifts in Sweden but is explained to previously have had service agreements with three suppliers in parallel and are open to use several suppliers again in the future. When using more than one supplier, the company is explained to still keep one supplier per site, in order to only have one supplier caring for the maintenance at each place.

The procurement process in Company S is affected by both global and national directives from centralized procurement groups within the company. They use framework agreements with several suppliers, which are the recommended suppliers to use, but a Request for Quotation is explained to be open for other actors as well. The company's national procurement department is divided by product category and the company is explained to not have any strategies directing whether or not a service agreement or a product purchase is preferred, as this decision goes

case-by-case. Interviewee B explains that this decision is referred to as a “make-or-buy”-decision that is incorporated into the decision process, and always asked for each purchase.

Initiating Phase

The initiator to source a new fleet of forklifts could according to Interviewee A stem from a change in demand, e.g. receiving a new customer. However, what firstly initiated the sourcing of forklifts using leasing with service agreement for the Swedish market is explained to have been the information that the possibility existed. The globally centralized procurement department communicated that rental agreements were a possibility, with other divisions in other national markets already using them. As described by Interviewee A the possibility to focus on their core business and make use of their suppliers’ competences was quickly seen as a potential upside.

“We are in the logistics business, not in the forklift business, we know nothing about the technical aspects” – Interviewee A

Both interviewees mention flexibility as one of the identified key benefits, as their service agreement allow the company to both scale up and down their fleet in terms of number of forklifts used. This is seen as a big upside as their business often change and they either loose or gain customers. This flexibility comes without any penalties in the contract, which is explained to be very beneficial. Interviewee B explains that their supplier has a profound understanding for their business and hence are confident that they will not have to scale down very much. Additionally, the interviewee describes that in case of variations in demand, the first measure is to relocate forklifts.

“It is especially the flexibility that made us choose service agreements. We want to be flexible when our business change, losing customers, gaining customers. We do not want to be left with a lot of cost, pushing us to reduce costs elsewhere” – Interviewee B.

Interviewee B explains that low margins in the industry pushes them towards being very cost focused and explains that many of their sites are getting old, with bad floors and levelers that wear the forklifts. Therefore, the company has negotiated in the service contract that damages derived from the condition of the site is to be seen as “normal wear” and be included in the supplier’s responsibility. The possibility to put those damages on another party saves money and reduces risk and is a good upside according to interviewee B.

“There is also a lot of damage due to our terminals, that do not have a perfect floor, or levelers. Then we said in the negotiations ‘fine, we want you to build this offer around that these forklifts should operate in our environment. So, if we have a terminal with a bumpy floor and bad levelers, that should count as normal wear’ (...) There we got a lot of money!” – Interviewee B

Furthermore, the possibility to lease the forklifts is explained to help the company avoid tying capital into their fleet, enabling them to instead invest in projects with greater returns. This was initially seen as a very positive thing, as having investment capital was highly prioritized by the company. However, this benefit is explained to change as new regulations, called the IFRS 16, will come into effect. Previously, products on lease did not affect the company's balance sheet,

which is explained to have been very positive for the company. But with the new regulations, all leased equipment will need to be taken up and accounted for in the balance sheet. However, Interviewee B explains that since the other benefits are so strong, it will not matter that much in the end.

"It will go into the balance sheet, but we still have all the benefits" - Interviewee B

Moreover, when the company started to source forklifts on leasing contracts, the chosen suppliers bought all the company's old forklifts, regardless of what brand they were. The supplier thereafter evaluated which forklifts were in good enough shape for continuous use. Interviewee B explains that this is another benefit with leasing, to not have to take the decision, or risk, regarding how long a forklift should be operated. At a certain point, an old forklift will become an economic burden due to more frequent service and repair need, and hence it becomes economically beneficial to instead scrap the old forklift and buy a new one. However, interviewee B further explains that due to the investment need and capital costs, it is not unusual to overuse a forklift when you own it yourself. This however is a short-term decision that is described to make the company lose money in the long-term.

" Our up-side number one was that such an old and large fleet binds a lot of capital (...) so if we would not have done this we would have had to make a heavy investment, which we now didn't have to (...) which enable investments in other projects that could create more value, in the long run, somewhere else" - Interviewee B

The identified problems with using leasing and service agreements are few, according to the interviewees. Interviewee B briefly and more generally mentions that lock-in effects towards one supplier could be a problem. Interviewee A on the other hand mentions that given their continuous interaction with several suppliers before the next tender, lock-in effects are not perceived as a potential problem.

Evaluation Phase

When it comes to the evaluation of the suppliers, their offers and how the decisions to buy leasing agreements are made, both interviewees mention cost as an important factor. However, interviewee A further mentions that their recommendations and directives from the centralized national procurement group are not purely based on cost, but also includes factors such as: flexibility, availability, environmental factors and working environment for their employees. These are related to the company's corporate vision and brand. However, Interviewee A explains that these values still have to be quantified to enable comparisons between different suppliers.

"We always try to quantify the values (...) cost is a very important factor" – Interviewee A

The differences between the suppliers are perceived as small, both when it comes to the details in the offering and the product quality. Interviewee B explains that many of the forklift suppliers in the industry produces forklifts that could fulfill the needs in all their sites, however, the employees working with the forklifts at the sites usually have their preferred supplier. Two sites with similar characteristics can have very different preferences of which supplier that works or not. In one described example, two very similar sites had opposite views of a certain supplier,

where one site declared that “supplier X is the only one that works here” and the other that “the forklifts of supplier X does not work here at all”. Interviewee B described that it is the details of the contract and the cost that determines what supplier they chose to work with and the input from the specific sites are secondary. When it comes to the cost of the forklifts, both interviewees describe that it is the total cost and not simply the purchasing price that is relevant.

“All suppliers could do the job (...) the quality is similar and equivalent” – Interviewee B

The differences in the received offers is explained by interviewee B to mostly be different base prices and yearly hours offered per forklift. One supplier might offer a higher base price with more potential up-time hours, and another one might have a lower base price but less hours, however still within their current requirements. In such a situation interviewee B describes that they make the decision based on whether they believe that they will have to utilize the extra hours in the future or not.

” Some suppliers prioritize a base price and have certain usage hours connected to that, another supplier has a higher base price, but bigger opportunities regarding hours. Everything else equal, this may make the extra hours a bonus when we evaluate, since we do not know our needs in the future” – Interviewee B

The evaluation is broken down into two components when choosing a supplier: product terms and economic terms. Factors such as guarantees on new equipment, design features and supplier implementation costs are described to have influence. For example, as described by Interviewee A, one site might experience that they have a very good relationship with one supplier and hence prefers their forklifts on the site. In such a situation, the company will try to quantify the potential savings of avoiding a new implementation and include these in the evaluation.

“We do not want to demand new equipment. But if one supplier says ‘we deliver 90% new equipment’ and another one can’t guarantee 50%. Of course, new equipment can turn into an advantage” – Interviewee B

Results

Since Company S has been sourcing forklifts using service agreements and leasing for almost 10 years, it has become the normal state for them. Interviewee B was the one initiating the first service contracts and explains that the overall results have been very positive in terms of both cost and performance. They have seen it as they are buying a function, and that the function has been fulfilled.

“We buy a function (...) we define that function and then it is up to the supplier to fulfill that function” - Interviewee B

However, the two interviewees give different perspectives on purchasing services versus products. Interviewee A states that it is much more complicated to purchase services and elaborates that when purchasing products, the main point of evaluation becomes price, since products from different manufacturers are mostly homogenous. Interviewee B however, with more experience in purchasing forklifts both as a product and as a service explains that he cannot see any bigger difference.

“Buying products is like an auction, you specify what products you want and then the suppliers can make their bids. Then it is only price that matters (...) Buying services is much more complicated than buying products” – Interviewee A

“I can’t see that there is any bigger difference between purchasing services and products” – Interviewee B

Both interviewees state that it is the same persons that are involved in, and responsible for, purchasing services and products within the same categories. None of the interviewees believes that the sourcing of forklifts as a service has affected the organization to any bigger extent. This is due to that they previously used third parties to perform service and maintenance as well, however without the same type of service agreement. The daily operations have according to the interviewees not changed notably either with the leasing agreements. The activities related to service and maintenance have not changed, and it is mainly the contract specifications, responsibilities and payment that has changed. However, the company is described to have simpler administration, fleet management and relationship management as a consequence of the leasing agreement.

” On one hand, not much has changed. It is the same equipment, but we lowered cost (...) we have also a simpler fleet management and relation management. I would not say it is a drastic difference, but it is an advantage, administratively and economically. But for those working in the operational business, it is no difference” - Interviewee B

Regarding the availability of the fleet Company S has guaranteed up-time as they pay for their forklifts based on usage hours. Regarding follow-ups and measurements, Interviewee B explains that they benchmark towards when they owned their own fleet, and also between leasing periods.

” We did analyze based upon three big parts: we are avoiding investments, we know the monthly fee and we know the cost of owning them ourselves. (...) but now we mostly compare towards our previous leasing agreement, so we know that if we lower cost from the previous period, we are on the right track”. - Interviewee B

Interviewee B is confident that the current set-up is saving them money, but also concludes that they probably pay a premium at the same time as they lower their risk. Further, Interviewee A mentions that getting the suppliers to be transparent regarding their costs can be problematic, and the company demand on a regular basis that the suppliers disaggregate their costs and communicates this to ensure they are not taking a “too high” margin.

“I can’t see any direct downsides using these agreements” - Interviewee A

“There is a lower risk, and it might be worth it to pay a premium to have the freedom, we think that we earn some money on that” – Interviewee B

Regarding any problems faced with the contracts, Interviewee B states that it is the supplier’s responsibility to make it work and that it appears to work out just fine. Since they have agreed upon response times and up-time, the company put it upon the supplier to provide extra forklifts

if they have breakdowns to fulfill the need. However, the interviewees provide no clear answers regarding if they actually have measured and documented any disruptions or problems.

“We have agreed upon response time and up-time, but it is the suppliers responsibility to maybe have an extra forklift at a big site. I have not heard about any problems anywhere, but if it would be so that the supplier would not fulfill their function so that the production would stop, we would have heard and stopped it” - Interviewee B

“We want fully functional forklifts and it is up to the supplier to provide this” – Interviewee A

Future

Company S explains that they are about to enter a new procurement, as their current five-year contract with their supplier is about to expire. Interviewee B explains that they will open up for other suppliers in this procurement, and that they will continue to source forklifts as a service, using rental agreements. Going back to source as products, is not an option currently.

Regarding future sourcing, Interviewee B explains that they are interested in extending the usage of service agreements as they have been looking into the possibility of leasing their packet paths, used in their terminals. However, regulations regarding depreciations and secondhand value makes this impossible. In general, interviewee B states that that economic upsides or a reduction of inhouse activities is what would make them consider sourcing even more advanced services.

“It is about that we need an economic upside, or in the end, some kind of positive economic effect. Economy does not have to translate into the lowest price, and could maybe mean it can take away some of our activities” - Interviewee B

As previously mentioned, the interviewees see strong trends from the growing e-commerce, with both increasing amounts to deliver and more home deliveries, and both interviewees agree that this is a trend that is here to stay. Interviewee B also elaborates that the industry overall has a higher pace now than before, they gain and lose customers more quickly. Interviewee A continues to state that there are currently several factors affecting their business, where a very ambitious environmental goal defined by the company globally, forces them to put a lot of pressure on their suppliers.

“This trend (e-commerce) will continue, there is no doubt” – Interviewee B

4.1.2 Company T

In the following chapter, the case description of Company T, present within the logistics industry will be presented

Background

Company T is a state-owned logistics actor with a strong presence in Sweden and Denmark, offering different types of logistic services. The core business of the parent company is delivering packages and letters, while one of the subsidiaries, where interviewee D is working, focuses on third party logistics. However, the centralized procurement, where interviewee C

works, negotiates framework agreements for all market companies, and the third party logistics subsidiary belongs to one of them.

“Our core business is delivering letters and packages, a service of delivering items at right time, place and to the right customer” - Interviewee C

According to Interviewee D, their core business is changing, the number of letters is reduced, while the number of packages is increasing. The interviewee also explains that the third party logistics business sees a change from working Business to Business, having few orders with many rows, towards working Business to Consumer, having many orders with few rows. The industry is growing thanks to e-commerce but is explained to be very competitive. Interviewee E in turn explains that the changes within the industry is changing the requirements set on the company. This is expressed both in the need of new forklift models but also in the volatility in the demand, which is explained to shift a lot over time.

“It is very tough competition, the prices are pressed, and the margins are low (...) but we grow a lot with our customers” - Interviewee D

In Sweden, Company T has already for some time sourced their forklifts using operational leasing with service contracts, where all service and maintenance except for damages caused by the company is included in the rental agreement. The agreements include specified Service Level Agreements (SLAs) such as response times that the supplier is obliged to fulfill, with penalties connected to not fulfilling the SLAs. The company is explained to have around 2500-3000 forklifts in the Swedish market, which are all included in the rental contracts. However, in Denmark the company is explained to just recently have started sourcing forklifts on lease, with the same type of agreements. The operational leasing contracts have a duration for normally five years and includes service and maintenance as well as tires and batteries. The set-up for both the Swedish and Danish market is that the supplier comes to the site where the company operates and maintains the vehicles there.

Since the company is state-owned they must comply with public procurement laws in both Denmark and Sweden. The company has a centralized procurement process where framework agreements are negotiated. Currently they have framework agreements for the forklifts and service contracts with two different suppliers. Mainly two departments are involved in these procurements, where one department is responsible for the technical questions and specifications and the procurement department is responsible for the procurement process.

On the question whether or not they have an outspoken strategy regarding sourcing forklifts as a service, Interviewee C answers that they do not, but that they have started to include service and maintenance in the tenders with the forklifts. Interviewee D also explains that no such strategy exists, and that these decisions are made case-by-case.

“No, not really, we used to make two tenders, but last time we only made one agreement including both supply and service” - Interviewee C on whether or not Company T has an outspoken service strategy

Initiating Phase

The initiator for a purchase is according to Interviewee C that they have a need for the function of a forklift, to move things around. However, what initiated the decision to start sourcing forklifts on leasing contracts is described by interviewee C as a bit unclear and there is an uncertainty whether this was initiated by the company itself or the suppliers. Further, Interviewee C explains that the suppliers are involved very early on in the procurement phase, and that the number of forklifts to be sourced is more of a common decision with the supplier, using their competence. The number of forklifts to be sourced is explained to always been reduced when they ask the supplier for advice.

“Okay, instead of six machines you will only need four machines.’ It has always gone down when we have asked the supplier, the supplier gives input in these questions.” - Interviewee C

Interviewee C mentions that a need for change and a need to save money contributed to the decision to change the way they source their forklifts, but that they also identified other benefits. For example, the interviewee explains that sourcing forklifts using full service agreements reduces the number of contracts, both since they use fewer suppliers, but also since service and maintenance is not separated. This gives simpler administration according to interviewee C. Interviewee E similarly explains that the changing and fluctuating customer demands made it expensive to own the forklifts themselves, and states that the rental agreements are a big benefit to the company. One of the main benefits is explained as the flexibility of being able to scale up or down the fleet with the variations in demand. Another identified benefit mentioned by all interviewees is related to the investments made. With the rental agreements the company is described to be able to avoid big one-time investments and instead get a monthly fee, enabling the company to get predictive costs. Interviewee D elaborates that avoiding investments also lowers their risk, both directly related to the lower investment, but also related to the operational risks since all of their agreements with their customers are time limited.

“What was our need, to make some changes and save some money? I think it was a combination (...) we have an agreement that the supplier should look at our business and optimize it” - Interviewee C

The identified downsides of having full-service contracts are few and both Interviewee D and Interviewee C concludes that there are no clear downsides with the contracts. However, Interviewee D reflects upon problems from a wider perspective and states that companies in general might feel like they lose control when starting to source something as a service instead for doing it themselves. Cultural differences between companies and family owned business are described as other identified factors making companies less prone to buy services, while a listed company are more willing to become more efficient.

Evaluating Phase

Cost is described as an important factor when it comes to the evaluation of offers and deciding what companies to have framework agreements with. Interviewee C explains that the two suppliers they currently have framework agreements with, was chosen since they offered the best price with the flexibility the company was looking for. Interviewee C further explains that

the company have had internal issues affecting profitability and performance, resulting in a pressure to reduce cost. The previous supplier is explained to have been too expensive, and even though the supplier wanted to support Company T with service and maintenance, Company T wanted to change supplier due to the high costs. When the specifications and requirements are defined, the supplier offering the cheapest deal gets it.

“The forklifts today are to a large extent equivalent, so the cost will in most cases be the decisive factor” – Interviewee E

However, it is described that cost is not the only thing that counts. Company T also evaluate the details of the offering, for example what Service Level Agreement they can get at hand. As an example, Interviewee C explains that they evaluate how soon they can expect a representative from the supplier in the workshop repairing a forklift after a break down. The technical attributes of the products are also evaluated, with respect to the operational performance of the forklift. Interviewee C mentions the power of the batteries, and the time required to recharge it. Several suppliers are explained to meet the technical specifications and their forklifts are seen as equivalent.

“Supplier X can do the exactly same service, but they are too expensive” - Interviewee C

To have two framework agreements is described as very positive as the suppliers are aware of constant competition, which according to interviewee C helps ensure that they are offered competitive prices.

“To only have one supplier in the framework agreement could make them act opportunistic, we have the opportunity to choose between two suppliers” - Interviewee C

Regarding what supplier to use at what site, Interviewee C explains that they try to keep it to one supplier at each site to not mix maintenance. However, as the company is obliged to make a tender each time they need a certain amount of forklifts, there might be another supplier winning the tender for a certain site.

“Actually, we are trying to, if we chose one supplier at that site, we try to keep that supplier there, but then we make a tender, we still try to have the same supplier at one site to not have several suppliers taking care of maintenance. But we are obliged to always make this tender” – Interviewee C

Results

All interviewees describe similarly that the current set-up, with leasing and service agreements, is better than the previous set-up in which they owned the forklifts. There is an expressed confidence that the identified benefits are realized. However, Interviewee C states that they are not very good at measuring to results of, or the outcome from the purchased services. There is however a belief that the company do save money.

“Actually, that (measuring) is something we haven't been very good at (...) I assume we save money because we do not have to buy services, and we reduce the number of invoices” - Interviewee C

The leasing contract includes the possibility of charging penalties if the supplier does not fulfill what is agreed in the Service Level Agreement. However, Interviewee C does not recall any situation when that has been necessary and there is describes a confidence that any problems with a supplier not fulfilling their commitment would be exposed

“I guess that if I don’t hear about it - people are satisfied” - Interviewee C

Overall, Company T’s collaboration with the suppliers is described to have increased since they began purchasing rental contracts, with positive side effects. One example described by interviewee E is that the sites have developed closer personal connections to the service persons at the different sites, strengthening the relationship with the suppliers. Furthermore, it is partly agreed that the supplier should take part in helping Company T optimize their usage of the forklifts, as a part of their assignment. This collaboration is described to have given the company more awareness about their business and how to optimize it and Interviewee C states that they now talk about optimizing operations more when the suppliers raised awareness on these questions. The supplier also helps to communicate about the products to the operational business units, something described to previously have been done by the purchasing department. Furthermore, using the rental agreements is described by interviewee E to have helped the company reduce operational standstills.

The collaboration with the suppliers is described to have led to that Company T use fewer forklifts in their business than before. Interviewee C explains that over the last few years they have reduced the number of used forklifts. Previously, the company is described to have used almost one machine per employee at the sites but have now realized how they can utilize the machines more efficiently. Interviewee E explains that one reason for this is that the forklifts have become more reliable. The forklift fleet is newer and the company no longer need to consider a reserve fleet, as this is part of the suppliers responsibility. Interviewee C describes how Company T previously used their forklifts for 8-12 years, but now always receive the latest equipment and therefore never have any forklifts older than five years.

“Over the last two years we have reduced the number of machines (forklifts). We used to have almost one machine per person working in the warehouse” - Interviewee C

Besides the reduction of number of forklifts, the fleet of forklifts is described to also have become more standardized. Interviewee E describes that the drivers previously could influence what forklifts to buy and the specifications it should have to a large extent, which drove a lot of customization and costs. However, the decisions of what forklifts to be used is described to now have been centralized, which has enabled an increased standardization of the fleet. Further, the closer collaboration with the suppliers is also described to have influenced the standardization of the forklifts, which in turn has helped the company to increase flexibility and decrease costs.

“Before it was almost up to each driver to decide what forklift to use and how it should look, which meant we had a lot of customized forklifts in our fleet (...) Now the decisions of what forklifts to buy are taken centrally and there has been a standardization of the fleet (...) the drivers still have some input in the decision but not at all to the same extent” – Interviewee E

The sourcing of the forklifts is explained to go through the same channels, regardless if they are bought and owned or leased. Interviewee C explains that the same method is used in both cases and that the specifications is what differs. However, as interviewee E describes, the influence from the individual drivers on what forklifts to purchase has decreased.

Whether there have been any changes in the operational business after the decision to source forklifts through leasing is described to be unclear. Interviewee C explains that the number of machines used and the number of times a supplier needs to come out to the sites for maintenance have both been reduced but is unaware of any other changes.

Future

Company T's business is currently changing given the changes in the industry incurred by e-commerce, which is described by all interviewees to be challenging both in terms of operations and equipment needs. Buying services is believed to have an important role in the future and Interviewee D explains that they are even looking into renting real estate and automation as bundled solutions. In terms of the rental agreements for the forklifts, interviewee E describes that they have found a good model that works and states that they will most likely continue using the rental agreements in the future.

“An Automation set-up can cost 60 MSEK, which is a big investment, so to include that in the rent of a real-estate property is a good option that we are currently investigating” -

Interviewee D

Interviewee C is on the same track reasoning about that they in general will buy more services, and to a greater extent use third party solution to get access to personnel in a flexible way.

“I think actually, now this is just what i believe, but I believe that our business will change, and the way we purchase. Like, we don't buy and own forklifts, maybe the same with personnel and other things.” - Interviewee C

However, when considering other heavy vehicles, such as vans and trucks, interviewee E describes that the use of the same type of rental agreements will not be favorable. The costs would be too high for that agreement as the transport demand is more stable and the need to scale up or down the fleet is not as palpable, reducing the need for that type of flexibility.

The suppliers are described to be offering different types of telematics solutions connected to the forklifts to an increasing extent. The company buys some, but far from all, of these solutions and Interviewee E describes that this is partly due to additional administrative work. The value derived from the use of these telematics solutions is explained to in most case be unclear. Further, the company has been looking into autonomous forklifts, AGVs, as well but have not yet found a good solution for them. The company is explained to have tried a solution with AGVs a long time ago but had too much issues with the forklifts standing still. However, interviewee E describes that the solution was good when it worked and believe that there is a potential use-case for them within the Third-Party Logistics business.

4.1.3 Company U

In the following chapter, the case description of Company U, present within the logistics industry will be presented

Background

Company U is an actor within the Swedish logistics industry, and active within Third Party Logistics. The industry has been affected by the digitalization in many ways, and a clear trend towards automatization is described by Interviewee F. Higher requirements on traceability and a push towards handling efficiency are described as two factors affecting the trend from manual to automated work within the industry. Another trend described is shrinking warehouse capacity within the industry and simultaneous increasing volume need, putting pressure on increased throughput. Overall, the industry is described as a low-margin industry.

“Nothing is stored anymore (...) warehousing is done on wheels” - Interviewee F

The core business of the company is described as “logistics services for temperate products” and the main products related to the core is explained to be forklifts and other types of handling equipment. Interviewee F further explains that they are a service selling company and that the customer in one way determines the company’s development level, as there is a need to adapt and be compliant with the customer’s business.

“We are a service selling company, we don’t own any goods ourselves” - Interviewee F

The company currently buys most of their 275 forklifts on rental contracts, which includes service and maintenance. The rental contracts specify truck availability, flexibility levels and response-times and is paid on a monthly basis. Interviewee F describes that the company used to do certain simpler service internally before buying forklifts on rental, but that this rarely was handled in a good way due to inabilities to allocate the time to do the service. Other services connected to the forklifts that are explained to be bought outside the rental agreements is the quality testing of certain forklift equipment. The forklifts are bought on contracts for 60-72 months.

The company is also described to outsource the operation of some of their contracts entirely to staffing agencies on up-time pricing, e.g. based on payment per received pallet, order and parcel. It is described that Company U want to achieve a higher efficiency, given that staffing agencies are better at certain static handling, and also get a fixed predictable cost. Furthermore, staffing agencies can offer a flexibility to answer changing customer demands in terms of increasing and decreasing staffing quickly that the company is not able to do to the same extent.

“We know that the staffing agencies are better at operating static handling effectively (...) We are good at dynamic handling, where the goods differ from time to time (...) “We ask ‘Can we make the operation fixed so we know what it will cost us?’ In that way we can demand a service level, a quality and performance in it (...) We specify a service-level and then it is up to them [staffing agency] how they want to staff to meet that level” - Interviewee F

The company is described to currently have no outspoken strategy when it comes to service purchasing other than a general purchasing rule that they should be as cost-effective as possible.

Furthermore, Interviewee F describes that for forklifts, the strategy is to buy each individual forklift as cost-effective as possible and adapt it after the site and the identified need.

“We want the “need-to-have”, but might not need the “nice-to-have”, that is a strategy that exists of course (...) we should always adapt our purchases to suit our current needs” -

Interviewee F

The company works closely with a few suppliers to source their forklift rental contracts. Interviewee F describes that the company’s purchasing process starts with the company listing all forklifts that are at the end of a contract. These forklifts are then specified and consolidated in a tender and sent to different suppliers for a quotation. The interviewee describes that the company has the possibility to extend forklifts on existing contracts, however choose to consolidate them in a tender in order to get larger discounts from the supplier.

“Even though we can buy them piecewise in the deal, we always do a mini-tender. In that way we can get better prices” - Interviewee F

Initiating Phase

Company U has actively been part of driving the development toward rental contracts for the forklifts and the main initiator to the decision is described to be related to cash-flow management. The company previously bought the forklifts and depreciated them over time but found it difficult to get any value from the forklifts at end-of-use. This is described to partly be due to that handling temperate products entails special requirements on the equipment, making the forklifts more difficult to re-use in other purposes. Interviewee F also describes that buying and owning the fork-lifts rendered peaks in the cash-flows, sometimes hindering the possibility to buy new forklifts. If the company was low on cash and a need to buy a new forklift emerged, they many times pushed the use of the forklift until a more suitable time from a cash-flow perspective. This was done even though it rendered more expenses in terms of service, repair and more difficulties in handling the forklifts.

“When we owned the forklifts, we had a tendency to overuse them [use them longer than economically beneficial] and say “maybe we can use it another 6 months” and push their use even if this meant more expenses due to repair & service need. But we could keep the cash-flow” - Interviewee F

The identified benefits of buying forklifts on rental includes predictable cash-flows and flexibility in the fleet. Interviewee F describes that renting the forklifts makes the cash-flow evenly distributed and predictable over a longer period of time, meaning cash-flow peaks can be avoided. In terms of flexibility, the interviewee describes that the company can change forklifts and models during the contract and scale number of forklifts up/down should there be a need to, i.e. if their customer contracts change.

“We avoid the peaks in cash-flow, now it is evenly distributed. I know what costs we have for rental per month, per year (...) we are more flexible now in the total fleet” - Interviewee F

Company U is described to still buy and own their forklifts for some sites. The reasoning behind this is simply that it is more cost-efficient to own the forklifts for these specific sites. The characteristics of the sites in terms of work-environment and work-load are explained to reduce the wear on the forklifts, making them last longer. As such, Interviewee F describes that they found it more cost-efficient to own the forklifts for a longer period of time, depreciate them and buy service & maintenance separately.

“We want to make it cost-efficient for each individual forklift and adapt it after the need and the site” - Interviewee F

Evaluating Phase

When evaluating the decision to buy or rent forklifts, costs are described as the main factor. Further, when evaluating different suppliers, the company will take into consideration several factors, such as truck-availability, quality of models and price. The truck-availability is defined as the number of hours each truck is specified to be available for use according to the contract. The interviewee explains that the quality of certain models can be a highly affecting factor. The sites are explained to have narrow passages, leading to a risk of collision damage and these types of damages are not covered in the rental contracts, leading to high costs for the company.

“We used to have another supplier for a certain model, but the windshields always broke and that is 20k right there (...) Suppliers are variously skilled on different models, that is why “the shuttle turns”” - Interviewee F

Results

Buying forklifts on rental is described to have had certain effects on the organization. One difference explained is that the supplier now usually has an employee, a service resource at the company's sites. The company is working closer with the suppliers and try to work with only a few suppliers to, among others, simplify relationship management. The company has for example transferred the responsibility of measuring truck usage and other fleet management KPIs to the suppliers. The supplier is described to e.g. support the company in standardizing usage to make sure that forklift hours are distributed evenly across the fleet. The company has follow-up meetings with the suppliers 1-2 times a year and in addition individual sites may have their own follow-ups with the suppliers. Interviewee F describes that centrally they have contact with a key account manager at each supplier company and locally each site has close contact with the supplier service organization.

“It is not our core business to analyze truck-hours in that way. Before we had to put our own personnel on this, but now we put that on the suppliers” - Interviewee F

Interviewee F describes that it is a notable difference between buying service and buying products. When buying a product, it is easy to specify exactly what the product should look like, how it should work and how long it should last. However, when buying e.g. the service of picking 10 000 boxes, there is a lot of questions coming up regarding the specifications on how to conduct the service that are difficult to answer. Regarding the forklifts, Interviewee F

explains that there is a need to know the models well in order not to buy too expensive forklifts given the site-specific need.

“That is when all questions come that are difficult to answer (...) if we buy a product we just need to specify exactly what we want. That is the difference (...) It is more complex to buy services, people are involved in a different way” - Interviewee F on buying something as a service

Interviewee F explains that no TCO comparison calculations are made to follow-up on the financial effects of buying forklifts on rental. The monthly costs are explained to be higher, but the company believe the total costs are lower or similar if they change forklifts during the contract period, e.g. switch to a new model. Interviewee F describes that no cost calculation was made earlier when the company was buying all forklifts that can be used as comparison today.

“It is difficult to make a calculation in retrospect, it is more of a feeling (...) Monthly costs will be higher, but if we change the trucks during the contract, the TCO will be similar or lower” - Interviewee F

The company is described to currently not have any standardized ways to measure individual quality of the forklifts other than assessing longevity and listening to supplier input. The supplier is described to be able to give good input on which forklifts they believe will have a longer life and which one they think needs to be changed.

“The suppliers are good at telling us what machines that needs to be changed and what machines that can be prolonged - this gives an indication on which models are good or not” - Interviewee F

Future

Going forward, Interviewee F believes that the company will continue to buy forklifts on rental but will increase the share of internally owned forklifts. The reasoning behind this is that the company has identified that certain forklift models last much longer than the specified contract period. The company has in these cases prolonged the rental for these models, but Interviewee F believe that it will be more cost efficient to own these models and buy the service separately. This is described to probably be more applicable to smaller sites where each forklift is driven by a single person, which tends to result in less wear. Another described reason for prolonging current forklifts is that the customer contracts are volatile and there is an uncertainty in what is needed in terms of equipment to handle the contracts. It is therefore described to be better to prolong the rental of the forklifts a shorter time until the contracts are completed than to bind the forklifts up on a new longer deal.

The suppliers are described to increasingly trying to add on more services connected to the rental contract. One of these described is telematics services where the supplier offers insights into fleet performance. The company is described to be reluctant to buy these services as the utilize their own Warehouse Management System where they can measure the efficiency of each site. Interviewee F explains that they have no need to measure individual performance of the forklifts as long as they can measure the overall efficiency of the site.

“I can see all this anyways, but of course the suppliers want to sell this to me” - Interviewee F

Another identified trend explained is the use of autonomous forklifts, called AGVs. Interviewee F describes that this is something the company has been looking into and tried, but explains that they have not yet found a good application for it. Using these are explained to come with certain requirements and are only viable for specific sites and circumstances. Standardized isolated transports are exemplified as a possible option whereas warehousing is not considered to work very well. Interviewee F describes that moving directly towards using automated cranes in the warehouse is probably a better solution.

“It requires that you separate people from the machines, and that is difficult to solve in a good way” - Interviewee F

Looking ahead, Company U is investigating potential solutions where they are able to buy both the forklifts and driver in the same deal. As the company has a lot of statistics regarding inbound flow of pallets for different time periods, Interviewee F describes that they are looking at finding deals where they can have both the forklift and the operation of the forklift offered in the same deal and pay the supplier based on pallet movement. Another option is to only outsource the operation of the forklifts and pay the supplier by piecework. The supplier in such deal is described to most likely be different staffing agencies. The rationale of such deal is explained to be that the company can get fixed and predictable costs already from the outset and that they can transfer risk to the supplier, e.g. costs related to collision damages.

“Can we get this type of agreement, we can get a fixed cost already from the outset” - Interviewee F

4.1.4 Company V

In the following chapter, the case description of Company V, present within the logistics industry will be presented

Background

Company V is a global player within the Transport and Logistics industry offering transport services worldwide. The core business is described as “conducting transport by road, air, sea and train” and the company is divided into three divisions handling three different operational areas; transport by air & sea, transport by road, and warehouse logistics. For the warehouse logistics operations, forklifts and warehouse racks are described by Interviewee G as part of the core. The company currently have around 5000 forklifts for the European and South African markets, whereas around 400 of these are placed in the Swedish market. The company has been facing a change lately with continuously increasing demand for goods transports, described to put pressure on operations to cope with the increasing volumes. The industry environment is described to have become much more dynamic and there are not as standardized needs as it was 10-20 years ago. Interviewee H explains how there is a pressure to continuously be faster and more flexible in order to meet various customer needs. The development of the e-commerce is described to have had a big influence in this development, affecting all markets over the world.

Since 2014, Company V is buying their forklifts as a service and have developed framework agreements with service specifications with two suppliers that cover mainly the markets in Europe and South Africa. Interviewee H explains that the company have developed what they call “concepts”, that comprise specifications on everything that a service supplier should expect to deliver. These concepts define various requirements such as scope of services, service levels and KPI:s and include aspects such as flexibility in fleet management, availability and supplier response times. The company is for example described to be able to scale up or scale down the fleet during the contract time within specified limits, without any penalties related to this. Payment of the contracts are specified through a fixed fee per month, which according to Interviewee H includes everything from finance, full-service, tires, and normal wear & tear damages. Would the company use the forklifts above specified limits, for example use the forklifts more hours than the specified limits in the contract, there are additional costs related to this. The framework agreements are set on a 5-year period.

“We are not simply trying to make agreements with suppliers for purchasing goods or services. We are building something called concepts, where we gather the needs from our organization and translate this into what we should expect from future suppliers, what they should deliver (...) The concepts are the most important part of our specification in the RFQ”

- Interviewee H

Based on the developed concepts, the company can easily screen potential suppliers and specify who are developed enough to meet the set requirements and who are not. Interviewee H describes that in the RFQ (Request for Quotation) that went out in 2014, only two suppliers had the capabilities to meet the requirements set and deliver the concepts in the way Company V had described.

The company has a strategy of being a light asset company which means that the company lease or rent all assets possible, i.e. equipment, vehicles and other transportation means. New regulations, the IFRS 16, stating that leased equipment must be reported as an asset are however described to potentially change the situation. Interviewee H explains that there has not been much difference so far and believe the company will continue with their strategy of being a light asset company.

“We are a light asset company, which means we lease or rent everything possible (...) this also means that we do not use our own airplanes, ships or other equipment” - Interviewee H

Initiating phase

The drivers to develop the concept for the forklifts and source forklifts as a service is described to have come from within the organization. Interviewee H explains that the main driver was the strategy of being a light asset company. Previously the company was sourcing the forklifts from several different suppliers, and Interviewee G describes that each company site negotiated and signed their own contracts with the suppliers. Interviewee H refers to it as a “standard contract” where they were renting the forklifts for 60-72 months, but without a full-service agreement. This was a costly set-up as the company many times would pay for forklifts they did not use and did not have control over the fleet and did not know how many forklifts they had or how the service & maintenance at the sites were managed. Interviewee G explains that they used to

purchase their services from third-party players, but had no centralized control on how or if this was done for the different sites. With the new agreement the company did not only identify cost savings, but also the possibility to get predictive fixed cost streams.

“20 years ago we had around 10-15 different forklift brands that we worked with and each site signed their own deals with the suppliers (...) there were no structure then, we didn’t really know how many forklifts we had” - Interviewee G

Main identified benefits with the current set-up is described as the potential cost savings and the enabled flexibility in the fleet management. The possibility of scaling up or down the fleet is perceived as an important aspect for the company, enabling them to be flexible should they e.g. lose a customer and the demand decreases. Interviewee H describes that the industry faces a common challenge of fluctuating demand where, from one day to another, companies can lose or gain customers and volume demand can change accordingly. With previous agreement, this meant that the company would have to pay for forklifts they did not longer used due to decreased volumes.

“In fact, we understood that we did not want to keep on ordering forklifts that should stay 60 months period of time, in a usual rental agreement time. This is not enough, it is not enough flexibility (...) In a very short period of time, we need to add another customer to our warehouse, or our volumes will increase rapidly, and we need to be able to handle those increases in turnover (...) We need the forklifts as a tool, which is why we instead buy them as a service” - Interviewee H

Another identified benefit was that the contracts enabled the company to gain more control over their forklift fleet and gain knowledge about the operations of individual forklifts. Interviewee H describes that they before the RFQ investigated the equipment need of each site together with related stakeholders and standardized their forklift fleet in terms of used models. Furthermore, the developed concept includes that each forklift is equipped with telematics solutions that gathers and sends data of each individual forklift to the fleet management team. Interviewee G explains that the possibility to coordinate service and maintenance and ensuring it is actually made was another identified benefit.

“If you don’t maintain or service your forklifts, it will be very expensive when they eventually break down (...) The forklifts must always be serviced and inspected, and now we know that this will happen, and we can focus on our core business instead, which is the logistics” - Interviewee G

Evaluation phase

To evaluate the feasibility of the concept approach for forklifts, the company tested the set-up with a chosen supplier. Interviewee H explains that there was one supplier already working with a similar solution at the time, and the company therefore chose to pilot the solution in one country to see if it made sense. Given the positive results of the pilot, the company then decided to implement the set-up in other markets, mainly in Europe.

When making the selection of service provider, the company asked suppliers to build business cases based on implementing the concept for a representative site. The suppliers were asked to

investigate direct and indirect cost savings and other savings they could make on the site, including damages, administrative work etc. Based on the input, Interviewee H describes that the company developed the concept requirements. The ability to deliver the service according to specified concept requirements was described as the most important selection criteria. Each potential supplier would have to fill in an extensive appendix of questions to answer which worked as a basis for the evaluation of whether the supplier would be able to deliver the required service. This created a short-list of suppliers and was a fully automated process. The supplier's global direct presence was one of the selection criteria that stood out in the process.

“You must have someone setting the right requirements and specifications, and to follow up on these, otherwise it will be expensive (...) everything is about money, but time and availability is also money” - Interviewee G

Interviewee H describes that the suppliers mindset, and the readiness and ability to see the forklifts as a service and not as goods, is what differentiate the suppliers. The suppliers acknowledging these opportunities will be the ones with the better offer. As exemplified by Interviewee H, company V is not necessarily interested in having the newest fleet possible, but could accept a fleet of refurbished forklifts, as long as they fulfill the service level and KPIs specified.

Cost is described as the second parameter of selection. Interviewee G explains that the company, given their large fleet, are able to negotiate down the prices significantly as they now coordinate the forklift purchases. As such, the direct cost can be lowered significantly.

Results

The decision to source forklifts through rental agreements is described to have affected the company in many ways and brought many positive results. The costs are described to have decreased significantly and the fleet management control has increased.

“We have significantly better control than before and have also reduced our costs, especially on group levels where we have radically decreased our costs” - Interviewee G

Interviewee G explains that they thanks to the telematics services provided, have been able to gain knowledge on individual performance of the forklifts and could more clearly map costs related to this. The company can now quickly identify and act upon any issues that arises, such as damages to the forklifts, under/over-usage etc., and is also described to be able to compare the performance of both countries and individual sites with each other. One other important aspect described by Interviewee H with the telematics, is that they have more clearly been able to map battery treatment of the forklifts, which has enabled the company to reduce costs related to this.

“This is the tool that enables us to have discussions with site managers, or country managers to look for further optimizations. We are optimizing this each and every day” - Interviewee H

The company meets quarterly with the suppliers to discuss the performance and usage of the forklift fleet, based on the data provided by the telematics solution. If the company has been running the forklifts below specified hours, they will recalculate the service fee to better align

with the real usage. This is according to Interviewee H also the case if the company has been running the forklifts too much, then the fee would be increased instead. This is described to be done to avoid discussions at the end of the month and also to centralize the contact with the suppliers, in order not to have the discussions locally.

Besides the direct costs savings enabled, the company is described to have been able to reduce indirect costs to a great extent. Interviewee H explains that the company by sourcing the forklifts as a service, removed the need for big groups of people whose tasks was simply to take care of the forklifts in terms of maintenance, purchasing etc. This is described to have enabled a lot of indirect cost savings.

“When we do this (forklift as service), it is not really outsourcing but close to it, you have direct savings but you can also calculate indirect savings. And let me say, sometimes it is even more than the direct savings” - Interviewee H

Another result from the service contracts identified by Interviewee H is a perceived transparency in the service delivery process. In the previous set-up, suppliers are described to have been able to hide certain things from the company. However, in this new set-up, it is not possible to hide things and Interviewee H describes that this has allowed the company to learn and become more knowledgeable of the situation. Today, the supplier's performance is measured on a quarterly basis, as the suppliers will report their results quarterly. The results are sent to the company and are verified by the equipment center, who are managing the forklift concept, and discussed together with managers from the group procurement department.

Interviewee H describes that one of the biggest changes when buying forklifts as a service is related to the change in employees' mindsets. Employees have been used to doing things a certain way for years, and there is a large change management process going on to educate and convince people about the new working processes. Especially the site managers are described to have been affected. Interviewee H describes that the site managers used to be responsible for the site, the budget and everything that happened on the site, including damages. But now, everything is described to be handled by one central system, and the decisions for the site managers are more related to certain configurations in the system. However, the implementation is described as a successful one, with little negative feedback regarding the concept approach.

“You need to convince site managers who have been responsible for this for 20 years, and done it in one way, that this new solution is better. Basically, it is like you are suggesting that their way is wrong (...) Of course there are issues, it is a big change management process, but regarding the concept itself, we've only had positive feedback from the markets” -

Interviewee H

The fully automated purchasing process that the concepts approach has brought, is described as very beneficial. Administrative costs have decreased and the system handles everything from new forklift requests to invoicing. Interviewee H however describes that there is an approval process needed that is handled by the equipment center, the forklift experts, which employ 4-5 people.

“Before, a site manager needed to spend weeks to find a supplier, but now he needs to spend 10 minutes to build and select options on forklifts he needs in a system, and that is all” -

Interviewee H

Buying a service instead of buying a product is described to be very different for the company. Interviewee H describes that the selection criteria differ a lot and requires big common investments from both supplier and customer. The suppliers are described to be required to make huge investments and have a deep understanding of what is required to do, meaning the supplier-customer relationships will be much closer. Interviewee G similarly explains that the relations with the supplier are much closer and describes that the supplier even has their own space for the service people at the company's site.

“We work very closely, it is almost a coercion. Every week I have contact with the sales manager in Sweden, and then we have monthly meetings and quarterly meetings (...) working closely is the only way to get it work painlessly” - Interviewee G on relation with supplier

Future

Both interviewees explain that services will become an even more integral part of their business in the future. The combination of the mentioned benefits of services and the now centralized purchasing process has increased the company's control over their expenses, according to Interviewee G. However, Interviewee H further explains that there are room for improvement, explaining that they will continue with a similar set-up as today, but further optimize it within the next five years. The process of optimization is explained as a process of learning, both internally, but also that the supplier increases their knowledge about the company's organization. But, the interviewee further elaborates that increased supplier knowledge is no assurance that they won't change supplier.

“I believe that we will increase the use of services, with these centralized framework agreements we do see increased benefits and expense control” - Interviewee G

Future changes of the set-up will according to Interviewee H be based on modified requirements in order to become more demanding of the supplier, given the learnings and knowledge acquired during the pilot period and first years of contract usage. The company will be much cleverer when extending the agreement or developing new concepts. Regarding future set-ups and new solutions, Interviewee G explains that they require attractive business cases exposing that they will earn on an investment within a period of time.

According to the interviewees, the company is also considering different automation solutions and the use of automatic and driverless vehicles, mainly AGVs. According to Interviewee H they are already looking into the possibility of AGVs, aiming at being somewhat first-movers once they find an efficient use. Today they see several barriers, where cost and complexity are the main ones. IT is also described to need to develop and catch up to create system support for automatic vehicles. An identified benefit however, is to be able to minimize damage, which is a huge cost is the business according to Interviewee H. The company is also described to be looking into alternatives with external labor, to reduce number of people handling the goods.

“We require a business case exposing that we will earn money on it, in maybe three years’ time or so” - Interviewee G

4.2 Public Transport

The interviewed companies within the Public Transport industry has been structured according to Table 5 below. The company and interviewee codes correspond to the description given in chapter 3.4. The interviewed companies are all Public Transport Operators (PTOs) and the public authorities, city councils and other governmental agencies who are responsible for the public transport within a region or a city are named Public Transport Authorities (PTAs).

Table 5 - List of interviewed companies and corresponding interviewees within the public transport industry.

Company	Interviewee code	Title
W	I	Fleet Manager
	J	Procurement Manager
X	K	Business Developer
	L	Purchasing consultant
Y	M	Procurement Manager
Z	N	Procurement Manager

4.2.1 Company W

In the following chapter, the case description of Company W, present within the public transport industry will be presented.

Background

Company W is a leading actor within the public transport industry in Sweden with the core business explained as “delivering and managing transport by bus”. The industry is characterized by public procurement contracts initiated by Public Transport Authorities (PTAs) and is described as a business to government industry. These contracts are typically signed for 8-10 years but vary in terms of scope and service commitment. The industry is also described as an industry of “high cost-focus” and margins are typically low.

Products connected to the core is described as mainly the buses. Interviewee I describe the buses as “crafts” due to the short production series and the many models and varieties that exists within the industry. The reason for this is mainly due to very specific and diversified demands from the PTAs regarding the specifications for the products used in the contract.

“Buses are extremely customized products” - Interviewee I

“We never buy standard buses, due to the differentiating demands of each tender” - Interviewee J

Company W currently conduct 90% of the service (i.e. repairs, regular service etc.) in-house in their own workshops. These workshops are operated by an internal workshop organization that employs around 400-500 mechanics. However, servicing buses is not considered part of their core as explained by Interviewee I.

“Our core is not to repair buses; our core is to drive buses” - Interviewee I

Company W currently outsource around 10% of the service connected to their buses to the supplier through full-service contracts. The company pays the supplier a fee per kilometer they use the bus and in turn have all repair and maintenance need taken care of connected to the buses. The contracts usually include availability requirements and response times that the supplier needs to fulfill. This in turn is explained to specify the reserve fleet that the supplier needs to have available for the company. The company is explained to buy the buses through financial leasing. The company works with multiple suppliers which is described as a deliberate decision in order to maintain competitiveness.

“We could never work with only one supplier (...) no single supplier can handle the entire commitment (...) we wouldn't be competitive” - Interviewee J

There is currently no outspoken strategy specifically regarding the purchase of services within the company, and Interviewee I describe that the approach used by the company is to always buy whatever is the most competitive alternative. Upon answering a tender, the company is described to always evaluate the option to outsource service and repair.

“We don't have any strategy to do it (service) ourselves, but most of the times this is the case” - Interviewee J

The procurement process when it comes to buying both service and products is explained to be affected to a large extent by the PTAs requirements specified in the tender. Given that all tenders from the PTAs are of public procurement type, certain regulations and restrictions apply for the process. When a tender is announced, the company will make a traffic plan based on the requirements specified. The next question is then to decide what type of buses is needed to meet the specified requirements, which is described to include everything from specific fuels, emission efficiency and design of the bus. After the requirements has been understood and accounted for, the company will send out their own RFQ to the bus suppliers from where negotiations later will commence.

The transport industry is described to currently face a technology shift in shape of the electrification of transport vehicles, commonly termed Electromobility, that is described to

affect the industry in many ways. Vehicles will be running on electricity powered by batteries rather than gas, diesel or other fossil fuels, and there is an identified need to rebuild the traffic system to suit this new development. New infrastructure is explained to be needed, with charging stations etc., and Interviewee I describe that there is currently an ongoing discussion on who should take what responsibility regarding this development.

“There might be a situation where we will walk in to set up infrastructure ourselves, unless someone can do it much better than us” - Interviewee I

Initiating Phase

The initiator to procure new buses is always related to Company W entering a tender from a PTA. What initiates the purchase of service contracts is described as depending on the certain situation for the specific contract in a specific geographical area, e.g. city. Either the bus volume required in a certain area is not large enough to economically motivate the operation of an own workshop, or it was not possible to find a suitable facility to set up a workshop in. This combined with that a certain supplier is already present in the area, makes service contracts beneficial as they reduce the need of reaching a critical mass and acquiring facilities as the service is conducted at the supplier's service site. Another possibility mentioned by Interviewee J is a situation where the supplier has been obliged to step in and take a full-service responsibility due to recurrent problems with a certain bus model.

“We have chosen to buy the service when we haven't been able to establish our own workshop” - Interviewee I

The benefits identified with buying service contracts are several. Access to facilities, risk reduction due to removed need to hire own personnel and economies of scale at small volumes are mentioned. For example, Interviewee I describe a certain capacity problem at the workshops that could potentially be avoided. New buses are described to rarely have any issues, needing only regular service, and any problems and repair needs are described to usually occur at a later stage of the bus's life cycle. The workshop workload is described to scale up with time, and to secure future demand the interviewee describes that they need to hire the required personnel from the start. The same personnel hence need to handle the increasing demand and to avoid undercapacity at the end of a contracting period, the company is investing in overcapacity at an early stage. To use service contracts would enable the company to let another actor, the supplier, to take care of the varying demand.

“We invest in overcapacity to ensure we won't end up in a situation where we can't get hold of enough mechanics when the need comes (...) If we could instead work with a service partner that can handle the flexibility needed in this, that would be worth a lot” - Interviewee I

I

One of the main issues identified with buying service contracts is according to Interviewee J that there is a fundamental difference in the way workshops are optimized based on who is the owner. The company-owned workshops are optimized based on minimizing downtime and making the buses run as much as possible. These workshops are not optimized to reduce costs or to utilize full capacity but focused on the availability of buses. The interviewee exemplifies

this by telling that they prefer to repair and exchange more spare parts than what could be considered necessary at each time, a type of preventive maintenance, as will extend the period until the bus has to visit the workshop next time. Commercial workshops however, owned by the suppliers, are described to have a different mindset and to be much more focused on occupancy and utility maximizing. The commercial workshops are described to want to maximize profit, which is done by having the buses in the workshop. The interviewee explains that differing business objectives makes the use of the supplier's service organization unfeasible.

“Commercial workshops make money when the bus is in the workshop, we make money when the bus is out on the street” - Interviewee J

Another identified issue is related to the fluctuating demand within the operations. Peak loads in the company's operations is described to be at daytime during certain time-slots. This is when the company need the buses the most to be up and running, however, this is described not to function well with the suppliers work hours. The company is described to want the buses to be repaired outside normal work hours, but the commercial workshops want to optimize work during daytime. Inability to service during flexible hours and the small margins is described as major influencers in making the deal less attractive. If the company need to cancel rides during daily operations, there are penalty fees from the PTAs connected to it. The company puts demands on the suppliers to take the same risks as they do in these contracts, which they are described as unwilling of.

“The suppliers will develop their own deals and say “look we have this golden deal” but they haven't verified with our expectations, and developed a deal based on what they think we want (...) The fundamental is that it (buying full-service) is not competitive” - Interviewee I

Evaluating Phase

The evaluation of suppliers and the decision to buy full-service contracts are described as mainly based on costs. Company W sends an RFQ based on the requirements specified by the PTA. After the quotations are received, the company will make a TCO analysis based on the specifics of the quotation, where aspects such as leasing prices, bus prices, quality issue costs and fuel consumption are considered and calculated based on supplier data and internally gathered historical data. The most competitive offer that satisfies the PTAs specifications will then be chosen, whether it means buying a full-service contract or using in-house workshops to service. Quality and more soft values are described to have gained increasing attention from the PTAs as a decisive factor. However, these parameters are described as hard to quantify and a “subjective question”, and therefore hard to include in a public procurement contract.

“All parameters will be boiled down to costs, even if they are quality values or not. Service level defined in availability etc. will all be described in cost” - Interviewee J

Results

The results of the service contract are described to be measured in both economic and qualitative terms. The company follows up on each individual bus regarding e.g. fuel use and consumption,

service and repair times and spare part changes. In contracts that include payment per kilometer the company measures the cost per kilometer paid and any extra costs that comes. The company also measures productivity in terms of how many hours they have had buses on the roads. Internal KPIs of between 99.96-99.98% completed tours are described as important measurements.

Managing service contracts are described as requiring much coordination and collaboration between the supplier and the company, with subsequent resource need. Central resources and overhead resources are described by Interviewee I to have considerably more work load when service contracts are used. The reasons are described to be due to the need to continuously follow up on every part of the deal, and the fact that no service contract has run smoothly from the outset, needing much effort to make it work in practice.

“Often we have meetings every morning to review status of the fleet (...) we have much more constraint on central resources if we have the supplier conduct the service than if we do it ourselves” - Interviewee I

The differences between purchasing services and products are described as few and the difference is described as related to the requirements set on the supplier. Interviewee J explains that there is a need to have good knowledge of the cost of the products and surrounding parts and service in order not to find yourself in a position with a too expensive commitment.

“This is what we noticed when we divided the offer. Then we realized: “have we paid so much for this?”” - Interviewee J

Finding a service partner that could provide according to the company’s need is described to not have been possible so far. The interviewees describe that they have close collaboration with some of the biggest suppliers, but they have not yet found a cost-effective solution that suits their business needs. Some successful service contracts are brought up by the interviewees, but with the disclaimer that it takes a vast amount of resources to have the supplier understand what the drivers are in these service deals and how Company W operates their traffic area

“The supplier doesn’t understand our need. We are in a niched business and have our specific circumstances (...) It is more cost efficient to do it ourselves, despite need for education and the equipment requirements” - Interviewee I

Interviewee J describe that it is strange that the suppliers are not better than the company at providing the operation of servicing the buses as the suppliers should be the ones with the better knowledge. The lack of understanding from the customer regarding the company’s needs is described as a major obstacle and making the suppliers understand that having the buses on the street is what is important is brought up as a major need.

“We don’t care about mechanics time etc., we only care about the buses being up and running” - Interviewee J

Future

One of the explained reasons why the company does not have that many full-service arrangements is the risk distribution between supplier and the company. The interviewees refer

to the strict commitment requirements put on the company by the PTA and the penalties related to not fulfilling the requirements. The suppliers are described as often unwilling to take the corresponding risks of taking over a certain commitment from the company.

“We cannot outsource something we are not in control of, without the supplier taking the risk” - Interviewee J

When asked about what it would take to increase the amount of full-service bought, a fair risk distribution is described as one of the main requirements. Interviewee I further mentions that the company want to work preventively to prevent service and repair need of the buses and increase bus availability. The key is that the operations should be plannable and therefore they want to avoid working with remediation. A change in current supplier structure is explained to probably be needed to increase willingness to buy service, and Company W want a situation where the supplier works closer with the customer directly in the depot. To realize this, a need for a separate supplier service company is suggested, that is separated from current structure with retail dealers.

“Should someone come in and say, “We are prepared to take this responsibility” - then we don’t see any self-worth doing things ourselves” - Interviewee J

The identified future trend with electrified buses is not considered a problem by the interviewees. The suppliers are described to be trying to convince the company that the suppliers should be the ones taking care of the service due to a described complexity of the new buses. Both interviewees however explain that they believe that they will be able to handle it themselves.

“The suppliers will come and say “this will be complicated, let us take care of this” (...) but since we are big and have our own competencies we don’t think we will be sitting with that different questions than we do now” - Interviewee J

4.2.2 Company X

In the following chapter, the case description of Company X, present within the public transport industry will be presented.

Background

Company X is an actor within the public transport industry in Sweden, employing around 500 people. The core business is described as “conducting scheduled bus services” but the company also includes supporting functions into their core business. The main customers are various county councils, PTAs. The industry is described as very cost-driven with low margins and there is a described need to continuously chase costs to be able to earn money.

Company X’s traffic deals with the PTAs are described to be won through public procurement with common contract lengths of 8-10 years. The core business of Company X is expected to remain the same for the coming years, however new business operations are expected to grow. Among the new businesses described is a separate commercial bus traffic, running express buses on their own and not related to any contracting with a PTA, and the establishment of a

workshop company that will sell workshop services to other companies, not only related to buses. Buses and drivers are described as main resources in the core business, and the company has around 220 buses spread around Sweden.

“Buses and drivers are what is included in the core business, but we have our own workshops with a lot of equipment such as forklifts and so forth (...) that is part of the core business too” - Interviewee K

Most of the service done on the company's buses are described to be done in-house through internally owned workshops. For some contracts with different PTAs, the service of the buses is outsourced to the supplier by the use of full-service contracts with guaranteed availability levels specified in the contract. Interviewee K describe that the company buy the buses through financial leasing. Further, the interviewee describes that the company avoid operational leasing where service is included, as this is considered too expensive. Other services that the company buys are exemplified as fleet management systems, and regular service connected to their heavy equipment in their workshops. Interviewee L also describes that bus tires and supply of spare parts are purchased as a service.

“We are relatively professional buyers. A smaller company may find operational leasing a good solution, but we like to divide it (the offer) (...) operational leasing is often too expensive since the supplier want to safeguard itself in different ways” - Interviewee K

Company X is described to have different purchasing processes depending on what the purchase considers. Buses are bought through tenders and the company will send a request for quotation to around 5-6 suppliers where they are asked to specify vehicle types, price per vehicle, warranty terms, service contract prices and specifications, give a quote on leasing offer and describe what else they can offer. This is described to be done every time they apply for a new contract. The purchase of fuel, spare-parts, oil, batteries etc. is described to be consolidated and handled by Interviewee L, a specialized purchaser that works for the company on a consultancy basis. Interviewee K describes that there is no outspoken strategy within the company when it comes to service purchasing, since it is too dependent on the specific situation for each contract.

“We can have a strategy for this (buying bus services) since it is so dependent on the procurement/contract. Each procurement/contract is unique (...) we look at it case-by-case” - Interviewee K

Initiating Phase

The initiator of a service contract is described to be different from case-to-case. There is always a need to find a solution for service and repair and depending on whether the company has the possibility to have their own workshop or not, the need to buy the solution as a service contract is more or less evident. Access to facilities to set-up own workshops are described as one factor affecting the need to buy service contracts or not, as the use of service contract many resolve the issue of setting up an internally owned workshop.

“We consider a potential service purchase already at the procurement phase: How do we solve the delivery in this area? (...) especially workshop and service are very dependent on

local conditions (...) it could be this easy: do we have the opportunity to have our own workshop or not?” - Interviewee K

For the full-service contracts with specified availability clauses, the initiator is described to derive mostly from lack of knowledge. These contracts are described to mostly concern the company's electric hybrid buses. Since this is a new technology for the buses, Interviewee K describe that the company do not fully understand the risks related to these buses and therefore see a need to reduce the risks through a service contract. One of the reasons described is the need for bus reserves. The company always includes bus reserves when making the calculations for a certain contract, but cannot afford to buy more reserves to cover for the perceived risks.

“We don't understand the full risks when it comes to this new technique, common diesel buses we have known for 90 years” - Interviewee K

One identified benefit with the full-service contract was related to the removed need to buy a larger reserve fleet. The supplier took all the responsibility to ensure the buses were available according to specified terms and were obliged to put in a new bus if there was a problem with a bus resulting in the inability to use the bus. Another benefit described with service contracts is the fact that the company can get predictable costs and cash-flows, as the costs for these contracts are fixed per month.

“This was a good thing because when we started having issues with the buses, it was the supplier's problem and they had to put in a new bus for us” - Interviewee K

Evaluation Phase

Evaluating the decision to do all service in-house or buying the service from the supplier is described to be depending on several factors. The economical factor is described to be the biggest and the decision is in many cases described to be a question of which option is the cheapest. Other factors described as taken into consideration are convenience, security, and reduced administration need. Interviewee K also describes a situation where the client is requesting the applying companies to show that they do their procurement in a certain way, and where buying full-service can be beneficial.

“We will look at the economic calculation and see: is it cheaper or not?” - Interviewee K

Company X is described to always ask the suppliers to quote cost for both the buses and related service contracts. The service contracts are described to be specified through a fixed cost per kilometer and based on the quote, the company gets an indication of the service need the supplier expects on the bus. This information could according to Interviewee K be used as a decisive factor affecting whether the company buys a certain bus or not.

“It (service contract quote) can be decisive and very important information even if we don't buy the service. It shows what they (the suppliers) think about their buses (...) it can be valuable even though we don't buy the actual service” - Interviewee K

The company is described to also take into consideration local conditions for the traffic area when making the decision whether to outsource service. Interviewee K describes that if they have their own workshop in the area, they usually do not want to outsource the service.

However, for smaller traffic commitments requiring low volumes of buses to run the traffic, the company usually do not find it beneficial to have their own workshop.

One specific service described that the company buys for all their buses is a fleet management system, based on telematics. The company plugs-in a device in each bus that through a 4G modem collects data from the bus that the company can use to analyze bus performance. Among the gathered data is operational temperatures, driver behavior and conditions for batteries and breaks.

“The system can to some extent predict service need of our buses” - Interviewee K

Results

The effect on the company's operations from buying service contracts is described as limited.. The interviewees describe that the process for buying the service and doing it themselves is basically the same. The same dialogue will take place at the workshop regardless whether they do it themselves or have a service contract giving that the supplier service organization handles it. However, Interviewee K describe that they do not have to continuously evaluate the cost of each bus to the same extent.

“Not much difference between buying products and services (...) it is about defining a scope, defining what to buy, what the service should achieve for you and the drivers behind buying it” – Interviewee L

Another identified difference described with buying services, is that it requires more knowledge and competence of the persons making the purchase. A product or bus with specifications in the tender material is described to not require any special competences from the buyer, but with services the competence demand is higher. Buying services is described to require the ability to estimate the value added by the service, which in turn requires more knowledge about what they actually receive. Service contracts is not only described as putting higher requirements on the buyer, but also the salesperson at the supplying company and there is a perceived difference between a dedicated service salesperson and salesperson that sells both service and products.

“Sometimes you can notice that they (supplier salesmen) have only been selling products previously” - Interviewee K

Interviewee L explains that the company tries to build close relations and contacts with the suppliers and seldomly change suppliers. The supplier performance is described to be measured as a percentage of the defined service level within the contract.

“It is a type of competence building both for the suppliers and us (the buyer) (...) there is also administrative costs related to this, the fewer supplier the less administrative cost we have” - Interviewee L

Future

When asked about the company's buying behavior related to service going forward, the interviewees explain that it is not predicted to be much different from how they are working today. However, it is explained that the technology development with electrified buses will change the service and maintenance need of the buses overall and that the need will decrease going forward. Interviewee K describes that they see a need that the suppliers develop their service offerings to align with this change, but also identifies a need for themselves to develop new competencies as current competencies may become obsolete.

“There will be battery deals instead of service deals, which is basically the same service but calculated differently. We don't have any competence in this area (electrification), but the supplier does not have it yet either (...) we will need other types of competencies, maybe electricians rather than mechanics” - Interviewee K

When asked about the outlook regarding the use of own workshops in the future, Interviewee K states that there is an uncertainty about the future need. As the technology development is predicted to decrease service and maintenance need of buses and require new competencies, the question of whom should conduct future services is uncertain.

“This is very uncertain, I am not certain we should have our own workshops going forward as service need will decrease and we will need more specialized competencies. That makes it difficult with our own workshops (...) we might choose to buy the service at a larger extent as it becomes more complex competence-wise (...) but this is untouched ground so far, and in 10 years ahead it will not be a problem” - Interviewee K

The industry is expected to change given the technology development and it is described that the suppliers are likely to increase the amount of offered service deals, with more service deals based on a fixed price per kilometer and month likely to be offered.

“Service deals are technology driven, and now things will happen that hasn't happened in 90 years. It will be a big change for the industry (...) it will be more convenient for companies without less experience to buy service contracts specified with a cost per kilometer” - Interviewee K

4.2.3 Company Y

In the following chapter, the case description of Company Y, present within the public transport industry will be presented.

Background

Company Y is a global public transport actor with presence in several continents. They engage in all types of public transport and are described as a company able to support a city or region with all transport communications they need. In Sweden they are present in several cities, mostly in terms of bus transports. Their clients are explained as almost exclusively governmental businesses, PTAs, and Company Y is therefore taking part in tenders obeying public procurement laws.

Company Y's core business is described as "transporting people", using different means. The execution of public transport is planned on a minute-level and Interviewee M explains that they have very detailed Service Level Agreements with their PTAs specifying both penalties and bonuses related to how well the traffic is conducted. The penalties are connected to delays, cancellations of tours, cleanness of the buses and customer satisfaction. According to Interviewee M, the penalties within one of the larger cities in Sweden, where they run about 1000 buses, easily exceeds a couple of million SEK on a yearly basis. In one of their commitments they are penalized with 10 000 SEK on each cancelled tour. Normally these agreements specify that Company Y must carry out the planned tours to 99,4% and if they exceed this, the company might get bonuses.

"We build metros, have heavy trains, lightweight trains, trams, lifts, parking garages, bicycle rental etc. (...) we have different modules and we see ourselves as a company that should be able to support a city or region with all communications they need" - Interviewee M

The products used in their core business is referred to as "rolling stock" and includes all "rolling" equipment used to transport people, both on roads and railways. The structure with very high demands and penalties gives that Company Y has defined the availability of their rolling stock, in Sweden primarily buses, as core and hence choose to take care of service and maintenance internally as far as it is possible. However, in a few cases they have chosen to invest in full service agreements. At each site where Company Y is carrying out public transport, they need access not only to buses but also access to a depot, where the buses are stored, a workshop where the buses are maintained and served, and personnel to staff the depots, workshops and buses.

"We have chosen to see the availability of the bus as core" - Interviewee M

Company Y is described to currently have two fleets in two different cities on operational lease with full service agreements bought from the supplier of the buses. These contracts usually run for seven years and are priced based on a fixed tax per kilometer. Interviewee M explains that the company used to have several other full-service agreements of this type, but since they decided that availability of the bus is core, they try not to use service agreements. Interviewee M further explains that their business also makes use of forklifts, which are on operational lease with full service agreements, since they are not related to their core business. On the question whether they have an outspoken strategy regarding the use of full service agreements, Interviewee M answers that they have decided to try take care of the service of their core-related products internally. However, the interviewee further explains that the actual decision to do so is taken case-by-case, based on the specific situation for each tender. Interviewee M elaborates that this is also a question of the company building competence over time, enabling handling service internally in a cost-efficient way.

"If it is possible, we prefer to do it ourselves" - Interviewee M

When discussing if they have identified any changes in their core business Interviewee M explains that they see some big shifts in technology coming, with autonomous vehicles. The interviewee also explains that the company feels far ahead having launched autonomous

vehicles in one city abroad and that they believe that autonomous vehicles will be used to support public transportation in cities.

“Autonomous vehicles will not be the main service, but as a part supporting the normal public transportation” - Interviewee M

Today Company Y is trying to have a somewhat homogeneous fleet, mainly working with three big suppliers to enable that their workshops are specialized on one supplier and just a few models. This is explained to be because buses are highly customized, in many ways built by hand giving some variations between different buses, even if they are of the same model and supplier. However, if Company Y are to stay competitive, it is explained that they always must see to what the PTA ask for in their tender, when choosing a supplier. The purchasing process for Company Y is steered by the specifications given by the PTA to a large extent, which in many cases is described to limit the number of potential suppliers. The purchasing department, the sales department and representatives working with technology all must give input to the process and take the final decision together since there are many different factors to consider.

“It is an interdisciplinary decision where purchasing, sales, technology must give input and take a decision together (...) there are many different factors to consider” - Interviewee M

Initiating Phase

A purchasing process is usually initiated when Company Y decides to respond to a tender and take part of a procurement process with the aim of winning the business. The PTA usually gives very detailed and demanding specifications on the vehicles they require. For example, issues such as what type of bus, length and width of the bus, interior, exterior, type of fuel, emission limits etc. is described to be specified. Interviewee M explains that often these specifications are so demanding that only a few suppliers fulfill the needs.

What initiates the process of deciding whether service and maintenance are to be carried out internally or not is described to be when the infrastructure and availability to facilities are analyzed. Company Y investigate if they have access to, or if there exists any available facilities or infrastructure, or if they will have to build new facilities and find new employees. If a supplier has facilities and infrastructure and the resources to offer service contracts, Interviewee M explains that it might be an option to buy full service contracts even though they prefer not to. Further the interviewee explains that a service contract with full service might enable a smooth implementation and start-up phase. This is explained to be both due to expenses and the access to competence.

“In the beginning when you have won a tender, you might want to start it in a smooth way and it can be worth to outsource it during the transition phase” - Interviewee M

In other cases, Interviewee M describes one initiator as being a question of having too few buses in a certain area to start a workshop, i.e. the company has not reached a “critical mass” of buses to run a workshop. In these cases when a certain supplier already has a functioning workshop up and running, a full-service agreement has been a good option.

“Our considerations are; critical mass and if it is a new geographical area, where it would be expensive and difficult to create that type of competence-organization to take care of it ourselves. Then we are set to discuss with an external supplier even though we prefer to do it ourselves” - Interviewee M

When it comes to non-core products, such as forklifts, Interviewee M explains that their TCO analyzes have exposed that it is less costly to lease forklifts with full service agreements than to buy forklifts and service separately. Forklifts are explained as something Company Y want as cheap and rational as possible and that a great benefit with leasing forklifts is less trouble.

“A forklift should be as simple and rational as possible (...) we have a full-service agreement where we buy the service ‘available forklift’” - Interviewee M

One identified issue explained with the service contracts is that the company is exposed to high risk when outsourcing service and maintenance due to the expensive penalties in their contracts, should the buses break and they have to cancel trips. As such, the company is explained to prefer a more ‘back-to-back’ risk distribution with the service provider, where an equal risk is put on the supplier. The interviewee explains that a service contract deal with a ‘back-to-back’ distribution of risk would be theoretically possible, but that a deal where the supplier and service provider takes all the risk for the availability of the buses becomes too expensive.

“The risk sharing makes it very difficult for us to sign this type of full service agreements with an external party on our core business, since we are so harshly penalized” - Interviewee M

However, it is mentioned several times that it could be desirable to have service contracts with service level agreements specifying the availability of their buses. However, the reasoning ends up with the conclusion of too high risks due to the high penalties. Interviewee M explains that when service and maintenance is carried out in-house, they have the possibility to transfer buses between adjacent areas within a city or region rather independent upon supplier, to avoid interruptions in traffic due to breakdowns. However, when maintaining buses in external workshops bound to different suppliers, Interviewee M explains it would not be possible to move around vehicles and the flexibility would be lost. Company Y do have a small fleet of extra reserve buses, but Interviewee M explains that this fleet has to be minimized, due to overall low margins and expensive buses.

“We do need a buffer, and we have a reserve fleet which we try to keep as small as possible since it is really expensive” - Interviewee M

Evaluation Phase

The aim of Company Y’s purchasing process is to find a combination of vehicles fulfilling the PTA specifications in a cost-efficient way. This is explained to be able to give the best offer to the PTA in order to win the deal.

“We will not win the deal unless we are smarter than our competition when it comes to finding cost efficient solutions” - Interviewee M

Interviewee M hence explains that this makes costs a very important factor. Resources is also explained to be a very important factor to consider. If Company Y does not have any facilities

in place, they must consider which supplier does. It is all about finding the most competitive fleet for each tender. As mentioned, a potential client usually has very detailed specifications, not giving a lot of room to choose among different suppliers. Interviewee M elaborates that the environmental specifications, regarding emissions and type of fuel, generally have become so demanding that perhaps only one niche-player can fulfill that specification, which according to the interviewee limits competition and drives cost.

“At that point in time, that supplier was the only one that could deliver a bus fulfilling all of those requirements (...) I do not think that all politicians really understands that these demanding specifications is driving a lot of cost” - Interviewee M

Results

The service agreements that Company Y still uses have specified Service Level Agreements (SLA) on availability. The agreements specify the number of buses of each bus type that is allowed to be out of order during peak-hours in a day, e.g. mornings and late afternoon. If the supplier and service provider cannot fulfill this, they are penalized with charges. However, these charges are described to not correspond to the charges Company Y are at risk getting from the PTA. The SLA's includes everything except damages accomplished by Company Y themselves. Interviewee M explains that they try to map these SLA's and penalties to match and correspond with the demands from the PTA, however this is described to most commonly not be possible without paying a very high premium. Further, following-up on these KPI's is described as difficult.

“You will always hear of a bad supplier, if they are unable to deliver on time, but now it is different. It is difficult to determine if a service provider is fulfilling their duties” - Interviewee M

Even though the company communicates clearly that service contracts generally are too costly, and/or not good enough, Interviewee M explains that they lack a proper benchmark on the performance of internal and external service and maintenance. Instead, this is explained to be perceived by assessing costs and risks related to the high demands and penalties from the client. Further, as doing service & maintenance internally has become part of a strategy, it is described to not be easy to change. Hence, the decision to conduct service internally is described to be more of a strategy than an economic question. The company's competitiveness is revealed quickly as they either win or lose tenders, and the feedback on how they perform in the tenders is instant.

“I would like to see some benchmarking as I am not completely sure that our internal solutions are the best in every possible situation, but as long as it is core, that strategy is difficult to challenge” - Interviewee M

Both in general, and in the cases when Company Y have outsourced their service and maintenance, it is described that they have rather close collaborations with their suppliers. However, the company still perceive the suppliers to be very product-centric, and they are described to sometimes show a lack of understanding for Company Y's business and competitive situation.

“There is a knowledge gap around what is driving our business. We notice it in meetings with the suppliers. The suppliers are still very product-centric, but some show more interest than others in our business” - Interviewee M

According to Interviewee M there is a big difference in how to source products and services, due to the intangibility of services making measuring difficult. To follow-up the purchase of a spare part and a service contract is not the same since there are several additional factors to consider when purchasing a service. The procurement department is described to get another role when it comes to the sourcing and follow-up of services instead of products. Further, sourcing services is described to require more resources from the procurement department due to the extended need of follow-ups.

Interviewee M further elaborates that this also affects the recruiting of personnel to the procurement department in the long-term, explaining that the new role of procurement in a service-setting requires a different set of competences. At company Y they used to have a person dedicated to work with service contracts, but since they deliberately decreased the number of service contracts, the responsibility is not separated from products anymore.

The responsibility of following up on the service contracts is divided among the centralized purchasing department and the depots at each site. However, Company Y is described to have identified a risk in giving the depot too much responsibility in this follow-up, since they often develop a close relation to the employees of the supplier in the workshops. These relations might be cared for and hence be an obstacle if the workshop has not fulfilled its commitment, and a penalty is required.

Future

Interviewee M has a very clear picture regarding what is required from the suppliers to enable Company Y to make use of full-service contracts to a greater extent: full transparency and a ‘back-to-back’ risk sharing. In such contract, the service provider takes full financial responsibility for any operational delays caused by the service provider. If the service provider would promise the same service level as Company Y is required to deliver to the PTA, this could become possible. However, Interviewee M explains that a 100% availability of the buses would not be necessary, since that would be too expensive. The company aims at performing just above the agreed limit with the PTA, as the bonus from overachieving does not correspond to the cost. Overall, the suppliers need to create a greater understanding for how to support a business within public transportation in the best way, as the use of full service agreements are desirable.

“If they find the right concept, there exists no intrinsic value for us to run our own workshops. That is not what we are supposed to do, we should transport passengers, that is what we earn our money on, we do not earn anything on repairing vehicles” - Interviewee M

A contracted assurance that a certain number of buses would always be available at a certain point in time, is described to be enough to take the full leap sourcing buses as services. How the service provider would achieve this availability, is according to Interviewee M not interesting. However, looking at the current trend with very specific technical requirements on

the buses, Interviewee M believes that in the future they will probably have to work with a greater number of suppliers to compete for tenders. To have a diverse fleet is explained to make service and maintenance very expensive due to the requirements on diverse competences. In that case, Interviewee M explains that Company Y will probably have to re-think their current service contract strategy and engage in more full-service agreements.

“We will not be able to afford to internally do all the service on our vehicles, it would require too much diversified competence. So, in that situation, regardless of the risk, it will become too expensive to take care of all vehicles internally” - Interviewee M

Interviewee M further describes that the supplier should be able to reach a larger mass of vehicles within an area, which potentially could be used to create economies of scale. But to get there, to coordinate several fleets on service agreements, is described as risky, difficult and would require courage from the supplier. Interviewee M further believes that full-service agreements have a larger part of the future, as more complexity in regard to technology and more complex requests from the clients will push towards diversification and re-thinking of Company Y's core-business. This is explained to also require having specialist internally to handle all contracts, since they will require a high level of customization.

4.2.4 Company Z

In the following chapter, the case description of Company Z, present within the public transport industry will be presented

Background

Company Z is one of the leading public transport operators in Sweden, with presence in several cities conducting public transport. Globally, they have presence in 19 different markets. Except for public transport, that is contracted with a public actor such as a city or region (PTA), for 8-10 years they have commercial transportation where they earn their money directly from ticket sales. One example of commercial transportation is airport buses. Their core business is to pursue and develop public transport, but within the company there exists different ideas regarding if service and maintenance of buses should be seen as a part of their core business.

“There are those meaning that it is part of our core, to internally take care of and manage out buses” - Interviewee N

A current trend is according to Interviewee N higher demands on seamless integration between different types of traffic, e.g. bus and car. One mentioned example was door-to-door transportation to the airport, where different traffic types would be combined. Interviewee N explains how Company Z aims at making their commercial transport grow, since they see several growth opportunities in developing it. One option is to apply the concept of sharing economy.

“Different types of traffic will have to be more integrated. Traditionally we offer transport from A to B, but passengers will be more interested in getting from outside their door to

where they are heading. This requires different transport options to be more seamless integrated (...) more like sharing economy and offer passengers to share a taxi from the passengers' homes to the airport” - Interviewee N

Products related to their core are both buses and trains, used in both their contracted public transport, and their commercial transport. Almost all buses in their total fleet are on operational leasing, and those used in the commercial transport mostly have full service agreements, while fewer service agreements are used for the buses used in contracted public transport. According to Interviewee N basically everything but external damages is included in the full-service agreements. The length of the full-service contracts is always matched towards the length of a contracting agreement when such is present.

Regarding if the company has any outspoken strategy for the use of full service agreement, the answer depends on whether it is their commercial transport or public transport. For the commercial transport, almost all buses, if not all, have full-service agreements while the decision for the buses with in public transport is based on a case-by-case approach, and the use of full service agreements is less frequent.

“No, in fact each procurement determines the strategy for the upcoming contracting period. Historically we have been inclined to conduct services inhouse.” - Interviewee N

Initiating Phase

The acquisition of buses for the public transport is initiated when company Z is answering to a tender for conducting public transport in a certain area, such as a city or region. The initiator to only use operational lease was a directive from a global department, that decided that operational lease was to be used when possible, to avoid burden the balance sheet. However, new regulations will force them to include operational lease in their balance sheet, and the consequences of that are to the interviewee uncertain.

“One of the main reasons has been to not include it in the balance sheet. So now we might not be able to make use of operation lease. Or, at least those benefits will go away” - Interviewee

N

As stated, for the public transport business, the choice whether or not to conduct service in-house, or to buy full-service agreements is made case-by-case. One of the first analyses made by Company Z is a risk analysis, if the contracting period is very long, or if the buses to be procured are of a new type, full-service agreements become more attractive since Company Z perceives it lowers their risk. But as they have penalty clauses for causing delays etc. in public transport, they try to use a “back-to-back” risk distribution when using full-service agreements. This means that any penalties Company Z receives from buses being delayed due to the supplier’s service organization, are directly transferred to the supplier. Interviewee N explains how this starts already when they order the buses, if the delivery of buses is delayed, the supplier must pay a penalty.

“As far as it is possible we try to have ‘back-to-back’ risk distribution, if we get a penalty due to the service organization we have bought externally is not doing their job, the supplier gets the delay-penalty. that starts already when the vehicles are manufactured. We have delay-penalties on the delivery” - Interviewee N

Further, the access to facilities is mentioned as an important question when it is to be decided if full service agreements should be included in a purchase/leasing agreement or not. In some cases, interviewee N describes that it is difficult to get access to depots and facilities to have a workshop, when entering a new geographical market. On the other hand, the interviewee describes that in some cases facilities are included in the contracting agreement with the PTA, making it very easy to put up a workshop and depot and handle service, maintenance and repairs internally.

“Sometimes the contractor provides a depot and then it is very simple to do the service internally. But to find a depot is a bottleneck” - Interviewee N

The problems related to using full-service agreements are concerned with both operational aspects and legal aspects, according to interviewee N. The interviewee describes that they have had difficulties in understanding how the different legal entities should cooperate, and how to write the agreements to clarify expectations on the supplier and the service organization. Interviewee N explains that they deal with different legal entities when purchasing a bus and when dealing a full-service agreement. Further, to clarify response times, availability and how to handle warranty issues is described as important in order to set the correct expectations from start. Interviewee N explains that the organization has learned a lot over the last few years about these issues, since their commercial business for a time has been relying on full-service agreements. However, interviewee N emphasizes that the problems they face differs depending on supplier.

“When we purchase vehicles we deal with one legal entity, but when we enter an agreement that is another legal entity. Then we work with other actors, the one conducting the service is usually completely independent from the supplier. So there is a question regarding the supplier and who will conduct the service” - Interviewee N

Evaluation Phase

Evaluating different service providers, the bus specifications are completely steered by the PTA in charge for the public transport and is specified in the tender. The specifications are very detailed and determines for example what type of fuel the bus should run on and the number of seats, according to interviewee N. The interviewee further explains that in some cases this gives that there exists only one supplier that is able to fulfill these specifications. In the evaluation, Company Z includes the question of who the supplier service organization is, since they are explained to be fully, or partly separated from the supplier. This gives geographical limitations on full service agreements, according to interviewee N.

“In the contracting business the bus specifications are completely steered by the PTA (...) they specify very clearly what buses to be included in the future agreement, everything from fuel to specifying number of seats. It is very technically detailed demands” - Interviewee N

However, Interviewee N explains that they are in a low-margin business, and that cost is of great importance and Company Z makes a total cost analysis over the length of the contracting period. If it is questionable if Company Z will be able to match the cost for a full-service agreement by doing the service internally, they go with the agreement. To have predictable costs is one of the main benefits, according to the interviewee. However, Interviewee N further explains that generally it is difficult to predict costs related to buses, making the “make-or-buy” decision difficult. But, the interviewee also explains that the evaluation of a supplier and a service offer is a balanced evaluation, considering both cost and other circumstances such as what is feasible, considering for example access to facilities. For example, in some cases when entering a new contracting period, in a new area, personnel from the previous period is included and Company Z is committed to employ them. In those cases, it is not possible to make use of full-service agreements from day one, since they have personnel to employ.

“Service and maintenance cost is very different on buses. Depending on bus type and what kind of traffic the bus will operate. This makes it difficult to determine if it is best to do the service ourselves, or let an external organization handle it in the procurement phase” -

Interviewee N

Other factors measuring in to the decision if the company is to go with a full-service agreement or not, is critical mass. To be able to have a service organization internally, interviewee N explains that a certain number of buses is needed. However, the overall decision is strongly influenced from what is counted as core business and not. According to Interviewee N there exists different opinions within Company Z regarding if managing service, maintenance and repair on their public transport buses is a part of the core business, or not. Further, the interviewee explains that if it is to be seen as a part of core, it is preferred to keep the knowledge and competence internally, instead of using full service agreements.

“If we see it as a core competence to manage service internally we won't be as prone to sign service agreements. Then we want that competence about our vehicles internally” -

Interviewee N

Results

Company Z monitor and measure all full-service agreements on buses used in public transport based on both cost and contract specifications such as availability. Commercial transport buses are continuously measured based on cost per kilometer, which they follow up with the supplier on a yearly basis. On an operational level the contact between Company Z and the supplier is on a daily basis when they have full service agreements, while on a more strategic level the follow-up meetings are on a quarterly basis. However, even on the more operational level they have monthly meetings to discuss certain KPI's. The evaluation of cost is conducted compared to the business case they do prior a procurement that includes the calculations that was made

during the evaluation of the offer. In general, the interviewee explains that they are satisfied using the full-service agreements, but also explains that the requirements on communication and cooperation with the suppliers' service organization are very high.

“It requires communication and very clear expectations on the operations while the contract is running” - Interviewee N

Regarding if the procurement of full service agreements puts any specific constraints on the purchasing process, Interviewee N explains that they only see service agreements as “add-ons” to the vehicle, meaning that they still use the exact same process and that the same persons are involved. However, when the agreement is active the organization might have to adapt. Interviewee N explains that in some cases there is a geographical distance between the service depot and the operational area, requiring integration between different organizational departments to arrange for transportation of buses. Since Company Z is very dependent on availability, resolving these issues are key. Working closely with the supplier is considered very important.

“We work closer to the supplier. We have to do so” - Interviewee N

Future

In the future, Interviewee N believes that the company will make use of service agreements to an even greater extent. The interviewee explains how they are building up experience and knowledge of how to handle service agreements, which makes them more capable of getting the desired results.

“I believe that we will sign more full-service agreements than previously (...) we are starting to get more experience from the current service agreements, especially on the commercial side, were we have a long and positive experience from service agreements. It starts to come more on the contracting side” - Interviewee N

However, the increased use of full-electric busses will put new demands on service agreements as they require charging infrastructure. In some cases, it is included in the tenders that the PTO should not only care for the buses, but also to procure, maintain and make available the charging infrastructure. Interviewee N explains that they do not have that knowledge internally, and hence they need to buy the service externally. However, the new technology within the electric buses also requires a new type of knowledge, but Interviewee N explains that the knowledge about the buses is something they will make sure to have internally.

“Currently we are very eager to have full service agreements on the charging infrastructure since we do not have that competence” - Interviewee N

Company Z already makes use of telematics to a great extent, according to interviewee N. Sometimes that is required in the tender specifications to have a system counting the number of passengers for example. Another solution is used to make their drivers drive more economic and safe, and they share the economic gains with the drivers as a bonus.

5 Analysis

In the following chapter the results will be analyzed as similarities and differences are compared and contrasted, both within the industries and between the industries, using the categories, codes and key-topics as described in chapter 3.5. The aim of the analysis is to reveal patterns in the process of purchasing services to help answer the research questions and purpose of the study. Firstly, the two industries will be analyzed separately, mainly following the same structure as the case descriptions. Lastly, the presented industries will be analyzed together.

5.1 Logistics

In the following chapter the result from the logistic companies will be analyzed. The chapter starts with analyzing the industry characteristics and continues with similarities and differences in service set-up, initiators, evaluation, results and follow-up and lastly, future service trends. All sub-chapters except Industry Challenges will start with a table summarizing the key-topics related to that code and category, as described previously. An illustration of how the presented sub-chapters relate to the coding structure is presented in Figure 7 below.

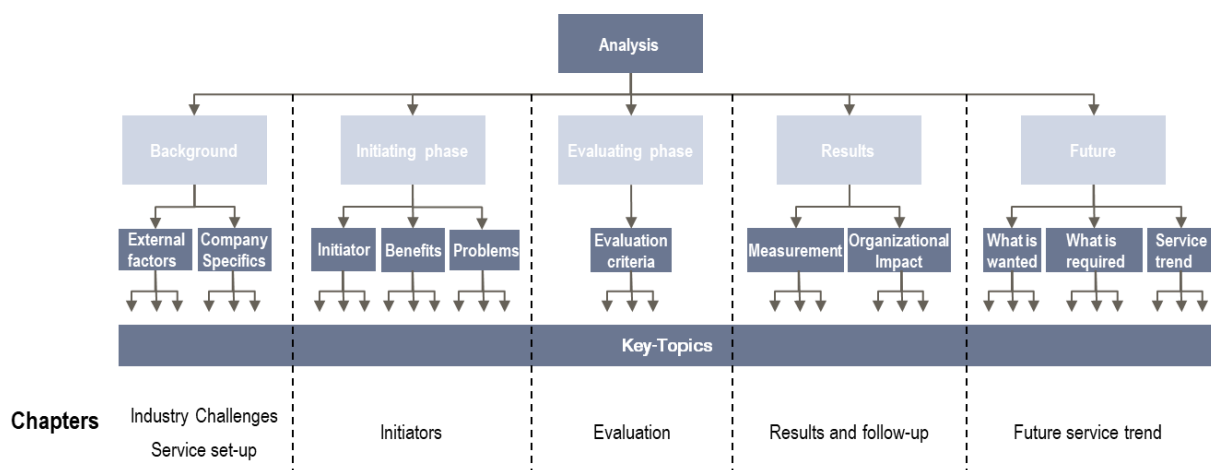


Figure 7 - Illustration of chapter content according to the coding structure

5.1.1 Industry Challenges

The logistics industry has been affected by the digitalization to a great extent through the growing development of e-commerce. According to the interviewed companies, the e-commerce changes customer demands and puts pressure on the actors within the industry to adapt to increasing amounts of packages, by increasing their capacity. As explained by Company V, the volumes of goods to handle have increased significantly and the industry environment has become more dynamic, with differentiating customer needs and increased pressure to become faster and more flexible to handle the various needs. This is explained to create a situation where companies are gaining and losing customers at a higher pace. The type of goods handled have also changed and there is a large increase in piece-goods, such as small packages and large packages to private persons, which according to Company S complicates goods handling. The industry is described to be overall growing, which enables the companies

to grow with the industry as explained by Company T. Competition within the industry is described as high and there are generally low margins. Further, given the growing volumes, there is a perceived risk that the current structure for the package distribution system for private persons, using grocery stores as pick-up locations, might fail due to the increasing amounts of goods to handle.

Besides the growing e-commerce, the digitalization trend is expected to further affect the industry going forward. For instance, there is a described technology development towards automation solutions, where the use of autonomous forklifts (commonly termed AGVs) are exemplified as a solution for the future. With the changing demands and increasing volumes stemming from the e-commerce, there is a described push towards greater handling efficiency and flexibility on the logistics actors.

One particular change that the interviewed companies brought up as affecting not only the Logistics industry, but all other industries as well, is a recently decided regulation regarding operational leasing. Operational leasing means that the lender is the owner of the equipment and takes the equipment back after the lease termination date, therefore taking the risk of residual value, for instance. This is to be separated from financial leasing, where the buyer is the owner of the equipment and may take up the investment in the balance sheet. Today, the value of equipment on operational leasing is not brought up in the balance sheet and the rental costs are recorded as direct costs linked to the use of the equipment. However, recent regulations, named IFRS-16, developed by the International Accounting Standards Board that will come into effect January 1st, 2019 changes the situation and states that all operational leasing should be included in the balance sheet as well.

5.1.2 Service Set-up

As seen in Table 6 below, all the studied logistics companies have the majority, if not all, of their forklifts purchased with rental agreements, which is a form of operational leasing. Further, none of the interviewed logistics companies consider servicing forklifts as part of their core business, even though forklifts are among the core products. Overall, the rental agreements used by the interviewed companies are similar in terms of what is included, and the most common payment method is a monthly fee that depends upon a contracted number of hours per year per forklift.

Table 6 - Presenting the key-topics regarding service set-up within logistic

	Logistics			
	Company S	Company T	Company U	Company V
Majority of products bought with full-service				
Operational leasing				
Work with few suppliers				

Further, the number of forklifts during the contract period was in no case pre-determined without flexibility and all the companies have the possibility to scale up and down their fleets, to different extents. Given these generous specifications, there seems to be a trust from the suppliers that the companies will not miss-use their flexibility. Several of the companies also expressed that the suppliers have such a good insight into their industry and business that they could allow for that type of flexibility, as they know what fluctuations are common. However, all interviewed companies described that their need for forklifts could change quickly, as they gain or lose customers at a higher rate.

The normal set-up within the industry seem to be to have a workshop in-house where the supplier manages the services and repairs of the forklifts. Among the interviewed logistics companies, only Company V claims they have an outspoken strategy regarding purchasing of forklifts, which is to always make use of rental agreements including full-service when possible, instead of owning the equipment. The other interviewed companies are described to have a “case-by-case” approach regarding whether forklifts should be owned or rented.

As seen in Table 6, all interviewed companies work with only a few suppliers. Both Company V and Company S make use of only one supplier in the Swedish market, while Company T works with two suppliers and Company U “a few”. The differing approaches could be connected to the described lack of clear strategies regarding service purchasing. As Company V has a clear concept and strategy regarding how forklifts should be purchased and also how the service should be conducted, this would imply a need for closer relationships with the supplier, meaning only working with one supplier at a time would be preferable. On the contrary, both Company U and Company T evaluate their forklift purchases “case-by-case”, which would indicate that they are more inclined to choose different suppliers for different cases. For instance, Company U explains that the reason they use different suppliers is because they want the suppliers to not become comfortable, but always feel that they need to give competitive offers.

However, all companies witnessed that they try to keep it to one supplier per site, to not mix service from different suppliers at sites, as it simplifies communication and relation management for each site. Company T that are obliged to do public procurement and hence “mini-tenders” when in need for a certain number of extra forklifts, are not able to choose themselves which supplier to use at each point in time, but they instead try to move around forklifts to keep it one supplier per site. This in turn suggests that the supplier-customer relationship is important to have the service working effectively for each site. Further, the number of used suppliers in general have decreased over time. For instance, Company V describes how they used to have 10-15 forklift brands, but now only work with one supplier. In total, all the interviewed companies make use of four different forklift suppliers.

The decreasing number of suppliers used by the companies suggest that there is a consolidation within the industry, where the suppliers are getting fewer but larger. This trend can also be connected to a standardization regarding the forklifts themselves. As several companies witness, there is not much difference between the forklifts produced by the different suppliers.

As companies consolidate, variation between different suppliers are removed. As Company S explains, both the quality and function of certain forklift models are equivalent comparing different suppliers, and it is mostly smaller design features and the price that differentiate them. As such, most suppliers are described to be able to meet an entire site need on their own. One clear example described is when Company S decided to source the forklifts on a rental agreement and the supplier bought and took ownership of the different forklifts of different models and brands that the company currently were in possession of. This indicates that the forklift models are comparable between different suppliers and does not require unique competence to serve. Connected to the consolidation within the industry, several companies also explain a centralization of the purchase decision of the forklifts. For example, as both Company V and Company S explain, previously each site were able to negotiate their own deals with the suppliers and/or influence the purchase decision to a high extent. Now, the decision is centralized with framework agreements being used with a few suppliers. Furthermore, the number of models used by the companies have decreased and there have in several cases been a “standardization” of the used fleet, as described by Company V and Company U.

The presented data indicate that the transition to buy rental contracts has happened in conjunction with the consolidation and standardization within the industry. The centralization and standardization of the procurement of the forklifts is also in direct relation to this. As Company V describes, the standardization of used forklift models was a direct consequence of the centralization of the procurement of forklifts. In turn the centralization was driven by the development of the described service concept approach, which to some extent were enabled given the consolidation of the suppliers. Given the high requirements in the service concept, only a few suppliers were able to comply with the demands. For instance, direct presence in all country markets was one of the bigger requirements set on the suppliers and would probably not have been possible to fulfill without a consolidation of the suppliers.

5.1.3 Initiators

As seen in Table 7 below, there exists some variations and similarities regarding what initiated the purchase of an advanced service for the logistics companies, and the most common reason is explained as due to changing customer demands. Further, considering the perceived benefits and problems, all interviewed companies mentioned increased flexibility, risk reduction and cashflow management as benefits, while they overall perceived few problems.

Table 7 -Presenting the key-topics regarding the initiating phase within logistic

		Logistic			
		Company S	Company T	Company U	Company V
Initiator	Change in demand				
	External influence				
	Company strategy influence				
Benefits	Focus on core business				
	Flexibility				
	Risk reduction				
	Access to supplier competence				
	Cash flow management				
	Access to new equipment				
	Fleet management control				
Problems	Overall no problems				
	Supplier lock-in risk				
	Sometimes too expensive				
	Requires change management				

Regarding the initiator to the purchase of rental agreements, Company V describes it as part of a deliberate strategy to become a light asset company. This differs from the other companies, as they had no clear strategy behind the decision. Company T seem unsure to what influenced the decision, while Company S explains that they were influenced from other market companies within the global organization. Company U express that the main reasoning behind making use of rental agreements was to avoid heavy investments to release capital and get a better cash flow management, which is similar to the strategy explained by Company V.

However, as described previously, most companies initiated the purchase due to change in demand, see Table 7. There is a described need for more flexibility due to the more dynamic industry landscape with increased volumes, changing goods, and changing customer demands. The companies lose and gain customers more frequently, creating a need to be able to align the operations to the changing demands. For example, Company T explained that the company's performance was bad, creating an overall need for cost savings and more efficient operations. As such, they were forced to find a better solution for their forklifts to save money and make it more efficient. The costs savings that Company T expected was related to getting access to supplier competence, as it was agreed with the supplier that they should help the company optimize their usage of forklifts. Company S and Company U also indicated that they made use of their supplier's competence to optimize their forklift fleets in different ways. This can be connected both to reducing costs, as optimizing the fleet usually meant reducing the number of forklifts and more evenly distribute the usage between different forklifts to avoid over-usage, but also to increasing efficiency within operations.

The perceived benefits from the rental agreements with full service contracts are many. However, common among all companies is perceived benefits on cash-flow management, flexibility and risk reduction, see Table 7. Several of the companies also mentions the access to new equipment and it is explained to be beneficial to be able to allocate the responsibility of the lifetime management of a forklift to another party. Company U for example explains that it

is easy to overuse forklifts when they are owned, which tend to be more expensive over time than buying a new forklift due to frequent breakdowns and increased service need. Less administration and reduced workload are also mentioned benefits, as the supplier takes care of most aspects related to the forklift management such as measuring use of the forklifts and providing a reserve-fleet of extra forklifts at site. As such, reducing the need to handle the forklifts and instead being able to focus on the core business seem to be an important aspect of outsourcing services. The need to focus on the core business could be related to the pressure on the logistics companies to increase their operational efficiency.

Overall, the logistics companies were very positive regarding their rental solutions, with only a few problems mentioned, as seen in Table 7. As explained by Company U, one identified problem was that the contracts for some models could be too costly, in cases where the forklift had better quality than the supplier calculated for and thus the supplier charged more than necessary to cover for repair. Company S further mentioned a potential risk for supplier-lock in and that the supplier could be non-transparent with their costs. Company T explained that there was a risk to feel out of control but did not state that they were out of control and Company V explained that to them it had required a lot of change management. The change management could however also be related to that they centralized the previously decentralized procurement globally at the same time as introducing these agreements.

5.1.4 Evaluation

As presented in Table 8 below, the logistic companies evaluate their service offerings based on several different aspects. However, the main evaluation criteria is described as cost, even though aspects such as availability and quality are usually included.

Table 8 - Presenting the key-topics regarding the evaluation phase within logistic

		Logistic			
		Company S	Company T	Company U	Company V
Evaluation Criteria	Business alignment				
	Cost				
	Flexibility				
	Availability				
	Site specific requirements				
	Response time				
	Technical attributes/quality				
	Direct & indirect savings				
	Supplier service readiness				
	New equipment				

When evaluating the different offers from different suppliers, most companies evaluated the availability of the forklifts, both in terms of how many hours each forklift could be used, and in terms of response times from the supplier, fixing potential breakdowns. Several of the companies expressed that most suppliers' offers were equal both in terms of quality of the service and the forklifts. However, when asking operators at different sites, the companies explain that they usually have individual preferences regarding what supplier to use. For

example, Company S explained that they had faced a situation where two sites with similar characteristics had very contrasting opinions regarding what suppliers' forklifts were working there and not. Further, looking at Company U, they had changed supplier merely because one windshield was in a certain material that easily broke, and it was perceived as too expensive to replace. As such, even though the forklifts are comparable between suppliers, the individual preferences of each site might affect the decision. In contrast to the companies expressing similarities between service offerings, Company V was the only company who expressed that they had faced a situation where the suppliers were not ready for the assignment of supplying the requested services. However, comparing Company V with the other interviewed companies, the requirements set on the suppliers in terms of operational KPIs and Service Level Agreements to fulfill, was much higher. Which limited the potential suppliers to work with.

All of the interviewed companies stated that cost was included in their evaluation and decision, as seen in Table 8. According to three of the companies, cost was the main decisive factor as they strived to translate the evaluated parameters and perceived values into monetary terms. On the other hand, Company V had a slightly different approach. Company V evaluated the suppliers' ability and readiness to perform wanted service requirements according to the company's specifications as the first decision point. Would there be several suppliers able to supply specified service, cost would be the differentiating factor.

Common among the interviewed companies was that the evaluation and decision process seemed more focused on choosing between suppliers than choosing whether to use a rental agreement or not. The decision to buy forklifts on rental agreements seemed obvious and the parameters, such as costs, was used to differentiate between supplier's offerings.

5.1.5 Results and Follow-up

As previously described, the logistic companies express a lot of trust in their suppliers, for example to help optimize their operations. As seen in Table 9 below, most companies only measure a few things, indicating that the trust in the supplier's performance is high. Further, all companies witnessed that a closer supplier relation and a perceived decreased workload had been induced from buying advanced services.

Table 9 - Presenting the key-topics regarding the result phase of the process within logistic

		Logistic			
		Company S	Company T	Company U	Company V
Measurement	Benchmark towards previous set-up				
	Direct &/or indirect savings				
	Supplier performance				
	Forklift performance				
	Overall site performance				
	Supplier response time				
Organizational impact	Closer supplier relationship				
	Finds service purchase more complex / competence need				
	Decreased work-load				
	Big change management process				
	Centralization of procurement				
	Decreased labour need				

For the logistics companies, there are many similarities between how the companies both perceive and measure the results of the rental agreements. Both Company S, T and U claims they have cost savings related to the rental agreements but lacks clear specifications for how this is measured. For example, as Company T express, it is more or less assumed they have cost savings, but there is no actual comparison supporting this and the company admits that measuring is something they could improve. Company S clearly states that they do save money, but also gives no clear specifications for how this is measured. The company further reasons that they probably pay a premium for the lower risk in the contract, but believe that they still save money given the benefits in terms of, for instance, more freedom.

Similarly, following-up and measuring supplier performance is described to not have any standardized process for most of the companies, with several of the companies referring to a “gut feeling” that if problems existed, they would be noticed. Following that reasoning, several companies explained that they were very pleased with the delivered services, as they had not heard of any problems. Furthermore, both Company S and Company U express a shift of responsibility toward the supplier for measuring individual forklift performance. There is an expressed mindset among these companies that this kind of measuring is not necessary as there are few issues related to the forklifts, and the identified value of measuring individual performance is considered low. However, in some cases, like Company T, it is specified that the supplier is to help the Company To reduce number of forklifts and optimize processes where possible. In that case, they could easily measure that the number of forklifts in their fleet decreased, drastically.

The companies instead seem to measure overall output, rather than supplier performance. As Company U explains, they already have a warehouse management system in place, measuring the productivity of each site. The company explains that as they have this system, there is no need to measure individual forklift performance, as the sites total input-output flow is what is considered interesting. The fact that measuring performance on site level seem to be more important further indicates that efficiency and productivity is the most important KPIs for the

companies in the industry. This can be related to the changing industry environment and increasing volumes the companies must handle.

As indicated in Table 9, only Company V express a clear structure for measuring and assessing supplier performance, cost savings and forklift performance. The company measures both direct and indirect cost savings and is also described to measure performance on three levels; individual performance of forklifts, site performance and market country performance. The reason for the detailed measuring could be explained by the high requirements set in their described concepts, with detailed KPIs and SLAs specified, and the fact that the company has a clear strategy regarding this type of purchases.

The effects the service purchases have had on the organizations also have many similarities between the cases, as seen in Table 9. All companies describe that the rental agreements have led to closer relationships between the company and the suppliers and at the same time decreased the workload for the company, by less administration. There are no expressed changes in the purchasing processes of the companies, however, several companies express that buying rental agreements, or buying services in general, is more difficult than only buying products. For example, both Company U and Company V describes that buying services requires more from the purchaser, for example in terms of competence in assessing the value of a service offering.

Further, the companies explain that the previous set-up also meant that most maintenance and repair was carried out by a third party, usually one of their suppliers at each site. However, this service was not included in any agreement and was paid for separately. With the previous set-up, the responsibility was on each site to contact the service organization when needed. Company V explains that they did not have full insight into whether maintenance and repairs was conducted or not, or to what extent. Some companies also witness that smaller maintenance issues were previously handled internally, as secondary work-tasks and was hence often overseen. The fact that the companies previously did not conduct maintenance and repair service internally, limits the organizational impact from using full service agreements.

All companies express a positive view of the used rental agreements and describe that the results have been positive, with very few issues being described. As such, all companies perceive the investment in these types of rental agreements as successful.

5.1.6 Future Service Trend

Related to the overall positive attitude towards the usage of full service agreements, all companies witness that they will continue to buy advanced services, as seen in Table 10 below. However, it is less clear what the companies want from future full-service agreements, as few concrete improvement proposals regarding forklift services were presented.

Table 10 - Presenting the key-topics regarding future service trends within logistic

		Logistic			
		Company S	Company T	Company U	Company V
What is wanted	Increase rental on other equipment				
	Rent forklift + driver in same deal				
	Higher KPI demands on supplier				
	Automated solutions				
	Increase external labour use				
Service trend	Pleased with current set-up				
	Increase/continue service contract				

As presented in Table 9, there seems to be a will among some of the logistics companies to implement more automated solutions going forward. Company V for example, express that they have been looking into AGVs and other automated solutions to decrease labor need and get more automated processes. Another potential solution expressed by both Company V and Company U is the use of external labor to run the warehouse operations, that is, drive the forklifts. The reasoning behind this is both to enable predictive costs and transfer some of the risks in the operations. As expressed by Company S and Company T, there is also a request for more rental solutions on other types of equipment, in this case heavy equipment such as packet paths or larger automation solutions.

To achieve a future situation with more automated solutions, there is an identified need among the interviewed companies for decreasing costs to make such solutions economically feasible. As Company S describe, there must be an economic upside, whether it is direct or indirect costs. Another explained development needed is adequate infrastructure to support automation solutions. For example, Company V express a need for IT-systems to develop to be able to adequately support an implementation of AGVs.

The trend among the interviewed companies is to continue with the type of rental agreements that is used today, see Table 10. This indicates that even though the use of full service agreements is not defined as a strategy, the companies expect to make use of them in the long-run. Further, some differences exist among the interviewed companies to what extent this will be. For example, Company U express a shift towards increasing the share of company owned forklifts, due to perceived cost savings for certain models and to avoid lock-up situations with the suppliers. Company V in turn express a willingness to continue with the developed concepts, but to increase the requirements and demands set on the suppliers.

5.2 Public Transport

In the following chapter the result from the public transport companies will be analyzed. The chapter starts with analyzing the industry characteristics and continues presenting similarities and differences in service set-up, initiators, evaluation, results and follow-up and lastly, future service trends. All sub-chapters except Industry Challenges will start with a table summarizing

the key-topics related to that code and category, as described previously. The presented sub-chapters follow the same structure as presented in Figure 7 above.

5.2.1 Industry Challenges

The public transport industry is described as an overall low-margin industry with high cost-focus. The industry can be characterized as a “business to government” industry, where traffic contracts are initiated by PTAs (public transport authorities), such as city councils and other governmental agencies. Given the public procurement requirement, the procurement process is to a large extent affected by certain laws and regulations, with a high cost focus. The traffic contract lengths are typically 8-10 years within the industry and tender processes typically last for one year or more. As the PTA commonly decides upon routes and frequencies of routes, the demand on the PTO can in one sense be viewed as fixed over the contract period. Considering the long contract periods, this provides the PTO a stable and predictable demand.

Regarding the buses, they are very customized product. Several interviewees describe them as “crafts”, due to the many models and varieties that exists within the industry. Suppliers have short production series and there exists variations between buses of the same model and supplier, as described by Company Y. The main reason for the many variations amongst buses is due to very specific and diversified demands and requirements set in the tender proposals by the PTAs. Each PTA will for each tender proposal, in a very detailed level, set the specifications they want the buses to have in the contract, including items such as allowed fuel type on certain routes, nr of seats, design etc. These requirements will differ for different tenders creating a need for a large variety of buses. Due to the public procurement process, these specific requirements must be fulfilled to be able to win the tender, leading to a situation where there is a need to build customized buses for each traffic contract.

Given the variety of used fuel types and customized bus models, there are many niche suppliers and the global supplier base of buses is large. Several of the interviewed companies mentions the need to work with several suppliers in parallel, to be able to stay competitive and fulfill the varying requirements of tenders. As expressed by Company Y, they try to mainly work with three big suppliers, but explains that they must work with more niche-players to stay competitive. In the future, the Company sees that they will need to work with even more suppliers, such as niche-players, as environmental factors are pushing the industry to lower emissions resulting in a variety of fuel types and strict requirements from PTAs, which large actors cannot fulfill. Company Y explains that one benefit using few suppliers is that they can have specialized workshops. As the buses are very customized, in terms of fuel type, design etc., each workshop must focus on just a few bus models to be efficient. Besides strict requirements on the buses, the specifications of the operations are also very strict. The PTA determines routes and frequencies, and any delays are usually harshly penalized to ensure precision towards the end-customers.

As a way of lowering emissions from public transport, traditional diesel engines are often replaced in the cities. Instead, new technologies have enabled the use of biogas, and electricity.

Today, the transport industry in general is currently facing a technology shift, commonly termed Electromobility, where an electrification of the propulsion systems used in the vehicles is taking place. The trend is highly affecting the public transport industry, where electrification of the buses have already begun. PTAs are increasingly demanding pure electric or hybrid buses in the traffic contracts, forcing tender respondents to comply. Given the electrification trend, there is an identified need to rebuild the traffic system with new infrastructure, as fully electric buses require charging stations etc. According to several of the companies, it is yet unclear whom should be responsible for the infrastructure, if it will be on the PTO or the PTA. Further, electric buses consist of very different components compared to traditional fossil-fuel engines, which require a new set of competences for both maintenance and repair. Fossil-fuel engines are repaired by mechanics, while electric motors require competence more like an electrician, requiring workshops to vastly change their set of competences to be able to take care of electrified buses. At the same time, some of the companies witness that the maintenance need of the buses might decrease as many of the mechanical components are removed.

5.2.2 Service Set-up

None of the interviewed PTOs have full-service agreement connected to their buses to a large extent, but instead mostly conduct service and maintenance in-house. However, as seen in Table 11 below, it is not unanimous among the companies whether servicing buses should be part of the core business. Further, the companies generally use several suppliers and use different financial solutions to purchase their buses.

Table 11 - Presents key-topics regarding service set-up within public transport

	Public Transport			
	Company W	Company X	Company Y	Company Z
Servicing product part of core				
Operational leasing				
Financial leasing				
Work with many suppliers				

Two of the studied companies, Company Y and Company Z are part of large multinational organizations, conducting public transport in several different markets. Company W however, have a strong presence in the Nordic countries while Company X only operates within Sweden. Only Company Y has an outspoken strategy regarding the use of full service agreements, stating that they should avoid purchasing them and instead do as much internally as possible. However, all the studied companies are described to make a case-by-case evaluation in each procurement.

The extent to which the public transport companies make use of full service agreements varies. The pattern is that the usage of full service agreements is a minority compared to conducting the service in-house, having their own workshops. This can be related to the fact only one of the companies, Company W, considered servicing the buses to not be part of core, see Table

11. Both Company Y and X defined it as core and Company Z communicated that different opinions exist within the company. Further, as explained by Company Z, the commercial transport business side, which is separated from the public transport, differs in use of full-service as most buses are bought with full-service contracts.

However, all interviewed companies have full service agreements to some extent where all maintenance and repair is cared for by the supplier, at the supplier's workshop or by some organization within the supplier's service organization. The length of these full-service contracts varies between 7-10 years, where Company Y and Z have their buses on operational leasing, while Company W and X have financial leasing, as seen in Table 11. Operational leasing meaning that the bus is not owned by the PTO, but the supplier and the supplier are responsible for residual value. Financial leasing on the other hand is more of a financial solution where the PTO owns their buses. As described previously, assets on operational leasing has not been included in the balance sheet, but new regulations are soon coming into use making that assets on operational leasing must be included in the balance sheet. According to Company Z the length of service contract periods and the length of their contract with the PTA to conduct traffic, is always the same length.

As the demands from the PTAs on precision and availability are high, with high penalties related to them, the PTOs generally require or aim for "back-to-back" risk distribution with their suppliers. This means that any penalties related to delays caused by a failure of the supplier's service organization should be covered by the supplier. The precise requirements on the PTOs to conduct the traffic on a minute-level, further entails that the PTOs have high requirements on bus availability, especially at peak hours, to be able to fulfill their commitment. Since only few minutes delays can be harshly penalized, several of the PTOs express a need to be in control over their bus availability. Further the companies explain the need of conducting traffic in the day and take care of repairs and maintenance during non-peak hours, i.e. during early mornings or late nights. The high requirement is one of the main differences in the business logic between the public transport and the commercial transport. For the commercial transport, the companies do not risk any direct penalties related to delays and the direct effect on their income is limited as they make money on ticket-sales. Although, misbehaving by frequent delays will not be very good customer care, but the direct economic effect will be limited.

5.2.3 Initiators

As seen in table 12 below, there is a relatively clear consensus among the companies regarding the initiators of the purchase of a full-service agreement. Also, most companies identified the same benefits with the full-service agreements. However, even though several benefits were mentioned, most companies had a lot of criticism towards full-service agreements, with the main problem being that they were not perceived as cost efficient.

Table 12 - Presenting key-topics regarding the initiating phase in public transport

		Public Transport			
		Company W	Company X	Company Y	Company Z
Initiator	Lack of resources				
	Lack of competence				
	Non-critical volume				
Benefits	Access to facilities				
	Risk reduction				
	Access to supplier competence				
	Cash flow management				
	Focus on core business				
Problems	Not cost-efficient				
	Supplier knowledge gap				
	Low business alignment w. Supplier				
	Uneven risk distribution				

The sourcing of buses is initiated by the companies answering to a tender, in an attempt to win more traffic. As seen in Table 12, all companies mentioned different needs of getting access to resources, such as facilities and personnel as the initiator to the purchase of full-service agreements. For example, it is explained by several of the companies that it might be difficult to get access to facilities when entering a new geographical area, and that if a supplier has facilities where they can manage bus service, that resolves the issue and makes full service agreements beneficial. To get access to competence is also mentioned by both Company X and Z, as the electrification of buses requires new competences. Some of the companies explain that they will build competence internally to manage electrified buses, but other companies are less confident and Company X, the smallest actor states that they will not build that competence internally.

As service contracts is used for a minority of the interviewed companies' fleets, internal service seems to be preferred unless there is a problem that a supplier could solve, such as access to facilities, competence or if the PTO does not reach a critical bus volume to motivate building their own workshop. The deviant in this case is Company Z, who for their commercial business use service contracts for most of their buses, which partly is explained by that they do not reach critical mass at each site.

The perceived benefits are often linked to the initiators where access to facilities, risk reduction (when they get back-to-back agreements), access to competence and economies of scale are mentioned as perceived benefits, as seen in Table 12. Company X and Z also mentions cash flow management, while only Company W mentioned flexibility as a benefit. Company X is also the only one that mentions a reduced administration need.

All companies but Company Z mentions that full service agreements become too costly to be an attractive opportunity in general. Company W explains how their business values and the supplier's business values and goal does not align, making it difficult for them to get the service in a way suitable to them. Several of the companies explain the importance of bus availability

and explains that they perceive a knowledge-gap from the suppliers, as the suppliers still are too product centric and do not fully understand the availability of the bus. The companies explain that their suppliers usually make money when a vehicle is in their workshop, during normal working hours, meaning that they rather take in a bus several times to repair it. This creates several issues as for instance normal working hours overlap with the PTOs rush-hours, which occurs when people are moving from and to their jobs and schools. Further, as explained by Company W, the PTOs prefer preventive maintenance and repair to minimize the time in the workshops for each bus, as well as minimizing risk of unplanned breakdowns. Preventive maintenance creates somewhat of a goal-conflict, as a supplier offering full service including spare-parts for example, would like each spare-part to be used for as long as possible. Company W explains that maintenance to prevent breakdowns is prioritized over direct cost, as penalties otherwise might consume all profit.

To overcome the risk with penalties, both Company W and Y explains that they want back-to-back agreements in the full-service contracts, when they no longer are responsible for the bus availability. They explain that there is an unwillingness from the suppliers to have this risk distribution at a, according to the companies, reasonable price. As the PTOs must lower cost as far as possible, without putting their precision and bus availability at stake, they seem unwilling to pay the premium the suppliers require for the risk distribution.

Further, Company Y mentions a lowered flexibility in these agreements, since each bus is attached to a certain service spot and is not possible to move, if the company gets a bottleneck elsewhere. Company W however mentioned flexibility as a potential benefit instead. That flexibility can be in terms of the supplier handling variations in service need over a longer period of time.

5.2.4 Evaluation

As all companies take part in public procurement, they express a high cost focus in the evaluation process. Commonly, all companies do a total cost of ownership (TCO)-analysis over the contracting length, as seen in Table 13 below. However, another effect from public procurement is the need to fulfill the tender specifications, which is described to always be the priority when answering to a tender.

Table 13 - Presenting the key-topics regarding the evaluation phase within public transport

		Public Transport			
		Company W	Company X	Company Y	Company Z
Evaluation Criteria	Tender specification compliance				
	TCO-analysis				
	Simple access to resources/facilities				

As seen in Table 13, all companies explained that their procurement process is steered by the tender specifications from the PTA, to a very large extent. Some of the companies' express

frustration regarding this, as it occasionally means that only one or a few suppliers and one or a few vehicle models can fulfill the requirements. Company W explains that the tender specifications are politically driven, where regions aim to become more environmentally friendly using electrified buses for example. Further, companies express that it is doubtful if the politicians deciding upon both the specifications regarding fuel type and the other customizing specifications, has insight into how it drives cost. The interviewees indicate that the customization in the industry drives a lot of cost.

However, when the bus specifications are covered, cost is the focal issue for all interviewed companies, as public procurement is very cost-centered and requires transparency. As seen in Table 13, all of the companies explain that they estimate TCO for each bus type during the contract period where fuel is an important part of those cost. As Company W explains, a vehicle using less fuel can be worth to pay a premium for. However, the extent to which the companies can estimate the TCO varies some. Company W explains that they keep track of all costs on all their buses, and thereby easily can estimate their cost for maintenance and repairs, which then can be compared to the price offered for a full-service contract by a supplier. Contrasting, Company Z explains that it sometimes difficult to estimate the maintenance and repair cost, as it is very different depending on the bus, making it difficult to estimate if it is best to do the service internally or let the supplier take care of it.

As the main goal with procuring new buses is to win a traffic contract to operate traffic in a certain area, the combination of buses and the complete offer must be competitive in terms of cost. As the tender is regulated by public procurement, subjective values are hard to include, if not specified in tender, and cost is the most important decision factor. The calculated cost is always on the length of the contracting period, independently if the companies determine to do service inhouse or buy full service agreements. Cost is however the second decisive factor, as the buses must first fulfill the tender specifications set by the PTA to be part of the tender.

Further, the commercial business of Company Z is not restricted by the PTAs strict requirements on bus types, as this part is separated from the public transport business. This entails larger freedom to decide upon bus types and maximize usage from the companies own point of view.

5.2.5 Results and Follow-up

As seen in Table 14 below, most PTOs measure several aspects of the usage of the bus and service contracts. Further, they perceive similar organizational impacts, such as closer supplier relationships and the need for new competence to handle the new types of relations and contracts.

Table 14 - Presenting the key-topics regarding the result phase of the process within public transport

		Public Transport			
		Company W	Company X	Company Y	Company Z
Measurement	Individual bus performance / Driving behaviour				
	Cost per km				
	Availability of buses				
	Repair & maintenance occurrence				
Organizational impact	Increased work-load				
	Closer supplier relationship				
	Competence need				
	Decreased work-load				

The extent to which results from the service contracts are measured varies some between the interviewed companies, but overall the focus on measuring is high. As seen in Table 14, all companies state they measure both the performance of the buses and the performance of the supplier, where bus availability is described as a key performance index. As described earlier, the focus on costs is high and generally the companies are knowledgeable about their costs. However, some variations exist. As Company Y explains, they lack a proper benchmark regarding cost-performance of internally conducted service versus buying a full-service contract. The need for cost benchmarks is most evident during the tender, as the companies need to assemble the most cost competitive offer to win the tender, while still making profit.

Except for cost, availability is of great importance and hence all companies state that they measure availability of the buses, as seen in Table 14. Company Y measures the availability as a number of available buses of each bus type during their peak hours, to ensure they have enough buses to fulfill their commitment towards the PTA, to avoid expensive penalties. Company W also measures on a detailed level both the performance on individual buses and the internal productivity. The expressed focus on measuring availability can be connected to the high requirements initially set by the PTAs on availability, with penalties connected to not fulfilling the requirements. As Company W who generally are negative towards the usage of service contract explains, they have had one successful service contract, but it required large amounts of effort to make it work. They had to continuously cooperate, measure and educate about their business needs to be able to see the benefits out of it. Basically, most of the interviewed companies express a need to control the availability of their buses, as it is too expensive not to.

In line with what is expressed by Company W regarding the success of service contracts, few cases are described where the full-service contracts have been perceived as successful among the other companies. Company X states that they are happy with the contracts for their hybrid buses, due to the perceived large cost saving made, and Company Z that the contracts are working well for the commercial transport business. In the other cases, the service contracts are generally thought of as unsuccessful, due to perceived high costs, low flexibility from the

suppliers and a low business alignment with the workshops, as explained earlier with conflicting goals. As such, the service contracts seem to be more successful when there is a lack of competence, a need of resources or when there are not enough buses to reach a critical mass. The use of full service agreements hence seems to be perceived as more successful when they solve an actual problem, that otherwise could have hindered to PTO to operate the traffic rather than measured by pure cost.

Regarding the organizational impact implicated by the usage of service contracts, several similarities exists between the companies. Most of the companies express that there are no differences in the purchasing process itself between only buying the buses and buying the buses with a full-service contract, meaning that the same purchasing organization is involved. However, as seen in Table 14, purchasing full-service is described by the majority of the companies to come with a need for certain competences, and is perceived as more difficult than only buying products. For example, Company Y express that there are several additional factors to consider when buying a full-service contract and states that, in the long-term, there is a need for recruiting new personnel with certain set of knowledge within a service purchasing. Company X in turn express that they have difficulties in assessing the value received from a full-service contract and explains that the competence requirements are higher. Furthermore, most of the companies also recognize a higher workload from buying full-service when it comes to following-up on KPIs and managing the supplier-customer relationship, see Table 14. Generally, human resources are more burdened as the use of service contracts require daily communication on operational level and frequent communication on more strategic levels. One example is Company W who stated that to reach a successful service contract, the burden on central departments had increased significantly. Further, as explained by Company Z, extra operations might be required as the service depot of the supplier might not be in direct connection to the operation area, creating a need for transporting the buses back and forth to the operational area on a daily basis. This does according to the company also an increased need for cross-departmental communication.

Further, as the companies traditionally have had workshops, and service and maintenance has been a large part of their business, outsourcing all service has a large effect on the scope of the businesses. This could in the extension re-define the business of the PTOs, as they traditionally have been vehicle owners, taking care of the vehicles to conduct traffic. Moving into service contracts, a large part of their operations will be conducted by their suppliers, and they will mainly execute traffic. As explained by Company Z, the ownership and service of vehicles is incorporated into the structure of the industry as personnel usually is included as a PTO win a tender, from one contract period to another. In those cases, it is difficult to change the scope as it is already predefined that the PTO winning the contract has to employ personnel from the previous period in their workshops.

5.2.6 Future Service Trends

Even though most PTOs express that the full-service agreements are seen as unsuccessful, they still express a desire to increase the usage of full-service agreements, as seen in Table 15 below.

However, contrasting to this expressed desire, the described trend is to do more in-house service.

Table 15 - Presenting the key-topics regarding future service trends within public transport

		Public Transport			
		Company W	Company X	Company Y	Company Z
What is wanted	Increase service contracts				
	More advanced contracts / more supplier responsibility				
What is required	More back-to-back risk distribution				
	Increased supplier knowledge				
	Improved business alignment w. supplier				
	Closer collaboration w. supplier				
	Performance/availability guarantees				
	Pleased with current set-up				
Service trend	Do more in-house service				
	Buy more service contracts				

Going forward, several of the interviewed companies describe a request for increasing their full-service agreements. As Company W explains, they do not want to do all the service themselves as this is not part of the core. Similarly, even though service currently is considered to be core, Company Y express a will to increase the full-service agreements, as they see no intrinsic value to run their own workshops. However, with the current full-service set-up, the companies do not see it economically feasible and hence they stick to doing the service internally as far as it is feasible.

As seen in Table 15, there is an expressed need for more evenly distributed risk sharing in the full-service contracts to make them more economically feasible. Given that the suppliers will take over the responsibility for parts of the operations, several of the interviewed companies express an unwillingness from the suppliers to take over the corresponding financial risk that this commitment comes with. As previously stated, there are penalties related to not fulfilling the requirements set in the traffic contracts from the PTAs, however, the service contracts today are described to not represent a fair risk distribution regarding these. There is a request from the PTOs to have more “back-to-back” risk sharing, with the same availability clauses and penalties specified in the full-service contract as the PTO have in the traffic contract with the PTA.

Another requirement expressed for full-service contracts to become feasible going forward, is the ability of the supplier to adapt to the PTOs business needs. There is a described lack of understanding from the supplier regarding what is really the drivers of revenue for the PTOs, which creates a misalignment with the current structure and revenue drivers of the suppliers. As Company W explains, they earn money when the bus is on the road, while the suppliers traditionally earn money when the bus is in the workshop. Therefore, there is a described need

for the suppliers to adapt to the PTOs operations and align their workshop operations to the PTOs requirements, such as having the capabilities to service and repair during weekends and evenings/nights.

The current service trend differs some between the interviewed companies and based on operational area, whether it is public transport or commercial transport. Regarding the public transport, the majority of the companies express that they believe they will decrease the number of full-service contracts going forward, as seen in Table 15. Instead service will be conducted in-house in their own workshops where possible, even if this is contradicting the fact that many of them see full service contracts as desirable. The main reasons explain for this, is that they want to be in control over their buses and the bus availability.

However, related to the current industry transformation, with the shift towards electrification, the service trend is predicted to be different. Several of the companies believe that they will increase the number of full-service contracts related to the electric buses, due to the competence requirements and uncertainties in the buses lifetime performance and service need. Only Company W express that they believe they are competent enough to continue service also electric buses with their current set-up. Related to the future electrification of the industry, there is also an identified need regarding the charging infrastructure. As Company Z describes, the PTAs will in some cases demand the PTOs to procure, maintain and make available the charging infrastructure connected to a traffic contract, and this is something currently out of the company's scope and competence. As such, there will likely be a need for buying full-service agreements for the charging infrastructure, or even extending the service contracts to cover the entire charging infrastructure management including set-up.

5.3 Comparing Industries

Analyzing the data retrieved from the companies, some similarities and differences appear between the investigated industries. Starting to investigate the differences, the most apparent in the context is that the use of rental agreements seems to have become a standard for sourcing forklifts in the logistics industry, while the use of full-service agreements for buses is rather seen as something occasionally necessary. By comparing the data from the two industries, and analyzing their context, the aim of the following chapter is to bring some clarity into why logistics companies choose to source forklifts as services, while the PTOs are more negative, to ultimately be able to answer the purpose of this study.

5.3.1 Different Drivers in Industries Give Different Service Needs

Initially, every company mentioned cost as an important factor to include whenever purchasing decisions are to be made, and interviewees from both industries stated that they are acting in low-margin industries, forcing them to lower cost. Although this may be true, when analysing further, the drivers of the two industries seem to differentiate from each other.

For the logistics industry, the industry trends seem to affect the need for purchasing services. The logistic companies paint a picture of an industry that is challenged by the growing e-commerce, as the need for transport of packages of all sizes are growing. This occurs simultaneously as end-customers increase their demands on speed of delivery. Packages are to be delivered within just a few days, even if it is a question of home delivery. As this is a challenge, it also provides the companies with growth opportunities. Several of the interviewees witness that they may lose or gain customers at a high pace, forcing them to be flexible in the way they work and be able to both increase and decrease volumes without too much risk. This indicates that the main drivers of the companies within the industry is to be able to “produce” large volumes at a high speed, while maintaining flexibility due to that their demand is volatile. The goal therefore becomes to optimize their production, to be able to handle increasing volumes of goods, at a higher speed than previously. Hence, there is an expressed need to focus on the core business and to reduce focus on supporting areas of the operations, opening up the possibility to buy services to cover these areas. To optimize their flows, an optimized usage of products such as forklifts is needed, as forklifts is an important part of their goods flows within warehouses. This is exemplified by Company S, who states that they actually did not choose the cheapest supplier, but the supplier offering most flexibility in their agreement, which would enable them to meet their future customer demand. Flexibility is one of the main benefits, praised by all interviewed companies within logistics.

The PTOs however, are acting in an industry where for each contracting period, the requirements and demand is fixed. As they do not earn money on ticket sales, but from complying with their agreement with the PTA, they are in no need to scale up or down transportation over time, except for predictable seasonal and daily variations. The demands on precision from end-customers are high and the precision is measured in minutes, which is transferred to the PTAs strict precision requirements on the PTO. Further, as public transport is subsidized by public authorities, using tax income and all procurements are public procurements, cost becomes a very important factor. As the tender processes determines if they win a contract for a long period, the goal is always to present the most competitive offer, while still being profitable. To be competitive in this setting basically means to be able to produce the exact required amount, with the requested buses, at a high precision and low cost. Overproduction is not wanted, as empty buses will just drive cost, and variations in population using public transport in a certain region can be assumed to not vary in any unpredictable way. This gives that flexibility during the contract periods is not as important as for the logistic companies. Instead, combining these constraints with the high penalties related to delays and deviations, the PTO needs stable, controllable and predictable operations to ensure availability of buses. As such, the drivers for the PTOs to buy full-service agreements can be said to correlate with the need to ensure stable operations.

This could further be revealed in the mentioned benefits from the companies. Even though some similarities existed between the industries, such as reduced risk, cash flow management and access to supplier’s competence, the logistic industry had more focus on flexibility as a driver for buying services, while the PTOs had more focus on access to resources such as facilities.

The logistic companies saw the ability to quickly adjust to changing volumes as positive, while the PTOs focused on ensuring a stable access to necessary facilities over the contract period.

5.3.2 Differences in Industry Settings Give Different Purchasing Behaviors

Overall, the initiating phase of a purchase is very different for the PTO's and the logistic companies. The logistic companies answer to internal demands, induced from external demands while the PTO's answer to a tender, with the aim to win it. This might give several implications, as Company S explained, they could choose the more expensive option since they saw it would align better with their business in the long term. However, the PTO's must make a business case that makes them win the tender. Several of the interviewees from Public Transport was not always pleased with the solutions they had to present to enable that, indicating that they thought there existed better and more cost-efficient solutions outside the scope of the tender specifications.

A further identified difference between the two industries, is the level of standardization versus customization. It appears as the logistic companies experience a standardization both when it comes to the products and service offerings, as well as when it comes to the centralization and standardization of procurement. While the forklifts are described as equivalent between different manufacturers, even though there exists a variety of different models, the buses are described as customized crafts. This brings several implications. The forklifts may easily be transferred between sites by the customer, and between customers by the supplier. The buses however, are more difficult to transfer for the customers, as they might be dependent on having a workshop close by that can handle that exact type of bus. Also, the bus could simply have the wrong color end hence not be useful in city A if it is produced for city B. The flexibility of the forklifts and buses is hence very different.

This standardization of forklifts further gives that the logistic actors are satisfied with using only a few suppliers to fulfill their need. Several of the companies explained that the main reason to make use of more than one suppliers was to decrease the risk and possibilities of opportunistic behavior by keeping them in competition, implicating it is more of a strategy to avoid dependence, than actual need that makes them source from several suppliers. The PTOs however, explained that they would not be able to compete if they did not work with several suppliers, further giving variations to their fleet and constraining their relationship management.

Further, as the logistic companies are able to source forklifts in large amounts from the same suppliers, they are also able to negotiate large, centralized service agreements covering many forklifts over several sites, sometimes spanning over several countries. This further helps the standardization of managing the service contracts, from both parties, as the same type of service set-up is used over a larger quantity of forklifts and sites. To have many forklifts from the same supplier at one site, enables them to have supplier service representatives close, even in-house, being able to handle short response times, further increasing the use of the service agreement. The PTOs on the other hand, would in most cases have to negotiate service agreements with

several suppliers for each tender if they were to use only service contract agreements, which would require them to engage deeply in several relations. This would further require customization as each supplier would offer slightly different service agreements, and probably at different locations within the region where the PTO operates. This gives the PTO a situation with multiple service contract set-ups with multiple actors at multiple sites. As several of the companies in both industries explain that the use of full service agreements requires close collaboration with the supplier on several levels within the organization, working with many suppliers would require a lot of both time and resources. Comparing the situation within the two industries, there is an indication that the number of suppliers influence the feasibility of using full service agreements. The logistics companies with few suppliers happily use service agreements, while the PTOs working with more suppliers are less positive.

5.3.3 Different Organizational Impact From Purchasing Services

Analyzing the organizational impact from starting to use full service agreements, further differences and similarities between the industries appears. Firstly, as most companies in both industries claim that they make the decision to buy full service agreements “case-by-case”, evaluating and comparing the full-service agreements with the cost of doing it internally, they claim that the purchasing process is generally the same as when purchasing pure product, meaning that the same persons are involved, and the same process is used. However, several companies from both industries mentioned that the purchase of services are more complex and require a different set of skills.

Moving into the differences, the PTOs experience a larger change in their operations, as a whole function previously carried out in house is outsourced to the supplier. This changes their scope of their business and requires a different set of operations, such as transporting the buses and managing a close relationship. The logistic companies however, have traditionally purchased services on their forklifts, meaning that a third party, usually one of their suppliers, has come to their site on request or according to agreement in some way, and conducted the service. The main difference is the responsibility and risk distribution as well as payment set-up, moving from paying for the service to paying a monthly fee to access functioning forklifts.

5.3.4 Different Service Requirements Give Different Levels of Follow-up

Regarding measuring the results from service agreements, it is clear that the industrial context influence the companies heavily and the two industries have different focus regarding the follow-up. The logistic companies choose to source forklifts to optimize their usage of them, with the overall goal being to handle large volumes. The PTOs on the other hand, source buses with full service agreements to access resources and have a clear goal to win tenders and be able to carry out precise transport. As such, the PTOs have a larger focus on measuring and following-up on costs, to continuously ensure they have updated information to make competitive bidding offers. Also, for the public transport industry, the strict requirements set in the traffic contracts by the PTAs do to a great extent affect the requirements on the full-service contracts. As Company X describes, there is a need for a “back-to-back” risk distribution where the penalties related to delays should be paid by the one causing the delay, for technical

breakdowns being the supplier. Therefore, given the penalties related to not fulfilling the requirements set in the traffic contract, there is an increased need to measure the supplier performance and keep track on costs, KPIs etc. For the Logistics companies on the other hand, the need for measuring and following up on performance is not as evident. As several companies explain, they cannot clearly state how cost savings are measured but are confident that they save money. Overall, within logistics, there seem to be less strict requirements set in the service commitments and a general positive view of the rental agreements, which could explain why the perceived need to measure certain KPIs is lower. The concern for the logistics industry is rather to optimize productivity, in terms of volumes of good handled, than focusing on costs.

Further, the PTOs have a large focus on ensuring that the supplier fulfills the availability requirements during the contract period. As the PTOs performance is monitored by the PTAs on a minute-level, to ensure that buses are on time, the PTOs are ensuring that their business is secured, by securing and measuring the availability of the buses. The logistic companies are not aware of any problems and assume everything is working out fine, trusting their suppliers to do their job. The PTOs however, must know that they can fulfill their precise transport requirements towards the PTA as their revenue otherwise would be consumed by penalties.

These differences in monitoring due to the different requirements set on availability and precision could relate to the perceived differences in workload. The PTOs put more time and effort into controlling and securing their business, while the logistic companies do not risk as much, due to lack of penalties and can hence trust their suppliers more, which requires less work and effort.

5.3.5 Future Outlook For Advanced Services in Both Industries

Looking forward, the logistic companies are in general positive to that they will continue use full service agreements. The PTOs however, in general express themselves doubtfully as at least two of them states that they are decreasing the usage of full service agreements. However, the companies also express that they see the use of full service agreements as something desirable, but currently unfeasible. Regarding what changes they see in their industry, both industries are facing autonomous vehicles, but to the PTOs it seems more distant, as they operate in traffic and the whole legal system must be updated to enable full use of autonomous vehicles. The logistic companies also see barriers, as there exists problems with combining autonomous vehicles and people in the same areas. Also, the logistic companies explain that autonomous forklifts are expensive and for certain applications, less efficient.

Another trend affecting the future outlook is electromobility, which especially was mentioned by the PTOs. Electrified forklifts are already in full use for the logistics companies and hence nothing new. As previously discussed, the trend of electromobility requires new competences, that will enable the supplier to add more value into service contracts. For instance, as some of the PTOs state, they are not interested in building certain electrification competence internally and hence have a need to buy this competence elsewhere. Further, electromobility and the

required charging infrastructure gives the PTOs new requirements, creating a need to access new knowledge. Overall, the buses are in the middle of a technology shift and have over the last few decades had some transformations regarding fuel types. The logistic companies mentioned no changes requiring new competences of this magnitude. All the interviewed purchasers of forklifts only purchased in-door forklifts, which are already electrified.

It is unclear whether or not the PTOs will be forced to work with a larger number of suppliers in the future, or if the manufacturers will start to consolidate. As Company Y explained, they saw a risk that they would have to work with above ten suppliers in the future, which would create a lot of coordination and relationship management to make service contracts work. On the other hand, it would constrain the workshops and their operations to be able to handle a large variety of customized buses, using different types of fuel. Hence, even though the PTOs expressed a desire to expand the usage of full service agreements, it remains unclear if they will actually do so, due to the discussed internal and external barriers. However, the logistic companies are confident that they will continue with rental agreements on forklifts, but few concrete examples of how the agreements could be extended were presented. Hence, the details of future set-ups remain unknown.

6 Discussion

The following chapter intends to discuss the results and analysis presented in previous chapter in comparison with the existing research presented in chapter two. The discussion aims to identify areas where presented results and existing research have consensus as well as areas of contradiction, in order to ultimately provide the basis for the conclusions intended to fulfil the purpose of the study. The two industries will be discussed together and in parallel, in an attempt to clarify differences and similarities between them and investigate why similarities and differences exist. The discussion is structured around the presented research questions to ensure the study fulfills its purpose.

6.1 Why is the Purchase of an Advanced Service Initiated?

The following section aims at answering the first research question, “*Why is the purchase of an advanced service initiated?*”. Firstly, the characteristics of the services studied in the two industries are discussed and contrasted and secondly, the identified drivers within each industry are discussed. Presented findings are discussed together with existing literature.

6.1.1 The Different Levels of Service Use

The service contracts in both the studied industries require an advanced setup where the supplier-customer relationship is close and service commitment is high. According to the definition by Baines & Lightfoot (2013), an advanced service is characterized by the supplier taking over parts of the customers’ operations and is focused on the customer enabled capabilities of the product-in-use. In accordance with this definition, the described service contracts within both the Logistics and Public Transport industry includes that the supplier takes over parts of the responsibility previously carried out by the customer. For example, the suppliers within the Logistics industry have assumed the responsibility of both ownership and fleet management of the forklift fleet, which enables the suppliers to offer the logistics companies a higher degree of flexibility in terms of scaling up and down the fleet when needed. The flexibility in turn improves the logistic companies’ capabilities of better handling fluctuating volumes, which assumedly relates to the companies’ organizational goals as explained by MacDonald, Kleinaltenkamp and Wilson (2016), increasing the assessed value-in-use. Similarly, the suppliers within the Public Transport industry are assuming the responsibility of maintaining and repairing the buses, a responsibility previously carried out internally by the PTOs, hence the supplier is taking over parts of the customer’s operations in line with Baines & Lightfoot (2013). Included is a distribution of risks and rewards connected to the performance of the supplier.

However, there is one main difference identified between the studied industries in terms of service characteristics. Looking at the Public Transport industry, the buses used by the PTOs for a traffic contract are fixed, as the traffic contracts are specified around a certain set of specific customized buses that fulfills the PTAs specifications. Hence, the possibility to move buses between different traffic contracts is very limited, reducing the ability to be flexible with the fleet management. This is in contrast to the situation within the Logistics industry, where it

is only defined what models and what number of forklifts each logistic company and their sites should have access to. Some contracts will also include a clause determining the share of old versus new equipment. However, the common theme is that the specific vehicles are of less importance within the logistics industry which gives several implications. As the suppliers within the Logistics industry will have access to a large number of forklifts and the specific forklifts are of less importance, they will be able to utilize the entire fleet to ensure that each of their customer contracts are fulfilled. Also, within a customer's contract they are able to move around forklifts if they are used differently, to level out tearing and wear. If a larger number of forklifts would break down, the supplier could simply just bring other forklifts to that exact site. As exemplified by several logistic companies, it is entirely up to the supplier to ensure they have a backup fleet. The bus suppliers however, will have to ensure that a specific set of buses are maintained and available according to specified SLAs. Hence, the setup within the Logistic industry enables more flexibility for the supplier and the supplier takes over more responsibility over the fleet to be used. Therefore, in accordance with the definition of advanced services presented by Baines & Lightfoot (2013), it can be argued that the full-service agreements within the Logistics industry are more advanced compared to the Public Transport industry. This indicates that an advanced service is not a static state but includes a scale of service characteristics.

Furthermore, as van Weele (2014) describes, the main characteristics of outsourcing are related to the transferring of activities, assets and knowledge to the supplier, a long-term relationship and the exposure to new risk and cost profiles. As previously explained, the service contracts used within the industries require closer relationships with the suppliers and also include a transfer of responsibilities to the suppliers. The service contracts can also be said to change the risk profiles of the purchasing companies, as they always have some kind of risk distribution with the supplier, stating whom is responsible for break-downs, giving that they share a risk previously carried alone. For instance, the service contracts within the Public Transport industry include clear Service Level Agreements specifying required supplier performance with penalties related to them, hence stipulating the risk sharing between the PTO and the supplier. As such, these types of advanced service contracts could be categorized as a type of outsourcing, supporting the notion of a clear connection between outsourcing and advanced services.

6.1.2 The Different Drivers of Sourcing Services

The main identified drivers to buy advanced services that are present in both industries are; access to supplier competence, risk reduction and cash flow management. All of these are mentioned as potential benefits in the literature. Slack (2005) mentions predictable cost, Bröchner (2006) names access to competence and MacDonald, Kleinaltenkamp and Wilson (2016) mention both risk reduction and reduction of fixed capital, which can be related to cash flow management. Cash flow management can be described as a tactical reason for outsourcing (van Weele, 2014). However, several of the other identified drivers, the benefits and initiators, are distinctly more emphasized depending on industry. For example, the PTOs mention access to suppliers' resources such as facilities, which can be seen as a strategic reason for outsourcing (van Weele, 2014), and to achieve economies of scale when their bus volume is too small at a

certain site. The logistic companies instead see flexibility and to focus on their core competencies as benefits, whereof both flexibility and focus on core competencies are mentioned by van Weele (2014) as a strategic reason to outsource. Regarding flexibility, there seems to exist a contradiction as some of the PTOs mentioned flexibility as being reduced when using service contracts. However, Kremic et al. (2006) explain that flexibility can be both reduced and increased when outsourcing, hence being in line with the results of this study. Overall, the described benefits and drivers to buy advanced services are aligned with what is proposed by previous research with the exception of environmental factors. Even though Goedkoop et al. (1999) highlight servitization as a way to increase sustainability, and Chou et al. (2015) explain that suppliers and customers are more aware of sustainability values that can give them a competitive edge, none of the interviewees expressed environmental factors as drivers to buy services.

However, as the drivers vary between the industries, it is clear is that the different industry contexts, affecting the competitive environment, have a big impact on the drivers to source services. Even though some drivers were mentioned in both industries, the perceived benefits, problems and initiators varied more between the industries than within industries. MacDonald, Kleinaltenkamp and Wilson (2016) propose that the assessed-value in use of a service may arise from the organizational goals related to organizational performance. However, as the results from this study indicate, it was the industrial context that had the greatest influence on the assessed value-in-use. Furthermore, the benefits mentioned by the logistic companies were mostly considering opportunities of improvement as the companies purchased services to gain more flexibility, better cash flow management, and more focus on core business to further be able to improve. The PTOs however, mostly mentioned that full service contracts were used to solve their issues such as not having access to facilities or a certain competence. This implies that initiators and perceived benefits for customer companies to servitize can be both opportunity driven and problem driven.

6.2 How is the Purchasing Decision Evaluated?

The following section aims at answering the second research question, “*How is the purchasing decision evaluated?*”. The industry context influence on the service need is discussed, followed by a discussion of the main evaluation factors influencing the purchasing decision. Presented findings are discussed together with existing literature.

6.2.1 Different Requirements and Settings for Service Delivery

As described in the analysis, the industry context in which the companies act seem to affect the feasibility of a service contract to a large extent. For the Public Transport industry, the strict requirements from the PTAs must be translated into requirements in the service contract, which in turn seem to limit the economic feasibility of the service contracts. The described uniqueness of each traffic contract, in terms of for example customized buses and operational peak-loads, leads to specific service needs, and the high penalties connected to the operations of the traffic contract leads to a need to evenly distribute risks between the supplier and the PTO. Further,

the requirements set by the PTA leads to very specific availability needs of the buses, requiring the supplier to setup their operations to cater to these needs. Hence, all these aspects drive a need for customization of the service contract. As Vandermerwe and Rada (1988) describes, servitizing the business usually requires a high level of customization to meet customer specific needs. Kindström and Kowalkowski (2009) similarly states that service development requires high customization and the need for customer involvement in the development process. However, as described earlier, there seem to be a lack of knowledge from the suppliers' side on what is creating value for the PTO, indicating that the customer involvement in the development process is low, or otherwise insufficient. Even though previous research confirms the need for customization to meet customer need with a service contract, the customization need within the Public Transport industry seem to limit the feasibility of the service contracts.

For the Logistics industry, the described changing customer demands and increasing volumes due to the e-commerce, changes the requirements set on the logistics companies, with an increased demand on productivity. This in turn creates a described demand for flexibility and customization, in order to handle the fluctuating volumes and demands. As Tuli, Kohli and Bharadwaj (2007) describes, customization and integration is viewed as an integral part of service contracts by both customers and suppliers. However, compared to the Public Transport industry, the need and requirements set in logistics rental contracts seem to be more homogenous. Besides, the described standardization of the forklifts within the industry reduces product customization, which in turn simplifies service delivery as the supplier can easily transfer forklifts between customers. Therefore, the need for customization is not as high for the forklift suppliers as it is for the bus suppliers. According to Barthélmy and Quélin (2006), complexity in a service contract is a driver of cost of the contract. As Barthélmy and Quélin (2006) describes, each contractual clause, such as specifying roles, responsibilities, measurements, penalties etc., have a cost related to it and the more complex contract, the more expensive it is. This can be related to the complexity of the contracts in the Public Transport industry, in terms of clearly specified and strict Service Level Agreements with corresponding penalties, and the explained issue with service contracts being perceived as too expensive. For the Logistics industry, the expressed requirements are not as strict and the need for many contractual clauses that specifies the Service Level Agreements, e.g. measurement clauses, is not as evident.

Overall, the Logistics companies are more satisfied with their service contracts compared to the PTOs in the Public Transport industry. As described in the analysis, one of the main issues within the Public Transport industry is the differing value creation drivers between the supplier and the PTO. This is described as the incompatibility between the suppliers' and the PTOs' operations, where the supplier earn money when the bus is in the workshop and the PTO when the bus is out on the road. As MacDonald, Kleinaltenkamp & Wilson (2016) describes, a customer judges a solution not only based on the supplier's processes but also the joint processes. On the one hand, focusing on the customer's processes and financial drivers is important in developing a successful solution (Storbacka, 2011), but on the other hand, the effectiveness of a solution offering also requires adequate customer adaptiveness to the supplier

(Tuli, Kohli & Bharadwaj, 2007). Hence, there seem to be a need to find a better alignment between the supplier's and the customer's processes within the Public Transport industry, to enable a better solution offering. Tuli, Kohli and Bharadwaj (2007) suggest that the service provider should take a relational-process view on selling solutions, further indicating the need to create a mutual understanding between the supplier and customer processes.

The difficulties in reaching efficient full-service agreements with availability within the Public Transport industry seem to lie within that certain industry specific structures makes it impossible, or unfeasible to make use of some benefits of the full-service agreements. For example, a very high level of customization gives that flexibility cannot be utilized in the same way as for a more standardized industry. Also, a high level of precision and control, related to penalties increases the perceived risk for the PTA, making them keen to exercise more control over their service supplier. As explained by Barthélmy and Quélin (2006), this might give more complex and expensive contracts. Even though the PTOs express a desire to buy more advanced services, two of the interviewed companies expressed that they are reducing their use of full-service contracts as they are not pleased with the outcome. The data presented in this study hence implies that the industry context may be a barrier towards efficiently utilize service contracts.

6.2.2 Cost Focus in Evaluation of Offers

Further, one similarity between the two industries is the focus on cost as most companies explained that their case-by-case decisions to a large extent was based on translating different values into cost. This is in line with what is proposed by Bröchner (2006), that cost savings are one of the main drivers to outsource. In line with this, Slack (2005) explains that sourcing services is a way to reduce the overall cost base. However, only the logistic companies perceived any cost savings from using full service contracts, while several of the PTOs rather perceived the full-service contracts as too expensive. However, at least one of the logistic companies was aware that they paid a premium for their service contracts, but in line with what was expressed by several other logistic companies the possibility to focus on their core business made it worth it. This is in line with what both Slack (2005) and Tukker (2004) explains regarding that to be able to focus on core business is a benefit with outsourcing.

In contrast with the cost focus, that is supported by both Slack (2005) and Bröchner (2006), Hoecht and Trott (2006) emphasizes to focus on utilizing organizational knowledge, instead of just focus on cost savings. Similarly, Beuren, Ferreira and Miguel (2013), emphasizes the importance of including more aspects than just economic gains in the development of offerings from the supplier side, to enable a successful offering, combining service and products. However, even though the PTOs mentioned several different types of benefits, everything was reduced into costs, as they take part in public procurement. The logistic companies also emphasized cost to a very great extent, but at least one logistic company acknowledged that they had chosen the more expensive suppliers offer due to better business alignment. The logistic companies generally saw that the upside from the flexibility and thereby the reduced risk made it worth it to pay a little extra, as it strengthened their capabilities and thereby

competitiveness. The strong cost focus from the PTOs is hence in contrast with what is proposed by Hoecht and Trott (2006) and Bueren, Ferreira and Miguel (2013) and also Kremic (2006) that propose that there is a shift from cost driven outsourcing to strategy driven outsourcing. The strong cost focus could be related to firstly the industry context, where all PTOs take part in public procurement where cost is of great importance. Also, as it is found that the PTOs have a somewhat problem driven approach to purchasing services, they seem to lack insight into other benefits that could release indirect cost savings or unwilling to include them. This is in contrast with the more opportunity-driven approach in the logistic industry, where benefits are translated into indirect and direct cost savings. The possibility and ability to include more qualitative values into the evaluation of offers seem to enable a positive view on the use of advanced services and could help explain why the PTOs are less able than the logistic companies to find attractive service contracts. Hence, the logistic industry seems more mature when it comes to purchasing advanced services.

6.3 What are the Results From Buying an Advanced Service and How is this Followed-up?

The following section aims at answering the third research question, “*What are the results from buying an advanced service and how is this followed-up?*”. A discussion of the effects of service purchasing on the supplier-customer relationship is presented, followed by a discussion on the needed organizational change. Presented findings are discussed together with existing literature.

6.3.1 The Relational Aspect of Sourcing Services

Looking into the data, the logistic companies explain that their suppliers have a good understanding for their business and value creation. The PTOs however, at several occasions explain that their suppliers do not understand what operations are creating value to them, and that there even exist contradictions in value creation between the interviewed companies and their suppliers. The literature clearly states that a supplier must understand their customers and their value creating process to be able to successfully deliver a service, for example this is explained by Storbacka (2011) using the term of *commercialization*. Further, as stated by Kumar et al. (2004) analyzing and defining customer need is required to develop an efficient and competitive solution. As the PTOs overall are not very satisfied with the offered full service contracts, and some PTOs even state that the offers by the suppliers are not competitive, this strengthens the argument by the literature, the suppliers' understanding of their customers' value creations is of importance. However, as Kumar et al. (2004) state that cooperation between supplier and customer is of great importance to achieve this understanding, it suggests that closer collaboration between the PTOs and their suppliers are required to achieve successful service deliveries.

However, as Gallouj (1997) states, a barrier towards sourcing services is information asymmetry between the supplier and customer, where the supplier is the expert. This is something the data from the logistic companies support, they see the suppliers as experts on the

products and the optimization of usage of the products and are as stated, generally very satisfied with the services offered. However, several of the PTOs express themselves confident regarding that they possess important knowledge about the products and services, indicating that in some cases the customer perceives themselves as the experts. Acknowledging that the PTOs generally are unsatisfied with the offered services, this implies that suppliers must ensure they have a strong competence base regarding their own products, and clearly communicate this to their customers.

Furthermore, not just the quality of the relation, but also the number of supplier relations differentiate the PTOs and the logistic companies from each other. Where the logistic companies have shifted towards use a small number of suppliers, the PTOs experience that the competitive situation requires them to cooperate with a larger number of suppliers. The literature is not unified in this question, as Bröchner (2006) proposes that for outsourcing situations, one should rely on as few suppliers as possible, ideally one and strive for long-term relations. While Hoecht and Trott (2006) instead propose a shift from long-term relations with few suppliers, to short-term relations with several suppliers, called strategic outsourcing. Van Weele (2014) however explains that it takes time and careful management to develop a constructive service-relationship with clearly defined responsibilities.

Even though the logistic companies use fewer suppliers, several of them state that they prefer using more than one supplier to keep the suppliers aware of competition, and to ensure that they do not act opportunistic. This indicates that, even though they use few suppliers, in line with Bröchner (2006) the logistic companies try to combine few suppliers with the strategic outsourcing as proposed by Hoecht and Trott (2006), to stay in charge over their relations and ensure that the suppliers act in a competitive way. The PTOs however, are more or less forced to use several suppliers to stay competitive, but as the strict requirements from their PTAs sometimes only allows for one specific suppliers' buses for a contract, they have no opportunity to apply strategic outsourcing as proposed by Hoecht and Trott (2006). Instead, the PTOs, if they enter full service agreements, have less choice regarding supplier and hence for each bus type most likely have to apply the sourcing proposed by Bröchner (2006). Giving that for a whole fleet, a PTO must manage several parallel relationships for different buses.

This indicates that it is positive to have a dimension of direct competition in the supply of service contracts, since it enables the customer company and the suppliers to continuously benchmark the offers. However, as service relationships are demanding in regard to resources, it is beneficial to keep to just a few suppliers. As several of the interviewed logistic companies expressed that the reduction of supplier base and standardization of purchasing, using fewer framework agreements has occurred over the same time period as they started to source forklifts as services, this strengthens the idea that using fewer suppliers and having a more standardized purchasing process is beneficial when sourcing advanced services.

Also, this could be related to that the PTOs experience a higher level of workload to get successful service contracts, as they have to collaborate very tight with their suppliers. Giving

that they have to work with different suppliers, there is a risk the use of full service contracts would give a too heavy workload.

6.3.2 Varying Degree of Monitoring Related to Organizational Change

The extent to which the initiation of sourcing products as a service has affected the companies within the two industries varies. However, most companies stated that it is the same purchasing organization, independently if a bus or forklift was to be sourced as a service or as a product, which could be related to the fact that the companies stated that they mostly make “case-by-case” decisions. However, in line with what both Gallouj (1997) and van Weele (2014) proposes, several of the companies, mostly the PTOs, found it more difficult to source their products as services. This could be related to the fact that the scope of the PTOs business, to a greater extent is affected when they start to source services, than the logistic companies. For example, the logistic companies expressed that they previously had a similar service setup using a third-party service organization, with the main differences being the ownership and responsibility of the products. The PTOs however express that owning workshops and conducting repairs and maintenance have been a large part of their business. So, to start sourcing buses with service contracts reduces the scope of the PTOs business in one way and increases the scope in terms of other operations. For instance, they have to collaborate with another party in a much more extensive way than previously and have to for example coordinate the transportation of buses to the suppliers’ workshops. As proposed by MacDonald Kleinaltenkamp and Wilson (2016), the quality of a service is judged not only on suppliers’ processes, but also depending on internal and joint processes. As the PTOs to a larger extent have to set up new processes to handle their service contracts, the assessment of the supplier could be affected by that they have new, not fully optimized processes in place. This shows that the transition into starting to source services becomes more difficult and the results may be perceived as less positive, if the changes impacts the organization to a large extent.

Further, within logistics all companies expressed that repair and maintenance is not part of their core, while the PTOs had no consensus about it. However, several of the PTOs expressed that it is important to define if repair and maintenance is core or not, as they were not willing to outsource operations defined as core, in line with what Kremic et al. (2006) states regarding that core business is less favorable to outsource. Further, the dissidence regarding repair and maintenance shows that it lies closer to the core business for PTOs than for logistic companies. Clearly, the PTOs are to a greater extent negatively affected when repair and maintenance fails, as they operate on a minute-level precision.

Most logistic companies stated that they measure the outcome of the purchased service contracts, but some clearly stated that they were bad at it, whilst others were confident that they basically would “notice” if there was anything worth noticing. However, according to Gallouj (1997) it is difficult to even identify, but also to measure changes, which gives support to the varying answers by the interviewees. Some even expressed difficulties such as that they were lacking proper benchmarks. Most of the companies expressed that they measured cost and availability of the vehicles, with varying satisfaction between the two industries. While the

logistic companies were confident that they saved money and got value through increasing flexibility and supplier competence, the PTOs were less optimistic, stating that many service contracts were too expensive. But, as stated by Sharma and Iyer (2011) it is difficult to put numbers on created value, and that this difficulty often leads to that offers are judged on their common price instead of the value they create. This indicates that there is a lack of methods and tools to measure and monitor the value created by the use of service contracts, since focus to a great extent, at least for the PTOs is on price.

7 Conclusion

The purpose of this study was to investigate why companies choose to buy advanced services. Thereby, expanding the knowledge about customer drivers and demand for advanced services, in an attempt to contribute to manufacturing firms in their servitization process. The study concludes that the drivers to buy advanced services is to a high extent affected by the industrial context in which the companies operate. Further, the study identifies that the characteristics of the industrial context to a great extent affect the customer perception and also the feasibility of advanced services.

The main drivers mentioned in the interviews corresponds to the findings of existing literature and can be said to consist of both tactical and strategic drivers. However, this study adds that certain industrial contexts gives different abilities to utilize the benefits identified with advanced services and thereby makes the usage of advanced services more or less feasible. On the one hand, it is found that the PTOs within the Public Transport industry have a rather problem-driven approach towards the usage of advanced services with overall unsatisfying outcomes, while the logistic companies have a more opportunity-driven approach, helping them to realize their benefits to a larger extent. Hence, this study shows that the Logistics industry is more willing when it comes to purchasing advanced services, than the Public Transport industry is.

The implications of the problem-driven and opportunity-driven approach to sourcing advanced services are multifaceted, whereby one finding is the predominant cost focus in the problem-driven approach in the Public Transport industry. However, the findings of this study suggest that cost focus do not by default have a negative impact on the purchasing of an advanced service, but that too much focus not allowing for the inclusion of unquantifiable factors such as qualitative and indirect savings might constitute a barrier towards utilizing the potential benefits.

Further, this study has found that standardization and customization of products strongly relates to the feasibility of advanced services. Advanced services and servitization already requires high levels of customization, and highly customized products that becomes too customer specific is shown to hinder the creation of a flexible service set-up, as the the supplier is unable to take a larger responsibility of the products. In the studied industries, standardized products enable simpler asset management and are hence more suitable to develop advanced services for, as the supplier flexibility increases. Furthermore, the standardization of products can be related to the level of consolidation versus differentiation of suppliers, which is shown to affect the sourcing strategies of the customer companies. This study showed that the higher level of consolidation and standardization within the logistics industry enabled more direct competition and benchmarking, which facilitated the development of attractive service offerings.

Furthermore, the study found that the centralization of purchasing organizations and the sourcing of advanced services within the logistics industry has occurred simultaneously. Also,

during the centralization, the used total number of suppliers were reduced. As the Public Transport companies already have centralized purchasing but without the possibility to reduce their supplier base, this indicates that centralization together with a small supplier base facilitates utilization of advanced services. However, few companies used different purchasing organizations for products and services. Regarding other organizational changes, a relation between required organizational change incurred by the purchase of an advanced service and the perceived outcome of the service was found. As described for the Public Transport companies, when the purchase of an advanced service required organizational change, leading to higher workload, the benefits remained unrealized or were not perceived to fully cover for the additional work. On the other hand, when few organizational changes occurred, as in the case with the Logistic companies, the companies perceived a decreased workload and felt satisfied with the set-up.

The satisfaction that followed from the use of advanced services and the perceived change in workload is implied to have a relation with the level of monitoring and measuring. As the Public Transport companies had to go through larger changes, which they perceived as increasing their risk, they had a large focus on monitoring, measuring and controlling the outcome, adding to the workload. The logistic companies however, went through few organizational changes, overall felt satisfied and trusted their suppliers to fulfill the agreed commitment, rather than making use of extensive measuring and monitoring.

7.1 Managerial Implications

As the industry contexts have such a great influence over the drivers to source services, manufacturing managers must firstly understand the industry context of their customers, and how they create value. To understand value creation of customers is already emphasized by literature, but the contribution of this study is to firstly take the industry perspective, to understand the overall competitive environment. As the study indicate, to achieve successful service offerings, a standardization of products is favorable. As seen in the Logistics industry, a highly standardized forklift fleet made it possible to realize benefits such as flexibility, as the manufacturer had the ultimate responsibility of the fleet. However, as the politically driven customization within the Public Transport industry showed, these decisions can also be out of the manufacturer's control. But, by creating a transparency of how customization drives cost and consequently affects the economic feasibility of service contracts, this could increase focus on the issue and perhaps influence the situation in the long term.

Overall, to enable extensive use of advanced services, suppliers must be able to take a large responsibility. To achieve this, the recommendation from this study is that advanced service set-ups should be focused on availability and function, where the supplier has the ownership of the products and provides a service based on supporting the customers' business. However, this requires flexibility in the manufacturer's fleet, for them to optimize usage of their products. Also, this proposes that a manufacturer must achieve a certain volume of products connected to advanced services, as it could generate economies of scale to have big fleets with many

customers. In this way, manufacturers could buffer seasonal variations, affecting different geographical areas differently, and optimize usage of products, taking a system view.

Looking into the studied industries, the suppliers should focus on different key resources to attract customers to advanced services. As the PTOs currently are problem driven to a large extent, solving their issues could be a way forward to strengthen collaboration to be able to develop more advanced services. Key resources for bus manufacturers is thereby attractive facilities for workshops, but also depots. The logistic companies however, where customers are already satisfied in general, should focus on optimization and to strengthen support of customer's value creation.

7.2 Future Research

This study has found that industry context to a large extent affects the requirements on advanced services and the perceived results from using them. However, as the study is limited to only two industries, the generalizability is restricted. As different sets of benefits are realized in different industry contexts, the relationship between the competitive environment and realizable benefits should further be explored. Therefore, to further study how different industry contexts puts different requirements on advanced services, from a customer perspective, is recommended. This would further contribute in helping manufacturers understand how the industry context affects the feasibility of advanced service offerings.

Moreover, the results of this study indicate that advanced services are not static but rather includes a scale of service characteristics. As described, the studied services within the two studied industries both define as advanced services, but include different levels of service characteristics and complexity. Therefore, to further study the different levels of advanced services and how potential characteristics influence feasibility of service offerings would be of interest.

References

Alvesson, M. (2003) Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of management review*, 28(1), 13-33.

Axelsson, B., & Wynstra, F. (2002). *Buying business services*. John Wiley & Sons.

Baines, T., Ziaee Bigdeli, A., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). Servitization: revisiting the state-of-the-art and research priorities. *International Journal of Operations & Production Management*, 37(2), 256-278

Baines, T., & Lightfoot, H. (2013). *Made to Serve: How manufacturers can compete through servitization and product service systems*. John Wiley & Sons.

Baines, T., Lightfoot, H., Benedettini, O. & Kay, J., (2009) The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management*, 20(5), 547-567.

Baines, T. S., Lightfoot, H. W., Evans, S., Neely, A., Greenough, R., Peppard, J., ... & Alcock, J. R. (2007). State-of-the-art in product-service systems. *Proceedings of the Institution of Mechanical Engineers, Part B: journal of engineering manufacture*, 221(10), 1543-1552.

Barthélemy, J., & Quélin, B. V. (2006). Complexity of outsourcing contracts and ex post transaction costs: an empirical investigation. *Journal of Management Studies*, 43(8), 1775-1797.

Beuren, F. H., Ferreira, M. G. G., & Miguel, P. A. C. (2013). Product-service systems: a literature review on integrated products and services. *Journal of Cleaner Production*, 47, 222-231.

Black, J., Hashimzade, N., & Myles, G.(2017). Outsourcing. In *A Dictionary of Economics*. : Oxford University Press. Retrieved 28 Feb. 2018, from <http://www.oxfordreference.com.proxy.lib.chalmers.se/view/10.1093/acref/9780198759430.01.0001/acref-9780198759430-e-2240>.

Blomkvist, P., & Hallin, A. (2015). *Method for engineering students: Degree projects using the 4-phase Model*. Studentlitteratur.

Brady, T., & Davies, A. (2004). Building project capabilities: From exploratory to exploitative learning. *Organization Studies*, 25(9), 1601–1621.

Brady, T., Davies, A., & Gann, D. (2005). Creating value by delivering integrated solutions. *International Journal of Project Management*, 23, 360–365.

- Brown, T. L., & Potoski, M. (2003). Managing contract performance: A transaction costs approach. *Journal of Policy analysis and Management*, 22(2), 275-297.
- Bryman, A., Bell, E. (2003) *Business research methods*. New York: Oxford University Press, Oxford
- Bryman, A., Bell, E. (2011) *Business research methods*. 3d edition. New York: Oxford University Press, Oxford
- Bröchner, J. (2006). Outsourcing. *Commercial Management of Projects: Defining the Discipline*, 192-206.
- Bonnemeier, S., Burianek, F., & Reichwald, R. (2010). Revenue models for integrated customer solutions: Concept and organizational implementation. *Journal of Revenue and Pricing management*, 9(3), 228-238.
- Bunn, M. D. (1993). Taxonomy of buying decision approaches. *The Journal of Marketing*, 38-56.
- Chou, C. J., Chen, C. W., & Conley, C. (2015). Creating sustainable value through service offerings. *Research-Technology Management*, 58(2), 48-55.
- Davies, A. (2004). Moving base into high-value integrated solutions: A value stream approach. *Industrial and Corporate Change*, 13(5), 727–756.
- Desmet, S., van Dierdonck, R. & van Looy, B. (2003) Servitization: or why services management is relevant for manufacturing environments. In van Loov, B., Gemmel, P. and van Dierdonck, R. (Eds) *Services Management: An integrated Approach*. Harlow: Pearson Education.
- Dubois, A., & Gadde, L. E. (2002). Systematic combining: an abductive approach to case research. *Journal of business research*, 55(7), 553-560.
- Easterby-Smith, Thorpe and Jackson (2015) *Management and business research*. 5th edn. United Kingdom: SAGE Publications.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 14(4), 532-550.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50(1), 25-32.
- Fill, C., & Visser, E. (2000). The outsourcing dilemma: a composite approach to the make or buy decision. *Management decision*, 38(1), 43-50.

- Gallouj, C. (1997). Asymmetry of information and the service relationship: selection and evaluation of the service provider. *International Journal of Service Industry Management*, 8(1), 42-64.
- Gebauer, H., Gustafsson, A., & Witell, L. (2011). Competitive advantage through service differentiation by manufacturing companies. *Journal of business research*, 64(12), 1270-1280.
- Gebauer, H., & Fleisch, E. (2007). An investigation of the relationship between behavioral processes, motivation, investments in the service business and service revenue. *Industrial Marketing Management*, 36(3), 337-348.
- Gebauer, H., Fleisch, E., & Friedli, T. (2005). Overcoming the service paradox in manufacturing companies. *European management journal*, 23(1), 14-26.
- Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? *Strategic management journal*, 29(13), 1465-1474.
- Hoecht, A., & Trott, P. (2006). Innovation risks of strategic outsourcing. *Technovation*, 26(5-6), 672-681.
- Kowalkowski, C., Kindström, D. & Brehmer, P. (2011) Managing Industrial Service Offerings in Global Business Markets. *Journal of Business & Industrial Marketing*, 26(3), 181-192.
- Kremic, T., Icmeli Tukel, O., & Rom, W. O. (2006). Outsourcing decision support: a survey of benefits, risks, and decision factors. *Supply Chain Management: an international journal*, 11(6), 467-482.
- Macdonald, E. K., Wilson, H., Martinez, V., & Toossi, A. (2011). Assessing value-in-use: A conceptual framework and exploratory study. *Industrial Marketing Management*, 40(5), 671-682.
- Macdonald, E. K., Kleinaltenkamp, M., & Wilson, H. N. (2016). How business customers judge solutions: Solution quality and value in use. *Journal of Marketing*, 80(3), 96-120.
- Malleret, V. (2006). Value creation through service offers. *European Management Journal*, 24(1), 106-116.
- Maltz, A. B., & Ellram, L. M. (1997). Total cost of relationship: an analytical framework for the logistics outsourcing decision. *Journal of Business Logistics*, 18(1), 45.
- Mathieu, V., (2001). Product services: from a service supporting the product to a service supporting the client. *Journal of Business & Industrial Marketing*, 16(1), 39-58.

Neely, A., (2008). Exploring the Financial Consequences of the Servitization of Manufacturing. *Operations Management Research*, 1(2), 103-118.

Oliva, R. & Kallenberg, R., (2003). Managing the transition from products to services. *International Journal of Service Industry Management*, 14(2), 160-172.

Sawhney, M. (2006). Going beyond the product. *The service-dominant logic of marketing: Dialogue, debate, and directions*, 15, 365-80.

Slack, N., (2005). Operations Strategy: Will it realize its potential?. *Gestão & Produção*, 12(3), 323-332.

Sawhney, M. (2006). Going beyond the product. *The service-dominant logic of marketing: Dialogue, debate, and directions*, 15, 365-80.

Storbacka, K. (2011). A solution business model: Capabilities and management practices for integrated solutions. *Industrial Marketing Management*, 40(5), 699-711.

Sharma, A., & Iyer, G. R. (2011). Are pricing policies an impediment to the success of customer solutions?. *Industrial Marketing Management*, 40(5), 723-729.

Tukker, A. (2004). Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet. *Business strategy and the environment*, 13(4), 246-260.

Tuli, K. R., Kohli, A. K., & Bharadwaj, S. G. (2007). Rethinking customer solutions: From product bundles to relational processes. *Journal of Marketing*, 71(3), 1-17.

Vandermerwe, S., & Rada, J. (1988). Servitization of business: adding value by adding services. *European management journal*, 6(4), 314-324.

Weele, A.J (2014) *Purchasing & supply chain management: analysis, strategy, planning and practice*, Sixth edition, Cengage Learning, Australia

Welch, J. A., & Nayak, P. R. (1992). Strategic sourcing: a progressive approach to the make-or-buy decision. *The Executive*, 6(1), 23-31.

Windahl, C., & Lakemond, N. (2006). Developing integrated solutions: The importance of relationships within the network. *Industrial Marketing Management*, 35(7), 806-818.

Wise, R. & Baumgartner, P. (1999) Go Downstream: The New Profit Imperative in Manufacturing. *Harvard Business Review*, 77(5), 133-141.

Yin, R. (1994). Case study research: Design and methods. Beverly Hills.

Appendix

Appendix I – Interview Guide

Aim with interview

To understand why companies choose to buy more advanced services

Background (example)

1. Short introduction of ourselves and the Master Thesis
 - a. Master students MEI, Chalmers
 - b. Thesis in cooperation with Triathlon
2. Interview study to map the drivers to servitization from a customer perspective
 - a. Why do companies buy more advanced services/solutions?
 - b. Point out that the “services” we talk about are in relation to products, i.e. not services like cleaning etc.
3. Tell a little bit about yourself and your role at the company
 - a. What is your title?
4. What is your core business?
 - a. Have it changed lately? Are you currently facing any changes?
 - b. What products do you use in your core business?

What kind of services are you currently buying?

5. Elaborate on service level, agreement type of contract, how it works.

1 Initiating phase

Do you have any outspoken strategy regarding the purchasing of these kinds of services?

6. Please elaborate and explain. Guidelines?

What drove the decision towards starting to source services?

7. Was there any specific initiator?
 - a. Was it initiated on your demand or the suppliers information?
8. From where in the organization?

What benefits do you see with buying services?

9. What is the identified company value?
10. What outcomes did you expect?
11. What benefits are realized? And how is this measured?

2 Evaluating phase

How did you evaluate the decision?

12. What kind of investigations were made to support the decision?
13. Where in the organization?

How are service providers chosen? What criteria were they evaluated on?

14. Same criteria as for buying products?

3 Result

How has the purchase of more advanced services affected your business?

15. What changes in operations have you encountered?
16. What other changes and adaptations has followed?

17. Has the service delivered as promised?
 - a. In what way?

What does your buying process look like when it comes to buying services?

18. Where are the decisions made? - By whom? - How?
19. What kind of relations do you have with the supplier?

What is the biggest difference between buying services or solutions, and buying products?

20. Do you have a separate department for purchasing services?
21. Are the same people involved?

Future

How do you picture the company working with service procurement in 5 years ahead?

22. Is there a big difference from how you are working today?
23. What possibilities do you see with buying more services in the future?
24. Has there been any major changes the last few years?
25. Do you think you will work with more advanced services in the future?
26. What would be the requirement for buying even more advanced services?
 - a. What stops you from buying those services today?
 - b. Quality of offers, customization, cost?