Investigation of risks and value with services used by transporters

A case study within the road freight transportation industry

Master’s thesis within Business Administration
Author: Elin Wästerlund
Emine Zehra Yurtkulu
Tutor: Benedikte Borgström
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Author: Elin Wästerlund and Emine Zehra Yurtkulu

Tutor: Benedikte Borgström

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Abstract

The transportation industry is a rapidly changing business. As a result of the increased demand for transportation and the tougher demands on transportation companies’ performance, it is important that they have good and reliable processes that are able to live up to those demands in a highly competitive market. Increased performance is important for transportation companies in order to create value for its customers and steps that can help them to achieve this can be seen as valuable. In Sweden, vehicle manufacturers offer extended services in order to respond to the changes on the transportation market. However, there is a knowledge gap about the experiences of using a product together with extended services that has a more service dominant logic compared to buying and using only the product.

This research is conducted as a multiple-case study with five companies within the freight transportation industry to investigate their experiences of using extended services regarding risk and value concepts. To be able to conduct this research, literature and empirical study has been conducted through the collection of secondary- and primary data such as face-to-face interviews.

The result of this study shows that there are several determining factors, which the case companies consider when determining how to resolve the issues of extended services such as financial aspects, location of workshop, flexibility, size of transporter, and control. Furthermore was advantages of using extended services offered by vehicle manufacturers found that related to financial advantages, increased customer service levels, assurance that best service will be provided, and increased up-time. In addition to that it was found that these services could help transportation companies to reduce some risks related to the financial- and goods/physical risk categories. In contrast were advantages of not using extended services offered by vehicle manufacturers found such as financial benefits, possibilities to cooperate, flexibility, increased up-time as a result of location, and control. The loss of control was a risk found that could be decreased if not using vehicle manufacturers extended services.
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I Introduction

This chapter introduces the background to and the definition of the problem, together with an explanation of extended services which are used as a basis for this study. Thereafter follows a presentation of purpose, research question, and a discussion of the contributions of this study.

1.1 Background

Today, business models, which uses the product as the main object in exchange is becoming more irrelevant (Vargo & Lusch, 2004). Vargo and Lusch have identified a transition from a product- to a service focus. The later represents a mindset, which implies that the tangible product is no longer the main focus, merely a tool used to offer service. Thus, the main idea is that customers are paying for value-added service packages and not only the product itself. A business model is “the rationale of how an organization creates, delivers, and captures value (Osterwalder & Pigneur, 2010; p.14)”. However, the rationale is obliged to change over time as proven by the transition defined by Vargo and Lusch (2004). The way of capturing and delivering value is also believed to change day by day through the rapid alteration in business environment.

One of the rapidly changing businesses is the transportation industry. This industry has changed as a result of demographic changes, economic growth, increased trade volumes, urbanization, increasing need for efficient sustainable transportation systems, deregulations and the integration within European transportation market (Scania annual report, 1999; Scania annual report 2011). Furthermore, the market’s (customers of the transportation companies) increased awareness of service and product choices has led to the demand for wide range of offerings and customized service and products. Responsiveness, flexibility, high quality, and competitive prices from transportation companies have also contributed to the changed demand (Coyle, Novack, Gibson &Bardi, 2011). In order to respond to the changes in the transportation market where demand has altered, vehicle manufacturers in Sweden (e.g. Volvo and Scania) offer service packages which give transportation companies the possibility of acquiring additional services and not only a product.

As a result of the increased demand for transportation and the tougher demands on transportation companies’ performance, it is important that they have good and reliable processes that are able to live up to those demands in a highly competitive market. More efficient operations and lesser environmental impact are some main challenges for transportation companies. Service packages offered by vehicle manufacturers might help companies with these main challenges and possibly to generate better performance through decreased risks and increased value. However, it can according to Hertz, Jensen, Agndal, Pereseina & Borgström (2012) be hard to diffuse extended service business models which focus on offering the customers service packages rather than just a product on the market, as it initially implies increased costs compared to simpler alternatives. To overcome these issues, customers need to recognize the increased value that these services may offer.

1.1.1 Extended services

Transportation companies have the possibility of acquiring service packages and not just a product from their vehicle manufacturers and examples of services which can be acquired are financing, insurances, transportation information systems, driver training, and service agreements (repair and maintenance) (Volvo, 2012; Scania, 2012). These services, which are offered by vehicle manufacturers, will from here on be called extended services. More detailed information about each extended service provided by the vehicle manufacturers can be found in appendix 1.
Extended services aim at providing customers with a nearly complete business solution through a “one stop purchase” that enables them to focus on their core business. Outsourcing activities like these, which are not part of transportation companies’ core competencies, can help transporters to reduce costs. Furthermore, being able to focus on the core business allows transportation companies to achieve sustainable transportation as they can focus on their customer relations (Hertz et al, 2012).

Increased efficiency, service quality, and up time are some examples of how sustainable operation can be achieved and where extended services can assist (Hertz et al, 2012). Helping customers with increased up time is an important focus for the vehicle manufacturers. In addition, that vehicle manufacturers can offer solutions that can help the transportation companies to decrease their environmental impact (Scania, 2012; Volvo, 2012). Extended services can apart from increased up-time, also offer flexibility through the possibility of hiring and returning vehicles during seasons (Scania, 2012). Reduced risks related to operating vehicles is another benefit as the manufacturer have better knowledge of how to deal with problems related to the vehicle (Hertz et al, 2012). The manufacturers want to provide high quality on maintenance and repairs and an excellent service, regardless if the customer is in Sweden or anywhere else in Europe or the world (Scania, 2012; Volvo, 2012).

1.2 Problem definition

In recent years, the demand on the transportation market has gone through several changes. However, the demand for transportation has not only increased as a result of deregulations, integration and customers increased awareness on product and service offerings (Scania annual report 1999, Scania Annual report 2011; Coyle et al, 2011). But, the underlying need for transportation has also increased as a result of global sourcing, and the centralization of production and inventory. This has led to freight being moved over greater distances. Furthermore, the search for improved customer service, improved productivity, and the attempt of decreased inventory levels has led to shortened times of production and distribution operations, which demands more frequent transportations (McKinnon, Button & Nijkamp, 2002). Hence, the demand for customized service and products, responsiveness, flexibility, high quality (Coyle et al., 2011) and just-in-time transports has led to greater and tougher expectations on transportation companies’ ability to perform reliably and fast (Morash & Clinton, 1997).

Increased performance is important for transportation companies in order to create value for its customers. Steps that can help the transportation companies to achieve this can be seen as valuable for the transportation companies. The goal with extended services provided by vehicle manufacturers is to help transportation companies to achieve a competitive advantage. Furthermore is the ambition that the extended services can assist transporters to achieve increased efficiency, up-time, service quality, and decrease their environmental impact. Thus, the compatibility between the needs of companies (increased performance) and the benefits with extended services signals that transportation companies would be able to gain increased performance with the help of extended services, which is valuable for the transportation company.

Being able to decrease the likelihood of or the consequences of a risk can also have a great impact on a firm’s performance. Risks are important issues for companies to deal with and they can be exposed to many types of risks (Tuncel & Alpan, 2010). It is more or less impossible to establish all types of risks that transportation companies can be exposed to (Waters, 2011); both the type of company and where in the world a company operates impact the risk categories. However, six common types of risks related to transportation can be identified; product loss, product damage, product contamination, delivery delay, supply...
chain interruption, and security breach (Coyle et al, 2011). The risks, which are faced by transportation companies, derive from transportation uncertainties related to variations in e.g. transit time, volume, and schedules. These uncertainties arise as a result of different sources related to suppliers and customers’ improper management, the control system, the carrier itself, and external surroundings (Rodrigues, Stantchev, Potter, Naim & Whitening, 2008). It is likely that vehicle manufacturers can help reduce some risks and uncertainties for the transportation companies by offering extended services but buying a service also induces some risks for the buying firm. For instance does the heterogeneous character of a service, that the delivery of service varies from time to time, undermine the certainty that a service can meet customer expectations. Furthermore can perishability of a service lead to poorer experiences for the buyer when supply and demand might be out of sync (Mitchell, 1994).

Extended services propose to help transportation companies to improve their performance while decreasing risk. But the question is how it actually is working out in reality. The goals with the extended services have been established by the vehicle manufacturers, but have the customers been able to experience these advantages and to what extent? Furthermore, have the customers experienced any other advantages or even disadvantages with using trucks together with extended services compared to only using the truck? Studies investigating the advantages of passenger transportation booking system based on service dominant logic have been done (Edvardsson, Ng, Zhi Min, Firth & Yi, 2011). Apart from this study, no empirical studies have been done in order to investigate if and to what extent transportation companies have experienced any of these benefits, advantages (increased value and decreased risks) or disadvantages (decreased value and increased risk) that are related to the experiences of using and not using a vehicle with extended services. So is it really beneficial for transportation companies to invest in extended services?

1.3 Purpose and research questions

The purpose of this thesis is to investigate what effects extended services, which are provided by vehicle manufacturers, has on road freight transportation companies’ experiences regarding value and risk. In order to fulfill this purpose, following research questions will be used.

RQ1: What do road freight transporters consider as being valuable aspects in their operations and what do they consider as being risky issues?

RQ2: What are the road freight transporters’ experiences related to increased/decreased risks and value via buying and using products together with extended services?

RQ3: What are the road freight transporters’ experiences related to increased/decreased risks and value via buying and using only the product?

1.4 Contribution

By answering the above mentioned question, hence understanding the experienced value and risk levels by the transportation companies, it will enable a better understanding of extended services within transportation industry. An increased knowledge will help transportation companies in their decision making process of what is the most suitable solution to increase their performance and how to make gainful investments. It will also provide companies within the vehicle manufacturing industry with knowledge that can help them in their marketing and work for educating potential customers. According to literature (Edvardsson et. al, 2011), there is a knowledge gap about the experiences of using a product based on a more service-dominant logic compared to buying and using only the prod-
uct. The empirical study, which was performed on transportation firms, will make a contribution and help to fill this knowledge gap.

1.5 Definitions

The acronyms and terms used in this study are listed below:

GDL (Goods-dominant logic): Mind-set, where tangible goods are central to the exchange (Vargo, Lusch & O’Brien, 2007).

SDL (Service-dominant logic): Mind-set, where the intangibles, specialized skills and knowledge, processes and relationships are in the centre of exchange (Vargo & Lusch, 2004).

Transportation firms: Represent road freight transporters, who perform transportation activities as one of their core competencies.

Authorized workshop: A workshop included in a vehicle manufacturer’s distribution system which regularly are supervised and controlled by the vehicle manufacturer so that it fulfils their established requirements (Bil Sweden, n.d.).
2 Frame of reference

This chapter is a literature review of the transportation industry and how changes in the market have changed the demand and requirements on transportation. Different types of logistic service providers are brought up followed by a description of the risks and uncertainties related to transportation. Finally are the sources to risk and uncertainties presented followed by a definition of value and how the value concept has evolved over time.

2.1 Transportation

Transportation “is the physical link connecting a company’s customers, raw material suppliers, plants, warehouses, and channel members – the fixed points in a logistics supply chain” (Langley, Coyle, Gibson, Novack & Bardi, 2008, p. 271). Transportation (the movement of goods and people) plays a central role in supply chain operations (Stank & Goldsby, 2000) and its importance is growing and is believed to be a key to success (Coyle et al., 2011). By physically moving goods, value is added to the customer as it creates time utility (goods being delivered when desired) and place utility (goods being delivered to place desired) (Langley et al., 2008).

2.1.1 Changes in the market and its effect on transportation

Recently, the demand for, the need of, and the arrangement, design and execution of transportation has changed (Scania annual report, 2011; Scania; McKinnon et al., 2002; Lumsden, 2006). The reasons are changes in the transportation market such as deregulations and integration within European transportation industry, urbanization demographic changes, and economic growth (Scania annual report, 1999; Scania annual report, 2011). Furthermore, the increased environmental awareness has led to new regulations, but also increased customers demanding for greener solutions (Lumsden, 2006). Goods also are moved over greater distances as a result of global sourcing and centralization of production and inventory. This situation has increased the need for transportation (McKinnon et al., 2002). In addition, manufacturers have changed production techniques and the new ideas of how to produce (e.g. lean, agile, and just-in-time) have changed the pre-requisites of the goods flow where focus is on for instance tighter delivery times, lowered tied capital, and more ergonomic and quicker assembling. Thus, these changes have led to new requirements for transportation that need to adjust to smaller lot sizes, shorter lead-times, decreased amount of suppliers, and articles are ordered to the system piece by piece in the order they are needed in production (Lumsden, 2006).

The new focus in production has a great impact on transportation. To give some examples, decreasing delivery quantities leads to increased deliveries if still ordering the same total amount, thus transports has to be performed more regularly. Transporting smaller amount more frequently has a negative effect on transportation resources being poorly employed. As focus on customer-driven production and decreased lead times is becoming more important, transportation has to adjust since this is considered an easier, faster and less expensive way of achieving these goals than changing a whole production system. Furthermore, when supply of material changes from a detailed level (nuts and bolts) to a functional level (systems) in order to create a more efficient production, products are more expensive to store and requires more space, hence suppliers have to deliver with short lead-times and high demands are put on the transportation system to be efficient and effective. Finally, working with sequenced articles has high demands for precision, and the reliability in transports need to be guaranteed in order not to result in disturbances in production (Lumsden, 2006).
Changes in the market, in the way of producing, in customers’ awareness on environmental issues, and on service and product choices, have led to customers requesting more customized services and products, increased responsiveness, flexibility, high quality (Coyle et al., 2011), and more frequent transportations (McKinnon et al., 2002). Reliability, frequency/regularity, speed, price, environment, handling (Lumsden, 2006), transit time, capability, safety, and accessibility (Langley et al., 2008) are some examples of different dimensions which have relative importance for customers when choosing a transporter. Time precision and flexibility have had a tendency to be most highly prioritized by customers. The reason for this is for instance companies’ focus on lowered inventories (in an attempt to decrease tied up capital) where they have become dependent on that the supply of material is working properly (Lumsden, 2006).

2.1.2 Different types of transporters

Value might have different meanings for every single transportation company. Differences are originated from many reasons such as structure of the market, and characteristics (type) of shippers (i.e. manufacturing companies, households, global freight forwarders and global third party logistics companies etc.). These factors lead transportation companies to show differences in terms of number of clients, capabilities, type of investment, know-how, focus on core capabilities (efficiency and/or effectiveness), problem solving abilities and ability of customer adoptions (Cui & Hertz, 2011; Hertz & Alfredsson, 2003).

According to Vargo & Lusch (2008a), value is created via interaction between different actors in their own markets and according to Huemer (2006) there are different mind-sets behind how this value is created. As long as transportation companies appear as different type of logistics service providers, meanings and components of value will change. According to Cui and Hertz (2011), logistics service providers can be categorized in three different groups such as carriers, logistics intermediary firms and third party logistics firms (TPL). This categorization is made according to providers’ core capabilities (competences), which refer to capacity of a company in order to complete its tasks and operations, and networks.

Logistics service providers (LSP’s) are part of different networks such as network of actors, service systems and physical flow. Regarding network of actors, LSPs can involve in local, international or global networks, where they operate in and connect customers (shipper) and their clients (receiver) in the same geography or from different geographies. Secondly, network of logistics service systems consist of connected resources that helps the company to perform their duties, such as physical and technical assets. Thirdly, the main purpose in network of client’s physical flow is to provide continues flow of client’s goods along their supply chains. Different logistics service providers have different focuses on these networks and this situation might have influences on their investment decisions, risk experiences and relations with other actors in the networks (Cui & Hertz, 2011).

Since carriers are asset-based providers, they make investments on equipment (e.g. trailers and trucks), people (e.g. drivers and operating staff) and other physical assets such as buildings and terminals. Their know-how is to move client’s goods from starting point to target point in the most efficient way with the help of their resources (assets) such as trucks. They operate on fixed lines and they are able to enlarge their customer portfolio via adding new clients. Due to limited know-how, they do not have extended role in clients’ supply chains, as a result of this, carriers can be involved in several supply chains (Cui & Hertz, 2011).

In contrast with carriers, logistics intermediary firms are non-asset based service providers. They generally make investments on having IT systems and opening branches in local, international and/or global scale. Their know-how is specialized on consolidating goods, and coordinating different logistics service providers in order to provide value-added services
for their clients. They can have wider geographical coverage than carriers and TPLs, via
braches and alliances with local companies (Cui & Hertz, 2011).

Know-how of TPLs is specialized on connecting carriers, intermediaries and other service
providers in order to provide integrated and value-added services for their clients. TPLs
can be asset-based or non-asset based service providers. Asset based service providers can
offer services to the clients with the help of their own physical and technical resources such
as warehouses and extended IT-systems. Non-asset based TPLs offer services through
their knowledge and experiences, for example 4PL service providers can be given as an ex-
ample. They provide a bunch of specialized services for each client; this is the main reason
of why TPL works with limited number of clients. In contrast with carriers and intermed-
iiary firms, TPLs have higher capability to manage physical flow of the good along specific
supply chain(s) in an effective way. Also, TPLs need to make more investment than carriers
and intermediary firms do in order to offer smooth and stable physical flow(Cui & Hertz,
2011).

2.1.3 Objectives of transportation
In order for transportation companies to be competitive, it is important that efficiency and
effectiveness is always improved, that frequent transportations are secured (Lumsden,
2006), that they are responsive to customers demand, and able to fulfil customers’ require-
ments (Wagner, 1987). Thus, it is important that transportation companies can offer deliv-
ergy service and have good transport quality. Good delivery service can for instance consist
of quick and safe deliveries; hence it refers to a company’s ability to perform towards its
customers and relate to those activities that has to do with the physical flow of goods. Ex-
amples of some common service elements which delivery service consists of is (1) lead-
time, that partly establishes the time from identified- to satisfied need, (2) dependability,
which reflects the ability to deliver when promised, (3) reliability, which refers to the ability
to deliver the right product, in the right quantity, to the right quality, and (4) flexibility, that
refers to the ability of adjusting to customers’ wishes’. Transport quality consists of diffe-
rent criteria such as frequency (the amount of transports conducted during a certain time),
time, reliability (ability to keep time promised), goods comfort and transport safety (protec-
tion against damages, theft and decrement), abilities to control (able to track so that devia-
tions can be noticed), and flexibility (ability to adjust to number of and composition of arti-
cles) (Lumsden, 2006).

Effectiveness and efficiency are important aspect in transportation, and focus can differ be-
tween types of logistic service provider (Cui & Hertz, 2011). Effectiveness can be described
as ‘doing the right thing’ and include aspects of the extent to which established goals have
been reached (Fugate, Mentzer& Stank, 2010), and the established goals appropriateness
(Crawford & Bryce, 2003). Effectiveness can furthermore be described as the proportion
between actual and normal level of outputs (Fugate, Mentzer& Stank, 2010). Efficiency can
be described as ‘doing the thing right’ and is related to a process ability to transform input
to output within established time limit and budget (Crawford & Bryce, 2003).

Efficiency is also a measure of how well and wisely resources have been used (Fugate, et al,
2010; Crawford & Bryce, 2003) and it can furthermore be described as the proportion be-
tween real and normal levels of input. If a company has used fewer resources than what is
normal, they can be considered being efficient (Fugate et al, 2010). In order to become ef-
fective and efficient, which is vital to become competitive, it is important that transportation
companies focus on becoming highly certain and reliable in delivery times. Furthe-
more, to effectively respond to customers demands, transportation has to have lesser im-
 pact on the environment and be used in more responsive and flexible ways (Rodrigues,
Stantchev, Potter,Naim& Whitening, 2008) which is needed within a customer-driven in-
dustry. Besides, in order to be responsive, better equipment and updated procedures on how to perform are also needed (Wagner, 1987).

As described in this chapter, the demand and requirements on transportation has changed as a result of changes in the market and in production. Companies, like for instance transportation companies, have to adjust their businesses to changes on the market, if not; they will most likely and very quickly lose their competitive advantage (Coyle et al., 2011). Thus, finding solutions that can help transport companies to respond to customer demand and gain a competitive advantage is valuable for transportation companies. However, changes in production and production techniques appear to have increased the vulnerability of the supply chain and the increased demand and tougher requirements put on transportation companies have created transport uncertainties, which can increase risks (Rodrigues et al., 2008).

### 2.2 Risk

The English word risk comes from the Spanish word riesgo, which has its direct formal origin from the latin word for cliff; resicum which in turn comes from rhizikon, rhiza, a Greek navigation term that was used as a metaphor for “difficulty to avoid at sea”. The borrowing of these terms took place in the end of the middle ages (Skjong, 2005), but today’s general meaning of the word; “a situation involving exposure to danger” found in the Oxford dictionaries (2011) is not that different. Nor is the definition provided by Kaplan and Garrick (1981), who state that risk is the sum of uncertainty and damage. Hence, that the notion of risk is when facing uncertainty, not being sure of what will happen in relation to a certain event and in combination with the possibility of receiving some kind of damage or loss related to this. Rodrigues et.al (2008) point out that uncertainty sometimes is confused with risk and that it is important to understand the difference between these two terms. They point out that “uncertainty occurs when decision makers cannot estimate the outcome of an event or the probability of its occurrence”, while “risk is a function of outcome and probability and hence it is something that can be estimated” (Rodrigues et.al, 2008; p.390). However, these two terms are related to each other in the way that uncertainties are causing and increasing the risks within a supply chain.

A narrower definition that focuses on risks that are associated with supply chains are the term supply chain risk (Pfohl, Gallus & Thomas, 2011 p.840):

> “Supply chain risks cover risks that are related to disturbances and interruptions of the flows within the goods-, information- and financial network as well as the social and institutional networks and may negatively effect the objective accomplishment of the individual company, respectively, the entire supply chain, in regards of end-user advantage, cost, time and quality.”

Hence, supply chain risks are related to events that appear which potentially might affect the movement of materials from initial supplier through to final customers and disrupt its planned flow, namely disruption (Waters, 2011; Wilson, 2005).

There are several risks involved in a supply chain and many different examples of such and ways of categorizing these have been presented in previous work (Christopher & Lee, 2004; Chopra & Sodhi, 2004; Waters, 2011; Pfohl, Gallus & Thomas, 2011; Olson, 2011). One example is to divide the risks between internal and external risk. Internal risks relate to those that have its point of origin within a focal company, those related to events that ap-
pear in the normal operations. External risks are those that arise when the supply chain interacts with its environment. Those risks that are related to the external category are seen as being less common but more dramatic than internal risks and outside the control of managers. However, no clear distinction can be made between these two since they often are causing the appearance of the other kind. One example could be when a customer are unable to pay, which is an external risk, subsequently are causing the appearance of the internal risk that the company could have problem with their cash flow (Waters, 2011).

2.2.1 Risks within transportation

Another alternative of how to divide risks is to separate between physical-, financial-, information-, and organizational risks. These categories originate from the idea of considering risks according to the three related flows within supply chains; money, information, material, and then the last one originate in how these flows are organized (Waters, 2011).

Financial risks relate to the flow of money within (Waters, 2011) and between organizations and arise as a result of for instance improper investments and lack of cost transparency in the supply chain (Cavinato, 2004). Furthermore, it includes risks to accounting systems, cash flow, and debt (Waters, 2011). The biggest concern within financial risks is related to the security in the process of payments.

Through the processes and electronic systems, which are used to mobilize services and trigger product movements, is the flow of information that is parallel to the physical and financial flow (Cavinato, 2004). Information risks are hence related to the flow and systems of information (Waters, 2011). Related to information systems is the risk that it in the long run will not be able to, or efficiently enough can fulfil the future needs and purposes of a business (Cavinato, 2004). Other information risks include integrity, market intelligence, system failure, data capture and failure, and information processing.

The physical chain, which refers to what traditionally has been viewed as logistics, establishes the physical risks and includes risks to service mobilization (Cavinato, 2004), storage, inventory systems, material movement, delivery, and transport. Hence, physical risks relates to the storage and movement of materials (Waters, 2011) within and between firms (Cavinato, 2004). During transportation from A to B, there are potential disruptions which freight can be exposed to (Coyle et al, 2011), but it is more or less impossible to establish all types of risks that a road transportation company can be exposed to (Walters, 2011); both the type of company and where in the world a company operates impact the risk categories. However, six common types of risks related to transportation can be identified; product loss, product damage and contamination, delivery delay, supply chain interruption, and security breach (Coyle et al, 2011).

- Product loss
  Product loss includes all actions such as mismanagement and theft, which leads to goods not reaching its intended destination (Coyle et al, 2011; Waters, 2011). There are many indirect cost of loosing products apart from the direct cost of the stolen goods, such as damaged brand value, disrupted customer service, and the need to administrate a new shipment to replace the stolen goods. The indirect costs of a product loss can be up to five times bigger than the direct costs. There are several ways of reducing the risk of goods being stolen such as improved depot security, and the use of GPS, which can track down a vehicle which has been stolen (Coyle et al, 2011).

- Product damage and contamination
  The risk of products being damaged arises every time goods are being handled. When goods are damaged, the value of the goods is decreased or it is totally vanished. The loss of
incomes arising as a result of damaged goods that had to be marked down or thrown away, is not the only cost affecting the financial outcome. The need to replace damaged goods and claim processing also affect the financial outcome (Coyle et al., 2011). Waters (2011; p. 175) states that it is often “worse to have goods damaged than to have them not delivered at all”. It can sometimes happen that goods are being lost as a result of for instance an accident; hence an overlap between loss and damage is possible (Waters, 2011). Contamination of goods is another example of how products can be damaged. Goods particularly exposed to this risk are pharmaceutical products, food, and other consumables. The longer the distance and time that the goods are transported; the bigger is the risk of it being contaminated (Coyle et al, 2011).

- **Supply chain interruption**
  The effects of supply chain interruptions that lead to operations standing still are much worse than temporary disruptions caused by daily operations (Coyle et al, 2011). These are very costly and recovery times can be long. Examples of such interruptions are capacity shortages during peak seasons that result in transporters inability to fulfill customers’ demands. During these periods, there can be shortages of equipment and experienced operators that can lead to decreased service quality. Another risk in times of high energy prices and recessions, are the risk of bankruptcy which can lead to great consequences for transporters customers. Labor strikes are also a supply chain interruption, which can have great consequences for transporters as they rely on unionized employees (Coyle et al, 2011).

- **Security breach**
  When transporters are unable to protect in-transit freight properly, a security threat arises, not only for the transporter, but also for the customer and the public (Coyle et al, 2011).

- **Delivery delay**
  There are many reasons why a delivery can be delayed. Congestion can create bottlenecks in the supply chain through e.g. overburdened roadways. But congestion does not only lead to deliveries being delayed; wasted fuel, and lost productivity are other consequences (Coyle et al, 2011). The possibility that customers might refuse to receive the goods at point of arrival because delivery window have been missed is a consequence of delays (Rodrigues et. al, 2008).

  Those customer suffering the most from late deliveries are those who uses e.g. JIT, since for them it can be devastating and very costly if a delivery would be delayed (Coyle et al, 2011). Thus, the requirements on transportation have increased as a result. According to Waters (2011), delivery delays are for transport the most common problem and even if transporters often blame delays on for instance traffic congestion, the operators premises are most often the place where delays occur. Lengthening of time slots for delivery, and performing transportation during less congested periods such as night times, are some examples of how delivery delays can be reduced (Waters, 2011).

  Finally is the organizational risks, which are based on the way above categories are organized and are related to the relations between supply chain members (Waters, 2011). Examples of how the risks mentioned within each category appear can be found in figure 2.1 below (Waters, 2011; Cavinato, 2004).
2.2.2 Sources to transportation uncertainties and risks

There are several sources that either directly or indirectly are causing the appearance of risks. Theft is an example of a source causing the risk of product loss. Product pilferage is a type of theft that refers to smaller amounts of goods being stolen. High-value goods such as smart phones, which are easy to sell later on, are especially being exposed to this type of risk (Coyle et al, 2011). A survey performed in 2004, showed that most thefts took place in the operator’s own depot, and not during transportation (Waters, 2011). Piracy and hijacking are other actions, which could lead to product loss. These types of actions do however not only lead to goods being stolen, but can also mean security risks for the driver.

Poor training, accidents, inattention of employees, poor freight handling (not being cautious during loading and unloading), and improper loading (goods not being properly stacked or secured) are some examples of factors that can contribute to goods being damaged. Contamination can occur when the climate control system in the vehicle fails to keep a steady temperature. There is also a risk of goods being contaminated when mixing different types of products in the same freight, or when the same equipment is used for transporting several types of goods from one time to another.

Some common examples of points were transporters can be particularly exposed to the risk of security breach are when having insufficient security processes for global transportations, and when not being able to monitor shipments during the entire journey. Being careless when it comes to securing facilities and vehicles by forgetting to lock doors, put up fences and require identification for people accessing the premises to limit access, are another example that can lead to transporters being exposed to security breaches (Coyle et al, 2011).

Sources having a more indirect impact on risks of for instance delays are those causing transportation uncertainties. Uncertainty has been defined as the impossibility to estimate the outcome of an event and changes in the market have increased the uncertainties in supply and demand. Examples of transportation uncertainties are variations in e.g. transit time, volume, and schedules including delivery window. The sources to these uncertainties can be divided between those related to for instance the suppliers’ and customers’ improper management, the control system, the carrier, and the supply chains external surroundings (Rodrigues, Stantchev, Potter Naim & Whitening, 2008; Rodrigues, Potter & Naim, 2010). The sources to these uncertainties are not only causing the risk of for instance delays, but the delivery processes are also affected in the form of lowered efficiency, quality/service, and utilization.
Problems in manufacturers’ operations that can lead to product dispatch being delayed or increase number of goods that need to be returned due to insufficient quality are examples of sources related to supplier’s improper management. Furthermore, suppliers’ and customers’ inability to effectively coordinate forecasting can result in increased orders, which affect the demand for transportation. Sources of risk related to customer’s improper management are for instance inefficient unloading processes that can lead to queuing and that actual unloading is different from time agreed. Overall transport efficiency can also be affected as a result of emergency deliveries when poor forecasts have been made or inaccurate quantities have been unloaded at the premises of the receiver. Customer’s performing poor order and inventory management is another example of a source to transportation uncertainty that can lead to for instance unnecessary variations in the demand for transportation (Rodrigues et al, 2008). Related to customers strategy of sourcing goods from low-cost countries will according to Coyle et al, (2011) increase supply chain complexity and distance and enhance the risk of late deliveries. Examples of sources listed by Rodrigues et al. (2008), which are related to the control system, are companies’ lack of managing information in a systematic manner that can lead to inaccurate forecast and thus possible demand amplification. These can further on lead to the need of express transportations which results in reduced vehicle utilization. Furthermore can uncertainty in the delivery process occur as a result of data not being properly updated during transportation because of inflexible information flows in ICT systems (e.g. MRP and EDI) (Rodrigues et al, 2008).

According to Rodrigues et. al (2008), typical uncertainties within transportation that can directly affect the delivery process and which can be related to the carrier are for instance; lack of flexibility, defective vehicles, shortage of drivers and information, transport network management, and insufficient fleet capacity and fleet management. Lack of flexibility consists of transporters rigidity in terms of delivery frequency, scheduling, routing, time, location, and vehicle configuration. Deficient and inefficient scheduling and delivery can lead to operational problems at delivery point and unpredictable deliver times, resulting in delays and decreased efficiency at hubs respectively. Furthermore can additional capacity be required as a consequence of inflexible routing plans. Inflexible routing plans can also lead to difficulties to use the vehicle most suitable for the task. Transporters’ other inflexibilities (time, location, and vehicle configuration) are additional sources to transportation uncertainty, and can result in a limited opportunity to consolidate goods. Defect vehicles caused by for instance breakdowns; shortages of drivers, and limited information about the location of the vehicle can all contribute to transportation uncertainties and cause the risk of delays (Rodrigues et al, 2008). Coyle et al. (2011) also mentions mechanical breakdowns or other product transfer equipment malfunctions as a source that can affect delivery times.

The risk of delay can occur as a result of disruptions within the transportation, which is derived from transporters insufficient fleet capacity. Another source of uncertainty is how transporters are managing their fleet. This has a great impact on delivery delays, capacity and vehicle utilization, and the amount of empty runs that has to be performed. Arranging several customers after each other could build up late arrivals that in the end of the work schedule could lead to immense delays. The transportation business is characterized with having low margins and being limited by legal constraints regarding drivers working hours. Transporters can then take on assignments quoted too low due to their economic needs, which later on can result in a struggle to align the requirements and its cost with agreed rates. Furthermore, driver constraints can lead to delivery delays if another driver has to take over in the middle of a transport due to reached maximum working hours (Rodrigues et al, 2008).

There are several external sources affecting transportation performance and the transportation uncertainties that neither the supplier, customer or the transporter can be liable for.
Examples of such sources are; fuel prices and availability, driver shortages, congestion, and chaotic uncertainty. Uncertainties related to the availability and price of fuel in a short- and long term perspective can create major transport uncertainties. The volatile price of fuel is harder for smaller companies to deal with as they, in comparison to bigger companies cannot minimize this through forward buying and hedging. Driver training can be expensive and together with unavailability of facilities and time, and difficulties of keeping staff, a shortage of drivers can arise. This shortage can cause delays and also lead companies to offer lowered customer service. Being exposed to congestion can lead to varied travel times, which cause transportation to be less predictable, and hence cause less reliable service. Accidents and unplanned repairs of roadways are also sources to transport uncertainties, as these might require detours or that drivers have to choose less desired routes which later on can lead to delays. Sources of transport uncertainty that are impossible to predict, that happen randomly and all of the sudden, can be categorized as chaotic uncertainties. Examples of such are natural disasters, bad weather, industrial action, and demand fluctuations. Natural disasters, in form of for instance earthquakes, can lead to damaged infrastructure that severely can affect transportations (Rodrigues et al, 2008). Coyle et al, (2011) also talk about bad weather being a source to the risk of delays, and harsh weather conditions such as heavy snow and storms are examples of reasons that make it tougher to keep deadlines Unreliable transit times can be a consequence of bad weather, furthermore is the demand for transportation affected by variability in the demand for products (Rodrigues et al, 2008).

From the information provided in sections 2.2.1 and 2.2.2, figure 2:2 has been created to illustrate the relation between sources, uncertainties, and risks. Indirect sources are those causing the appearance of uncertainties, which in turn are causing risks; direct sources are those that more directly are causing the appearance of transportation risks.

![Figure 2.2 Illustration over the relationship between sources, uncertainties and risks](image-url)
2.3 Value

Today, there are various definitions of value regarding different disciplines for example accounting, economics, strategy and marketing (Lefaix-Duran & Kozak, 2010; Flint, Woodruff & Gardial, 2002). Value is still a fuzzy term in the literature due to its subjective, and idiosyncratic characteristic. Also, value notion is usually substituted by different words such as utility, quality, benefits, and satisfaction and this situation also creates confusion (Sweeney & Soutar, 2001; Lefaix-Duran & Kozak, 2010). As the interpretation of value changes from one discipline to another, several researchers defined value perception in their studies based on their area of interests. It is one of the most popular topics, which have attracted researchers’ attention in the modern era. According to Sanchez-Fernandez and Iniesta-Bonillo (2007), perceived value was on the priority research list of the Marketing Science Institute between 2006 and 2008.

Many definitions of perceived value have been proposed over the time. Zeithaml (1988) stated a definition for perceived value, which provides a foundation for many other studies. According to Zeithaml (1988) “perceived value is the consumer's overall assessment […] based on perceptions of what is received and what is given” (Zeithaml, 1988; p.14). Then Ravald and Grönroos (1996) argued that, considering Zeithaml's definition, when the customers decide to buy a product, they need to feel that product or service will gain them more (i.e. quality, physical and service attributes of the product) than what they sacrificed (purchase price, loss of performance for buying this product or service). Groth and Byers (1996) gave a further explanation by also including the risk aspect. They pinpoint the relationship between perceived value, profit, and risk by stating, “The greater (less) the perceived risk of the expected benefit - expected cash profit - the less (more) its perceived value” (Groth & Byers, 1996; p.62).

Hence, changes in perceived value depends upon individuals’ habitats including consuming behavior, social and economical context and life style. Subjective characteristic of perceived value needs to be evaluated according to the ecosystem, which surrounds the individuals (Lefaix-Duran & Kozak, 2010). On the other hand, Sánchez-Fernández & Iniesta-Bonillo (2007) stated their criticisms to Zeithaml's definition and they argued that the definition provides a narrow vision for perceived value approach. However, value perception of the customers is multidimensional; all features such as benefits, performance indicators, service aspects and cost components should be embedded in it. As it is in the case of transportation companies, efficient usage of capacity, thinking of environmental effects, safety and performance enhancements can be assumed as inseparable parts of the companies’ perceived value.

So far, the customer was creating its value perception isolated from suppliers and the suppliers didn’t have influence in the customer's own value creation and perception process (Vargo & Akaka, 2009; Vargo & Lusch, 2008a). According to Grönroos (2008), this was the mindset of GDL. Since the middle of the 18th century and the beginning of the industrial revolution, the idea was that items were the center of exchange, that things were exchanged for other things (Vargo, Lusch & O’Brien, 2007). Value was seen as something embedded and designed into the good (Edvardsson et. al, 2011; Vargo & Akaka, 2009; Vargo et al., 2007). The natural resources embedded value was extracted and new value was created through the process of manufacturing (Vargo et al., 2007; Vargo & Akaka, 2009).

The output of production was only the standardized tangible good that could be put in a stock while waiting to be sold (Vargo & Akaka, 2009). However, shift from GDL to SDL brought some innovation in order to define their roles in customers’ creation of its own perceived value. In SDL, the firm and the customer are not seen as two separate entities where one is considered the creator and the other a consumer. Instead, the two are collabo-
ratively creating value in a relational context (Vargo & Lusch, 2008a). The firm is only presenting a value proposition to the customer who then determines if an acceptance of the proposition is reasonably good so that it can assure that they can receive desired value (Edvardsson et al., 2011).

Hence, the value is determined by the customer (Vargo & Lusch, 2004). This process, where the customer also are integrating and using available resources, leads to value being created (Edvardsson et al., 2011), thus the firm and the customer are co-creating value when the service is put to use (Edvardsson et al., 2011; Vargo & Lusch, 2004; Vargo et al., 2007). In this process of value creation, the customer and their individual and dynamic needs are put in focus. Collaboration with, and learning from customers are centric for a firm in a SDL (Vargo & Lusch, 2004). Important to point out when it comes to value creation is that it is not only taking place between the firm and its customer. Value is something that is created when social and economic actors within networks are interacting and exchanging across and through networks (Vargo & Lusch, 2008a).
3 Method

This chapter presents the methodology used in this study. The choice of method, research approach, research strategy, and the data collection process in form of literature review and interviews will be described. A final section will explain and describe the validity of this study.

3.1 Choice of method

Literature review and an empirical study establish the main body of this study. The empirical study was performed as a case study in different transportation companies in Jönköping. Case study approach has an increasing importance as a favoured research strategy for degree works in the context of various disciplines such as accounting, marketing, strategy etc. (Thomas, 2004). The aim of the case study is to provide intensive examination of and focus on understanding a present phenomenon in the real life context (Thomas, 2004; Eisenhardt, 1989). Eisenhardt (1989) stated that case study is suitable for topics, which is still in infancy era. In addition, case studies appear as a commonly used research strategy in the context of qualitative research (Hyde, 2002).

There are two main types of research methodologies, quantitative and qualitative. Quantitative research methodology aims to put emphasis on analysis of causal relationship between variables. On the other hand, qualitative research methodology aims to provide deeper understanding about the subject (Welman, Kruger & Mitchell, 2005). There are some existing differences and similarities between the two methodologies. While qualitative paradigms are more process-oriented, quantitative paradigms are more outcome-oriented. Quantitative paradigms’ purpose is to analyse objective data, which consist of numbers.

On the other hand, qualitative paradigms’ purpose is to analyse subjective data, which is collected as a result of responses from interviewees and respondents (Welman et. al., 2005; Blaxter, Hughes & Tight, 2006). Although, it is very common to argue that qualitative methods deal with non-numerical data and quantitative methods deal with numerical data. Under some circumstances, data gathered from interviews in qualitative research can be categorized and encoded in numeric format. Also, surveys used in quantitative researches can include questions, which allow open-ended responses that lead researcher in-depth analysis of the case (Welman et. al, 2005; Blaxter et. al, 2006).

This study is conducted as qualitative. Qualitative research provides the opportunity to researchers to make in-depth analysis about subjects being studied with the support of interviews, documents (could be academic materials or non-academic materials) and observations (Hyde, 2002). According to empirical study and purpose, semi-structured interviews, and literature will provide appropriate ground to perform the analysis in the context of this study.

3.2 Research approach

There are two research approaches that are commonly used in theory development and knowledge building: Inductive and deductive. They are contrasting approaches in their ways of building theory and knowledge (Crowther and Lancaster, 2009). Deductive research starts with developing theories and then tests these theories through empirical observations, namely it is from general to specific (Crowther and Lancaster, 2009; Kovacs and Spens 2005). As Hyde (2002; p. 83) states that deductive research is a “theory testing process”. On the other hand, inductive research starts with observing specific occasions then seeks to come up with a general law. Crowther et. al, 2009; Kovacs et. al, 2005; Hyde, 2002). Here it is from specific to general. Inductive research allows the researchers to build up own theories based on own observations. In this way, this creates higher flexibility for the researchers (Crowther and Lancaster, 2009).
There is a third research approach, which is called abductive research. The aim of abductive research is to provide a new approach or a framework for an existing phenomenon. It allows researchers to interpret and re-conceptualize a phenomenon and understand this phenomenon in a different and new way. In abductive research process, empirical study (data collection) and theory building are carried out simultaneously (See Figure 3). The researchers move back and forth between theory matching and empirical study (Kovács & Spens, 2005). This study shows abductive characteristics. According to design of study, information gathered from literature review and interviews will provide to analyse and interpret links between theory and real life applications clearly.

Furthermore, abductive process developed as follows: Findings via literature review helped to specify data, which needs to be collected and clarify the interview questions. During and after the interviews, theory matching and processing of empirical material were conducted simultaneously. This allowed the writers to have control over the study and in this way, it made it easier to fulfil the gaps in the content, if there is any.

Figure 3:1 Abductive research process (Source: Kovács & Spens, 2005)

### 3.3 Research strategy: Case study design

Even though the extended services have been introduced in different markets, there is no obtained results, which show if the extended services help transportation companies to experience any advantages regarding increased value and decreased risk. Due to this reason, this study point to a very specific subject and a specific industry, and case study method was considered as the most suitable way of providing deeper understanding on the topic studied.

Case study can be in the form of single or multiple-cases study. In this study, multiple cases are used, which provides variety and allows researchers to make a comparison and to identify different aspects and patterns. Also, these different cases contribute to have better understanding about phenomenon (Eisenhardt, 1989). According to Eisenhardt (1989), there is not a certain number of how many cases (companies, people etc.) should be included in the study but it is suggested to keep number of cases between four and ten. If the number is less than four, researcher might experiences some difficulties in generating theory and providing convincing empirical grounding or if the number is more than ten, it lead researcher to deal with huge amount of data. In the context of this study, five transportation companies will be analysed. The target is to find different companies, who use and do not use extended services in order to fulfil purpose of the study.
Furthermore, the type of research questions in the form of what, how, why etcetera gives clue about the research strategy of a study (Yin, 2003). According to Tellis (1997), research questions starting with “what” indicates exploratory studies, as it is in the context of this study. The aim of the study is to explore the affects of the extended services on transporters’ value and risk experiences.

3.4 Data collection

There are two main sources for data collection process: Literature review and semi-structured interviews.

3.4.1 Literature review

Blaxter et. al (2006; p.123) define literature review as “a critical summary and assessment of the range of existing materials dealing with knowledge and understanding in a given field”. The literature study was seen an appropriate way of collecting information about given context such as transportation market, objectives of transportation activity, risk and value notions. All these subjects helped to design empirical study, to specify interview questions and to backup and support ideas, which was mentioned as a result of empirical study.

According to Welman et. al (2005), there are several reasons, which stress the importance of literature study. For instance, literature study allows the researchers to develop different parts of the study and to get some inspiration about how the study will progress. In addition, literature study provides a detailed analysis of previous studies and protects researchers to duplicate those studies.

University’s library catalogue, Google Scholar and, LIBRIS (the joint catalogue of the Swedish academic and research libraries) are main sources of search for journals, books, e-books, articles etcetera. These databases were chosen as they cover several databases and hence provide a wider search area. Searches for suitable materials are done within different disciplines such as logistics management, supply chain management, transportation, physical distribution, and marketing.

3.4.2 Interviews

Interviews were used as primary data collection source in association with literature study. These interviews were held with five different companies at six different occasions between April 3rd and 16th, 2012. The interviews were performed together with two other students. The studies were within the same field, but had different perspectives. However this cooperation created an atmosphere, which facilitated productive discussions during the interviews. Furthermore, the possibility of questioning each other’s interpretations of the data collected decreased the risk of misunderstandings and improved the quality of this study. A table over the companies interviewed, positions of interviewees, when the interviews was held, and for how long they lasted can be found in table 3:1. To complement the primary data gathered from the interviews, secondary information in form of company brochures and company websites was also used.
Figure 3:2 below illustrates the selection process used when selecting potential companies to interview. 121.nu is a database over the Swedish business world, which was used as a source in the selection process. First, appropriate keywords were established (Logistik, logistics, transport, transportation, åkerier) thereafter the result was filtered on geographical area (Jönköping) followed by a filtering of limited companies. Thereafter, number of employees (50-500) was used to decrease possible companies further. Lastly, the results were cross-checked to sort out companies appearing twice, and companies who main activity was road transportation was selected. As a result of filtering, fourteen companies were determined and a first contact was made through phone calls were the aim of the study was presented. Five companies were found that had the time and were willing to participate in a face-to-face interview. Potential companies might have been missed using this selection process as the number of search terms used are limited and thus do not cover the entire area of logistic service providers. The filtering could also have contributed to a narrower result as both type of company and number of employees is not factors arguing a bigger possibility of transportation companies using extended services.

![Selection of keywords (28 647)](image)
![Filtering by geographical area (938)](image)
![Filtering by type of company](image)
![Filtering by number of employees (24)](image)
![Filtering by mode and excluding repetetives (14)](image)

Figure 3:2 Illustration over the selection process used for companies to interview. Numbers in brackets shows the number of companies found at each stage.

Interviews were designed as personal visits to companies’ facilities. According to Welm et al. (2005), this type of interview has some advantages. For instance, interviewers have complete control over the responding, namely, face-to-face interaction can provide a confidential atmosphere during the interview. Also, interviewers can interfere the conversation in case of having misunderstandings or unclear questions. Higher response rate is another advantage of interviews in the form of personal visits, when compared to surveys and interviews on the phone.

Table 3:1 List over companies and people interviewed

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>DATE</th>
<th>INTERVIEWEE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>3 April 2012</td>
<td>Vehicle Manager</td>
<td>1h20m</td>
</tr>
<tr>
<td></td>
<td>10 April 2012</td>
<td>CEO</td>
<td>2h20m</td>
</tr>
<tr>
<td>Company B</td>
<td>5 April 2012</td>
<td>Owner &amp; Finance manager</td>
<td>1h20m</td>
</tr>
<tr>
<td>Company C</td>
<td>12 April 2012</td>
<td>Regional Manager</td>
<td>3h40m</td>
</tr>
<tr>
<td>Company D</td>
<td>13 April 2012</td>
<td>Transport recycling manager</td>
<td>2h20m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ballast manager</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IT project assistant</td>
<td></td>
</tr>
<tr>
<td>Company E</td>
<td>16 April 2012</td>
<td>Vehicle Manager</td>
<td>2h30m</td>
</tr>
</tbody>
</table>
There are three different types of interviews, which are called structured, unstructured and semi-structured interviews. In this study, interviews are being conducted as semi-structured interviews. In contrast with structured interviews, semi-structured ones do not use interview schedule, which consist of set of questions gathered from previous questionnaires and require interviewer’s strict dependence on questions in the schedule. But, semi-structured interviews requires interview guide, which include list of questions varied from one interview to another (Welman et. al., 2005).

For instance, purpose of this study is to investigate transporters’ perceptions and experiences regarding increased/decreased risks and value via buying and using products with extended services. However, some companies are and some are not buying products with these extended services. Under these circumstances, semi-structured interviews allowed the interviewers to ask particular questions to companies depending on their conditions. The interview guide gives the interviewer more freedom to deviate from actual list of questions during the interview. (For interview questions see appendix 2) (Welman et. al, 2005). This freedom provided the interviewers with the possibility to go deeper into the subject by asking additional questions.

3.5 Validity

Quality of research belongs to both qualitative and quantitative research and deals with the validity and reliability of a study (Boeije, 2010). Increasing validity is an important issue, which needs to be considered from beginning of the study. According to Runeson, Höst, Rainer & Regnell (2012; p. 71), validity “denotes the trustworthiness of the results, and to what extent the results are not biased by the researchers’ subjective point of view.” To be able to judge the validity and quality of the study, Yin (2003) stated several design tests such as construct validity, external validity and reliability.

Construct validity refers to the requirements of having appropriate procedures for the subject, which is studied. In order to test the construct validity, Yin (2003) mentioned the importance of using multiple source of evidence, establishing chain of evidence and having key informants review draft case study report. Construct validity of this study has been improved by collecting data from several sources, such as literature review, interviews and various documents (i.e annual reports, company brochures). To be able to avoid threat of inconsistency between discussed issues during the interviews and analysed materials in the study, recording of interviews was done and documentation of empirical study was sent to each interviewee for approval. In this way, feedback and approvals from interviewees lead the writers to make more consistent and qualified analysis, and to improve validity of the research.

External validity deals with the extent and possibility of generalization of findings. External validity appears as a barrier especially where a case study approach is used (Yin, 2003). Case studies are about to gain a deeper understanding of a particular subject, not to draw general conclusion. Therefore, making a generalization can be difficult in this study as only five case companies were used. On the other hand, even it is hard to generalize the results, they can provide an interesting insight for vehicle manufacturers who offer extended services and other studies within the area.

Reliability is concern of being able to demonstrate the same result when other researchers follow the same methods (Yin, 2003) during data collection, and/or use same interview guidelines. In this study, case study protocol, which includes data collection procedures, case study design, selection procedures of case companies and design of interview questions, are clear and well defined. Thus, the reliability can be increased as the process used in this study would be easy to follow and allow the study to be replicated in other settings, hence increase the probability of reaching the same result.
4 Empirical study

This chapter presents the information gathered from the interviews with the five case companies. First, each company and the interviewees will be presented, followed by a description of the extended services they acquire. Thereafter, valuable and important aspects of case companies operations, and the advantages of using/not using extended services will be declared. Finally will risky issues and disadvantages of using/not using extended services be stated.

4.1 Company A

Company A is one of the biggest transportation companies in its municipality and in 2011 they (including its subsidiaries) had a turnover of 277 M SEK. Company A has 100 employees and several subsidiary companies. Together, they operate within several different areas of expertise.

The first person who was interviewed, is responsible for the vehicles at Company A. He has the full responsibility of buying and selling trucks, and making sure that all trucks are in good shape by arranging inspections, maintenance, and repairs. The second person being interviewed is the CEO of company A and has been so for the last five years.

4.1.1 Services related to operations

Company A together with its subsidiaries owns 73 vehicles of different sizes; out of these approximately 84% is Volvo and Scania vehicles. For the Volvo trucks, Company A does not use any maintenance or repair services provided by the manufacturer/dealer. The reason for this is that no workshops are available at a close distance, which means that they would have to leave the trucks for a longer period of time, thus the availability of the truck is decreased. For a new truck, Company A will though sign a so called Silver contract with Volvo (preventive maintenance and repairs of the trucks driveline is included) since this truck will operate daily between two cities and be stationary for a longer period of time in a place where workshops are available. Taking the opportunity to perform maintenance when the truck is standing still will according to the company increase the availability of the truck.

Five of the company’s Scania trucks have so called “tillsynsavtal” (supervision agreements includes a preventive maintenance plan for each truck according to specifications and planned operating conditions) and two of them have so called Grönt-kortavtal (green card agreement is a comprehensive supervisory and repair contract which include e.g. road assistance). The supervision agreements are signed for trucks bought between 2007 and 2009, the green card agreements are quite new and acquired in 2010 and 2011. For the majority of the trucks (70-80%) is Company A using the local workshop next door for their services and maintenance.

Company A does not use transportation information systems provided by the manufacturers. The reason is that the systems provided by the two manufacturers are not compatible with each other. In order to ease the administration and avoid that the truck drivers have to learn several systems, they have decided to use another system for all of their trucks. Transportation information systems were stated as a good tool that provides the company with important and valuable information.

In 2009, all EU-countries and some others implemented a new rule that all professional heavy duty truck drivers have to undergo 35 hours of training every five years to acquire a proof of professional competence (SverigeÅkeriföretagÖst, 2012). Both Scania and Volvo offers drivers training, but Company A has chosen not to acquire this service from either company since truck-drivers have to finish the whole program with a Scania or Volvo edu-
ator. Instead, they prefer using the training program established by TYA (Transportfackens Yrkes & Arbetsmiljönämnd), SÅ (Sveriges Åkeriföretag), STR (Sveriges Trafikskolors Riksförbund), and NTF (Nationalföreningen för trafiksäkerhetens främjande). The reason is that the program by TYA allows truck drivers to continue their education at any driving school within Sweden. The advantage with this solution is that the truck-drivers can move around and continue their education somewhere else, without having to start over from the beginning, which would be needed if no Volvo or Scania educator was located close by.

Insurances and financing of trucks are also offered by both manufacturers, Company A do not use these services though as they have been able to get better deals with the help of insurance mediators and through their own bank.

4.1.2 Value

For Company A, customers’ wishes comes first, seeing opportunities instead of problems, and being able to solve problems quickly are important aspects. Prioritization is on delivering the goods on time and delivering goods in the same way as when picked up. Furthermore, good service quality and flexibility are important for Company A and also what customers value with them as a transporter. Apart from this, are Company A’s knowledgeable/skillful drivers and staff (that results in a smooth transportation from booking to delivery), good prices, and good service ratio examples of other aspect that customer’s value with the company.

The advantages of taking care of for instance the maintenance themselves are the financial aspects, that Company A can acquire these services cheaper than through manufacturers/dealers. It also provides control over the vehicles, that they know what has been done and are more knowledgeable about the condition of the vehicle. In terms of insurances, using an insurance agent which Company A is doing today, is a smooth way of getting what they need and by taking care of the insurance issues on his own when these arises, is only beneficial as it provides the company with an insight and knowledge about what is done.

The advantage with buying extended services is that Company A gets an invitation when it is time for service of the trucks. When having a service agreement with the vehicle manufacturer, the company is more concerned to get the vehicle to the workshop for maintenance. If not having any service agreements, they might miss some services and in the end this could lead to decreased condition of the truck, hence increasing the risk of breakdowns and total costs. The expectations with the service agreements is that Company A can leave the truck at the workshop and that everything that needs to be done is done and that it works properly the next time they pick it up. Company A’s experiences of increased value in form of higher up-time, on-time delivery, less damage, and safety is hard to estimate for those trucks with the Green cards as they are relatively new and not enough time has passed to be able to make and evaluation. But so far, the estimation is that nothing has improved compared to those trucks, which are not connected to any service agreements. The reasons why Company A has chosen Volvo and Scania trucks, and to acquire certain services for some of them, are that these trucks and services can meet Company A’s requirements. The expectations Company A has on the service agreements which they acquire from their truck manufacturers are that they through inspections can find and deal with issues at an early stage so that standstill can be avoided. Company A’s experiences related to those service agreements, which they obtain, is hard to establish, as some of them are quite new. However, it is found that these services are not better compared with how things are done today, but the hope is that it in the end will lead to better economy.
4.1.3 Risks

The biggest complex of problems is to achieve profitability since a lot of actors constantly are trying to lower the prices for transportation and if not having a competitive price, there is a risk of losing that particular transport. Another possible risk, which Company A so far not has been exposed to, is to lose the customer as a result of bad performance through for instance drivers and transport planners doing a poor job. Furthermore, today’s trucks with a lot of electronics have led to increased vulnerability. Electronic problems is most of the time nothing you can solve easily on your own, which leads to down time. During transportation, the biggest risk is pointed out as a standstill. An example, where a standstill has led to a three-hour delay, illustrates some possible consequences. According to schedule, the transportation should have arrived at 6am, but instead it arrives at 9am. At the point of delivery are three other trucks waiting for those particular goods, which they shall deliver to other destinations. Hence, the delay travels along the chain and can result in the lunch offer of the day at restaurants being served at dinner time instead.

Traffic blockades and accidents on the road are other risks, which transportation can be exposed to, however this is something that probably can be over quite quickly and thus it is not as severe as a standstill according to first interviewee. Theft can be another risk which transporters are exposed to, depending on the type of goods carried; it is more and less common according. Finally, the competition from overseas transportation companies and their drivers is a challenge for the transportation business in Sweden as these are able to offer much lower prices than Swedish companies are able to. Smaller companies operating at lower margins are also big competitors to Company A because of their ability to offer lower prices

Competition is according to second interviewee more or less based on price. The up and downs in the market is also something problematic for the transportation business. The crisis in 2008 is one example that affected many of Company A’s costumers, which still has not yet recovered from that period, and this is in turn has affected the demands for transportation at Company A. The crisis and the ups and downs on the market has also led to difficulties to fill a truck, hence trucks need to travel longer distances to collect goods which has led to longer “empty runs”. Seasonality is something else that affects the demand for transportation during the year, which requires Company A to have overcapacity during low season, however this overcapacity is compensated during high season as they quickly can respond to customer demand and maintain a good service.

The disadvantages of not using extended services could be that it calls for a lot of responsibility and requires bigger workload, but at the same time, even if a reminder or an would be received for service, the truck needs to be taken to the workshop, and the workload would be more or less the same either way. The disadvantage with extended services is the economical aspect, that it is more expensive than taking care of the service and appointments themselves. The decreased availability of the truck can also be a disadvantage. For instance, Company A would have to travel a longer distance to a special workshop if they have a service agreement and this journey takes time and also requires a driver to go there and perhaps even wait while the truck is being maintained. Instead, it is much easier and requires lesser time and money if doing the maintenance or service next door.

The negative aspects of acquiring service agreements are that repairs and service might coincide. When doing a repair that requires the oil to be exchanged and at the same time have a service agreement where Company A already has paid for oil exchange, is a drawback. Furthermore if not having a very bad luck, the service agreements is according to the company not always better economically as they with the workshop next door can get it much
cheaper. One advantage with the agreements is though that there is a better insight into what the cost will be.

4.2 Company B

Company B was established in 1928 as a bus company and, it became a transportation company in 1997, which provided transportation services. Today, Company B has 59 employees and they are operating with 42 trucks (26 heavy-duty trucks, fifteen small trucks). By the end of 2011, they had a turnover of 57 M SEK.

The interview was held with the finance manager who owns 50 % of the company. Company B is a private company and its customer portfolio consists of individual manufacturing companies.

4.2.1 Services related to operations

Company B has 26 heavy-duty trucks including eighteen Scania and seven Volvo trucks. They use repair and maintenance services for all Volvo trucks and the fee for these extended services is paid on a monthly basis. They do not have any service agreement with Scania but they take the repair and maintenance services from authorized workshops. In addition, Company B has a small workshop in their facility, in which small maintenance activities are performed.

When it comes to the insurance, financial issues, driver training, and transportation information system; all these services are provided by different organizations. Driver training is done in cooperation with TYA. Since the higher interest rate in Scania and Volvo, financial support is provided through the bank, which Company B works with. Company B provides insurance from another insurance company, as this also was a cheaper solution than through the vehicle manufacturers.

This year, Company B started to apply fleet management systems in six trucks. Since it is a new application, they have not received any feedback yet and it is still in trial stage. MasterNaut (an international IT service provider) provides service transportation information systems for four trucks. Also, Company B uses Scania’s system in two Scania trucks. Several systems are used as they want to compare these different systems in order to be able to see which one are more efficient. When Company B decides on source of services (including transportation information system, insurance, finance and maintenance), price is the major factor, which affects buying and outsourcing decisions regarding services. The main reason of using extended services is that the company needs to provide service and maintenance for their trucks.

4.2.2 Value

For Company B, the goal is to provide high quality customer service that includes offering reasonable prices to its customers, availability of staff at the right time when the customers need help. Trustworthy image, where the company is able to convince its customers that they can fix every detail for them, is also part of good customer service. Using extended services such as repair and maintenance can according to interviewee help to increase customer service level and performance. Regular repair and maintenance services keep the trucks in a good shape and help the trucks to sustain their performances for longer time.
Company B mostly operates in its local region, which covers 50 km and this situation can turn into an advantage in their operations. In case of breakdowns in the middle of the transportation, they are able to intervene the situation quickly and they can just call the workshop to take care of the broken truck and easily replace it with one of the company’s other trucks. If this would happen in for instance Stockholm, Company B has contacts that can help them solve the issue. However, this solution is more costly than in the case of a breakdown at a closer range. In this way, they resume their operations and they can transport the goods to the point on time or with a very little delay. Company B is aware of increasing attention on environmental concerns in transportation market. In addition, company has an environmental certificate and they buy the trucks with the latest technological advancement and they hope their customers appreciate their practices regarding environmental policies.

Company B is taking care of some maintenance such as changing tires, light bulbs etc. on the trucks themselves. But for bigger maintenance work and repairs they are using authorized workshops. The advantages of using these authorized workshops are that if Company B themselves would take care of this, it would require so much. Vehicles today have many computerized parts that the company believes that they should not deal with themselves. Smaller maintenance however, they can do in their own workshop. By handing over the trucks to authorized workshops they have a better follow-up on the trucks. If Company B would have their own workshop it means that they would need to do large investments and educate mechanics, which would be very costly. If the company would be bigger it would be beneficial, but not in their current situation. By doing smaller maintenance themselves, Company B saves money as it is more costly to use authorized workshops. Apart from this, they also save time and fuel, and it decreases the effect on the environment.

4.2.3 Risk

Influence of foreign drivers in the market, damages and delays caused by weather especially during winter, lack of young and skilled drivers and unavailable staff are examples of risks for Company B. Foreigner drivers create tougher competition in the transportation market. These drivers affect market prices and they try to catch the customers with lower prices in a market where the competition is based on price. However, since Company B’s customers consist of Swedish-speaking companies, the foreign drivers cannot go beyond the language barrier and Company B benefits from being a Swedish transportation company. Staff availability is one of the customer service components in Company B. In this case, if they do not have available human resource in their facility due to illness etcetera at that time when a customer needs help, the company might face risk of losing its customer.

Market ups and downs (e.g. financial crisis) is also a risk factor for Company B. During financial crisis in 2008, the company got over the crisis via buying a courier company in the region. In this way, they added new customers to their portfolio. Furthermore, a timely offer from a drug company in Gothenburg to take care of their distribution to pharmacies in the Jönköping region, also helped Company B during the affect of the recession in 2008.

4.3 Company C

Company C\(^1\) is a road carrier and a subsidiary to a global transport- and logistics company in Germany. Company C is located at several places in Sweden with its head office in Gothenburg. Company C does not have any legal contact with those whom they perform

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\(^1\) Company C is a road carrier and a subsidiary to a global transport- and logistics company in Germany. Company C has formally one customer, called Company C forwarder and who is the forwarding agent in Sweden. They operate the entire organization’s terminals and have the business responsibility towards the transport-buying customers.
transportations for, only practical, this contact is Company C forwarder instead responsible for. Approximately 25% of Company C forwarder’s domestic land transport is provided by Company C themselves. The rest is provided by transportation companies who perform transportations in Company C’s name. Today, Company C has 800 employees and 250 of these are working in the middle region (Gothenburg, Örebro, Västerås, Linköping, and Jönköping) and they are operating with 550 vehicles (500 heavy-duty trucks and 50 vans) and 300 trailers. Out of these 550 vehicles, approximately 160 have its base in the middle region. By the end of 2011, Company C had a turnover of around 850 MSEK.

Company C is divided into three different regions, the north-, middle-, and south region. The interview was held with the regional manager for middle Sweden who has worked at Company C for approximately 2 years and he is in charge for all transportations performed in his region.

4.3.1 Services related to operations

Company C has 500 heavy-duty trucks which consist of approximately 40% Volvo vehicles, 35% Scania, and 25% Mercedes. In addition, there are 15 vans for parcel distribution. The head office in Gothenburg is responsible for buying all the trucks, but a discussion is always held between the head office and the regions of what is needed. Purchase is primarily based on price since the different manufacturers are believed to be rather equal in performance and an explanation to why Company C has most Volvo trucks is that Volvo have more vehicles to choose from, and the smaller share of Mercedes’ is because of the manufacturers poorer service on the Swedish market. Mercedes workshops are few and their mechanics have limited experience and knowledge compared to Volvo and Scania.

Company C has no maintenance contract agreements with their manufacturers today. They do however follow the recommendations established by the manufacturers in the amount of preventive maintenance that needs to be done. There is a slight compromise between Volvo and Scania tough, since Scania recommends more preventive maintenance than needed. Instead of having any agreement with the manufacturers, Company C are managing the planning of maintenance and repairs themselves with the help of a system they have created in their own business system and the outlook calendar. The reason why Company C is not acquiring any extended services from their manufacturers is based on cost as the monthly payments for an agreement includes an extra cost to cover the workshop’s risk (they might need to do more service and repairs than what they have been paid to do).

According to interviewee, Company C is big enough to be able to handle costs for maintenance and repairs going up and down every month. Thus they have chosen to take it as it comes, as they otherwise would lose money if they had to pay more than needed, just in order to cover the workshops risks. Company C do however use authorized workshops for their trucks when doing electronic or computer related maintenance and repairs. For their trailers and for more basic maintenance of trucks, such as greasing and simple welding, Company C uses a local workshop, which is called STS. The reason Company C are using them is their expert knowledge in trailers, that they are much cheaper compared to the authorized workshops, and that Company C encourages competition and want the freedom to chose workshop themselves. In addition, the reason why Company C is not using STS more than they do already is their limited capacity.

When it comes to financing new trucks, the entire organization is so financially strong that they do not need to go through either their bank or through manufacturers, instead they can pay this in cash. Signing of insurance is handled by the head office and they have chosen to use their own provider. The insurance company has recently started a project together with Company C in order to lower Company C’s damage rates so that a lower pre-
mium can be acquired. That the insurance company is willing to work together with Company C in order to lower their costs is something that Company C values a lot.

Regarding driver training, Company C has chosen to arrange an agreement together with TYA. Two of Company C’s drivers in Jönköping have become certified driver trainers and they are now responsible for educating the other drivers, and the training is done in TYA’s name. The reason why they chose to make this arrangement is because it is more flexible, and they can decide themselves when, where, how, and who should participate in the training. It is also a cheaper option and becoming a certified driver trainer also provides career opportunities for their drivers.

Company C is not using transportation information systems today, as they believe it is a too big investment on the existing fleet. Since they use three different manufacturers and all have different systems, it also requires a lot of time and money to handle these separately or to create an own computer system that can integrate all the systems together. All new vehicles have these systems as it is relatively cheap to install in a new truck compared to do it in an old truck, but Company C is currently not using them. They probably will use them in five years or so when enough vehicles has been replaced and equipped with these systems and they have created a system that can gather all the data in one system. The company is very positive to the service, but says that it would require too much time and is too costly for them to equip the existing fleet. In order to keep track of the fuel consumption today, Company C is instead measuring it with the help of driven kilometres and amount of fuel put in the tank each month. Then all drivers’ gets access to the figures so that they can follow their evolvement and a small competition has started between the drivers of who best uses eco-driving. Furthermore Company C is about to start using their own handheld computers equipped with GPS so that they can start to use positioning of the vehicles and be able to analyze different routes and register the optimal time from point A to point B. These systems will most likely be replaced with manufacturers system in the future.

Breakdowns happen rarely in middle region, but when it does, Company C use the road assistance provided from their vehicle manufacturers. The reason is that the manufacturers has a strong 24/7 road assistance that can provide the best service as they have the best availability of spare parts needed, and the competence and knowledge to do it. This service might be more expensive than other options, but Company C choose this option, as they know that they will have the best service and that it pays off in the end. The alternative cost of not being on time decreases the delivery quality and then there are penalties to pay to the customer because of late delivery and that is more costly.

4.3.2 Value

Primarily, the most competitive point for the company is quality, which includes being on time, traceability and availability, and low damages of goods. If promising the customer that they will pick up the goods at for instance 3pm the latest and that they will deliver the goods at 11am the latest next day, and being able to keep that promise in 99,5% of the cases will provide Company C with a very strong competitive edge. Good service performance spreads among customers and will make it possible to charge extra and it will also become an order winner. Traceability and availability is important, as customers calling to ask for goods will be able to get the information where their goods are. The third and very important aspect of quality is the amounts of damages, being able to keep a low percentage of damaged goods will also provide a competitive edge. Other important aspects are also the behaviour of the drivers as they are the ones meeting all the customers, it is important that they are good company ambassadors, can communicate well, and behave nicely. To have an image of being environmental friendly is also an important aspect for a big company as Company C. They need to have measurements, set goals, and proof their environmental
performance. It is costly to be environmental friendly, but this pays back as they come in question when their customers chooses transport provider.

Company C sees many advantages of taking care of the planning of maintenance and repairs themselves and not to use any agreements with their vehicle manufacturers. The flexibility that it provides, that they more easily can reschedule planned maintenance and the possibility they have to share their own planning directly with the STS workshop’s outlook calendar are some examples of advantages that it provides. The closer control that it provides, that Company C has more eyes on the planning and that everyone knows what is wrong with the vehicle and knows where it is, is another advantage compared to having service agreements where they otherwise would have to leave the control to others.

4.3.3 Risk

Together with Company C’s biggest competitors, Company C forwarder stand for more than 50% of all domestic transportations performed over the day in Sweden. According to interviewee, the transportation business is very cost oriented and that many transporters do not think of the service value that transportation offer. Even though many customers try to negotiate lower prices, Company C knows that quality is very often more important aspect than price. Thus, they try not to compete on price, instead they try to focus and compete on quality and environmental aspects, unless it is low value goods.

Other occasions Company C choose to compete on price is also for goods being distributed from consuming areas like the three biggest cities to logistics centers like Jönköping. There is a strong competition among transporters to avoid the risk of returning with their vehicles empty from for instance Stockholm. The competition from foreign drivers is also a huge concern for Company C. The language barrier foreign driver faces is though an advantage for Company C, especially for local network transportations where customer contact is of great importance.

Examples of daily risks that the business faces are for example traffic, accidents, weather, and circumstances that disturb the production. When it comes to business risk, recession is a threat and being a business that operates on low margins is very volume sensitive.

The reason Company C values Volvo and Scania as their vehicle manufacturers and why many choose to use these providers is according to interviewee their good services, that there are many workshops available with very experienced and knowledgeable mechanics which can help to decrease any issues and hence reduce the risks for transportation companies.

The disadvantages with taking care of the distribution of services themselves, is that it requires some extra work, the interviewee pointed out however that the extra work it requires is limited and that the cost for managing around 160 vehicles in this way can be seen as relatively minor. The only risk the interviewee can see with arranging all their services themselves, are the risk that it hides costs, that not all the work that actually is done and the alternative costs is calculated in the total costs.
4.4  Company D

Company D is a daughter company to a corporate group engaged in freight transport and contracting. There are three main departments in Company D, which are ballast (material production of coarse sand and stone material), construction (road and ground preparations), and transport recycling that provides vehicles for Company D’s operations. If Company D does not have enough vehicles to fulfil the demand, they can ask other companies to supply required number of trucks. In the near future, a fourth department, road service (snow clearing etc.), will be added. Company D has 85 employees and the company serves approximately 400-500 persistent industrial customers, and 20 000 households. Company D has different type of trucks; 50 heavy trucks (over 3.5 tons, approx. 60% Scania; approx. 40% Volvo and 1 MAN), 20 trailers, 10 light trucks, 5 diggers and 5 wheel loaders. Buying decision of vehicles is made depending on the vehicle’s price. Company D makes the decision of trucks’ features and specifications and then the mother company make the purchase. In addition, depending on price, old trucks are either sold in second-hand market or they are returned to vehicle manufacturers. This decision is made based on prices.

During the interview, three employees participated. First interviewee is responsible for transport recycling department; second interviewee is responsible for ballast department, and third interviewee three is in charge of assisting a software design project for collecting information from daily recycling operations and customers.

4.4.1  Services related to operations

Company D does not use extended services provided by vehicle manufacturers. Repair and maintenance services are supplied from a workshop, which belongs to one of its sister companies, and other workshops located nearby. For planned services and system updates, Company D goes to authorized workshops but they prefer going to other local workshops to get smaller maintenance done, because for such small fixtures, it is cheaper to visit local workshops. In addition to that, it is more advantageous to take their garbage collection vehicles and vehicles with tumbles to other workshops than taking them to authorized workshops, because the equipment on those types of trucks need different and specialized maintenance. Scania and/or Volvo have experience on maintaining trucks’ engine systems and the other parts but they do not have experience on maintaining special equipment. Local workshops are more knowledgeable to handle service requirements of these trucks. For road assistance, Company D currently uses Bergningscentralen, they are however working on an agreement together with Assistancekåren to take care of all road assistance for the entire corporate group.

Driver training and insurance are outsourced to different suppliers based on price. If it is needed, an officer visits the corporate group and trains drivers for all daughter companies. The main determination here is also price. Company D does not use either manufacturers’ financial offerings or banks; instead payments are done by head office in cash. Currently Company D does not use transportation information systems provided by vehicle manufacturers but they want to have these systems in the future. Instead, they are today keeping track of their fuel consumption by recording the amount of fuel put in the tank and driven kilometres during the month. Also, they use GPS provided by Bankfors in their heavy trucks, which can receive orders information from Company D’s own system. The main reason why Company D does not use manufacturers’ systems is because they cannot offer the necessary functions.
4.4.2 Value

Being on time is the most important factor in Company D’s operations because if they cannot be on time, they can lose their customers. Company D can provide their customers a whole concept were they can fulfil the customer’s overall needs throughout the chain (ability to supply their own produced material, then transport it to the construction site, and finally being able to do the ground preparations) and this is mentioned as a strength for Company D. Also they can offer total solutions for the industry, where they can collect several different types of scrap metal and wastes. Customers value the possibilities to only contact one company that can do it all; instead of having contact with several different organisations specialized in one separate thing.

Today, customers are asking based and choosing based on price. Being more environmental friendly might though provide stronger public image. This might be a valuable aspect as it creates a positive image on customers’ minds and turns Company D into a more preferable company in the market.

When it comes to the advantages of using their own workshop, according to interviewees, it provides a great flexibility if there are unexpected breakdowns. Since drivers have direct contact with the workshop, they can stop by whenever they need via informing the workshop in advance. Furthermore, this workshop has more extended working hours (two hours extra), which provides flexibility and they always have spare parts on hand. When using authorized workshops, Company D needs to wait one day for the parts to be delivered.

4.4.3 Risk

When it comes to the risk factors that Company D faces, the risks can be originated from different sources. As it is mentioned for other companies as well, foreign drivers are one of the main risk factors for Company D. Existence of foreign drivers might however be eliminated in case there are requirements in order to work in Sweden, such as necessity of using clean fuel. Recession in the market, demand fluctuations, fuel prices, flat tires, accidents, damaged goods, and irresponsible behaviours of drivers are other risks listed by interviewees. Since Company D operates in different places from bigger towns to smaller villages, the trucks are affected by quality of the roads and weather conditions. Trucks can get stuck during operation due to these reasons.

In the future, extended services might be needed due to vehicles’ rapidly changing technology since their own workshop cannot keep up with the system updates, which are frequently being made by the manufacturers. When there is a problem, which they cannot handle by themselves, they need to go to authorized workshop because there is a risk in trying to solve the problem themselves. In case they do something wrong, they might have to go to an authorized workshop which will increase the costs when doing it twice and there is also a risk that they can lose guarantee as a result.

4.5 Company E

Company E was established in 1964. Today, DHL is the biggest principal and 90%-95% of the company’s transportations are run for them. In DHL case, the customers’ load and destination information is sent from DHL to Company E via their common information portal. Company E serves some bigger companies within Sweden on behalf of DHL such as Husqvarna AB and IKEA.

Company E currently has 140 vehicles in different sizes (out of these, approximately 80 vehicles are Volvo, and 40 Scania) and 130 trailers. Company E also has a warehouse in their current plant, and this division is a sister company. Company E has 180 employees and in 2011 the company had a turnover of 220 MSEK.
The interview was held with the vehicle Manager. Company E operates both domestically and internationally and the operations are based on line traffic. Domestic line includes routes in Sweden such as Jönköping, Stockholm, Eskilstuna, Örebro, Växjö, Blekinge etcetera and international lines consists of Norway, Finland and other destinations within Europe (based on demand) such as Italy.

4.5.1 Services related to operations

The reason Company E has more Volvo’s vehicles was because Volvo’s workshop was located closer than others. From now on however, is Company E buying more Scania vehicles as they are building brand new facilities just across the street from Company E. By choosing a workshop, which is located closer by, Company E saves money, time, and emissions. Six of Company E’s Scania trucks have green card agreements and seventeen Volvo trucks have gold contracts. Company E started to use these agreements six and seven years ago respectively and for these agreements Company E pays monthly. For the other vehicles, the company has chosen not to acquire any agreements, but they do use authorized workshops for bigger maintenance and repairs. For smaller maintenance, Company E uses their own workshop located in their facilities. The reason they are not using their own workshop for bigger jobs, is because they have so many vehicles and would then need to hire much more staff to be able to take care of it themselves. Furthermore, the work that they can handle on their own is limited today because of the way vehicles are constructed.

When it comes to transportation information systems (dyna fleet and fleet management) Company E has sixteen Scania vehicles equipped with the fleet management system and some Volvo vehicles are equipped with dyna fleet. For every new vehicle from Scania, which Company E buys, they are acquiring the transportation information system provided by the manufacturer. In 30 other vehicles, a transport information system called C-track is used. This system cannot electronically transfer information as the other systems can; instead the information needs to be downloaded by putting a chip in the vehicle. The reason why Company E uses several systems at the moment is that they want to evaluate which system that suits them the best. There are many options to choose from with many different functions, and Company E needs to think of what functions is the best for them and also think about the costs with each system. They are however looking into the possibilities of putting Scania’s system into all their vehicles as a workshop soon will be located close by, so if any problems would occur they can easily fix it. In all trucks equipped with Scania’s fleet management system, Company E has chosen to also install a cruise control, which limits the speed to 82km/h. This limitation will help to lower the fuel consumption.

Company E is not acquiring any driver training form their manufacturers, instead they have two drivers at the company who have become certified drivers trainers through TYA and they will be responsible of educating the other drivers at the company. The reason why Company E chose this solution is because it is a cheaper option and because it is more flexible. They can decide themselves when the education should take place and this means they do not have to cover up for the drivers who is not available because they have to attend the training.

Regarding insurance, Company E is using their own insurance provider, as they believe their manufacturers cannot offer full truck insurances. Concerning financing of trucks, Company E are using manufacturers’ financial offerings as they can offer good solutions on how to pay the vehicle.

Company E is very often using road assistance when a car breaks down if being close by or if problems with the vehicles are smaller. If there are bigger problems, they use a tow firm to take it home to Volvo or Scania workshops in Jönköping. The reason is that Company E
gets better help on their “home-workshops” as those workshops know who Company E is. If they are far away and would need to go to a workshop there, those workshops do not know Company E, and hence they will be less prioritized. Furthermore, if repairs would be done in another workshop, Company E cannot see what they are changing, what they are doing. Thus, towing the vehicle home and use the local authorized workshops, provides Company E with better control over the situation.

4.5.2 Value

For Company E, being on time is the most important aspect for them and their customers. Thus it is important that they can deliver the right product at the right time. Furthermore, having the right equipment to be able to perform according customer’s wishes is important.

According to interviewee, it is hard to evaluate the company’s experience of using extended services as much depends on the condition of the vehicle from the start and the behaviour of the drivers. Also if there are more drivers using a vehicle, there is more likely that there will be more problems with it than if it would only be used by one or a few drivers. Hence, having an agreement for a truck is more likely to be beneficial and less costly if having more drivers and vice versa if having lesser drivers using a vehicle. A more thorough evaluation of the costs of using versus not using agreements will though be done in the future, to see if they really are beneficial for Company E or not.

One advantage with having the extended services is that the company is always prioritized in the workshop and that Scania and Volvo can fix the problem very quickly when having a breakdown as they otherwise would have to give refund, if taking too long. Furthermore, if being far away, it is a safety that Company E knows they will get the right service. Other workshops might try to fool the company by saying that more than needed has to be done, and because the vehicle is far away there is no way of making sure if this is true or not. Thus, if being far away (e.g. northern Sweden or Italy), agreements provide better service. However, if operating close by, no service agreements are needed as a trust between the company and local workshops has been built up.

Other advantages mentioned are the financial aspect, with an agreement the company pays monthly and thus they always know the cost, which makes it easier to calculate. In addition to that, Company E does not have to bear the cost at one time from possible breakdowns as the cost is more spread out with an agreement. Another advantage is that if total cost for maintenance and repair is less than total fee paid by the company in the end of the agreement period, Company E will get back some of the exceed payments.

For those trucks which Company E does not have any agreements, they need to administrate the maintenance and repairs themselves, and for this they are using an excel sheet. Taking care of this themselves provides Company E with good control over what has been done, what needs to be done, and when this needs to be taken care of, they have a good control over the situation.

4.5.3 Risk

Several risk factors, which affect Company E’s domestic and international operations, are for instance fluctuations in the market, increasing fuel prices, repair and maintenance fees, and salaries, accidents, flat tires and breakdowns. In addition to these, competition based on price is also an important factor and customers’ demand for lower prices is also increasing. As a result of price-based competition, Company E cannot mention that they perform with high quality and ask customers to pay more for their high quality service as customers then would chose to use a cheaper provider.
Especially in case of breakdowns outside of Sweden, risky conditions might occur when it comes to bringing the truck(s) to a workshop. Company E might not find a workshop easily or when they bring the trucks to the workshop, they can force Company E to change many other parts, which do not actually need to be changed and they need a reliable workshop while they are operating on international lines. This is the main reason of why Company E has chosen to use extended services on those trucks, which serve on international lines. The need for extended services is not as extensive for vehicles, which serves locally, as Company E can easily find a workshop, where they can receive qualified service and maintenance.

The only disadvantage mentioned of acquiring services was the fact that it could be cheaper to take care of the maintenance and repairs themselves, that the cost per km would be lesser without any service agreements than with. However, an agreement reduces the company’s risk of large cost if they would be exposed to breakdowns as this is included in the agreement.

### 4.6 Summary of case companies and services used

The companies that have been used as case studies and that have been interviewed in this study are out of different sizes in terms of number of employees, vehicles used, and current turnover. Furthermore, there is a difference whether they operate only domestically or also internationally. A summary of these differences can be found in table 4.1 below.

Table 4.1 Companies interviewed and general information about them

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>EMPLOYEES</th>
<th>VEHICLES (TRUCK+TRAILER)</th>
<th>TURNOVER (MSEK)</th>
<th>OPERATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A (incl. subsidiaries)</td>
<td>100</td>
<td>73</td>
<td>277</td>
<td>Domestically</td>
</tr>
<tr>
<td>Company B</td>
<td>59</td>
<td>42</td>
<td>57</td>
<td>Domestically</td>
</tr>
<tr>
<td>Company C (middle region)</td>
<td>250</td>
<td>160</td>
<td>850 (all regions)</td>
<td>Domestically</td>
</tr>
<tr>
<td>Company D</td>
<td>85</td>
<td>60+20</td>
<td>176</td>
<td>Domestically</td>
</tr>
<tr>
<td>Company E</td>
<td>180</td>
<td>140+130</td>
<td>220</td>
<td>Internationally</td>
</tr>
</tbody>
</table>

Apart from general differences between case companies, there are also variations between the companies in terms of how they have chosen to resolve the issues regarding, driver training, transportation information systems used, the maintenance and repair, insurance, and financing of vehicles. The variations ranges from the use of own workshops and insurance companies to maintenance and repair agreements with vehicle manufacturers. In table 4.2 below, a list of how the different companies has chosen to resolve the issues in the different areas and the services they acquire from their vehicle manufacturers, can be found.
Table 4.2 Information on how case companies have resolved the issue in different areas and the services they acquire from their vehicle manufacturers

<table>
<thead>
<tr>
<th>Services Companies</th>
<th>Maintenance and repair</th>
<th>Finance</th>
<th>Driver training</th>
<th>Transportation information system</th>
<th>Road assistance</th>
<th>Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>Own workshops mostly</td>
<td>Their own bank</td>
<td>TYA</td>
<td>Different system (Webb Idha)</td>
<td>None</td>
<td>Insurance mediators</td>
</tr>
<tr>
<td></td>
<td>Extended services:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Silver contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Volvo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 Tillsynsavtal (Scania)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Green card (Scania)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company B</td>
<td>Own workshop (smaller</td>
<td>Their own bank</td>
<td>TYA</td>
<td>4 Masternaut’s system</td>
<td>Volvo and Scania</td>
<td>Insurance mediators</td>
</tr>
<tr>
<td></td>
<td>jobs) &amp; authorized</td>
<td></td>
<td></td>
<td>2 Scania fleet management</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extended services:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 maintenance and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>repair (Volvo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company C</td>
<td>STS (a local workshop)</td>
<td>Self-financing</td>
<td>TYA</td>
<td>None</td>
<td>VOLVO and Scania</td>
<td>Insurance mediators</td>
</tr>
<tr>
<td></td>
<td>&amp; authorized workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No extended service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company D</td>
<td>Own workshop</td>
<td>Self-financing</td>
<td>TYA</td>
<td>None</td>
<td>Bergningscentralen and Assistancekåren</td>
<td>Insurance mediators</td>
</tr>
<tr>
<td></td>
<td>(belongs to sister</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>company)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company E</td>
<td>Own workshop</td>
<td>Financing options offered by vehicle manufacturers (both Scania and Volvo)</td>
<td>TYA</td>
<td>16 Scania fleet management system (+ cruise control) Some Volvo fleet management system 30 C-track</td>
<td>Volvo and Scania</td>
<td>Insurance mediators</td>
</tr>
<tr>
<td></td>
<td>(smaller jobs) &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>authorized workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extended services:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 Green cards (Scania)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17 Gold contracts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Volvo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Several risky issues that can affect the case companies’ operations and hence their performance was listed by case companies, and aspects which are important for the company and features that their customers value was brought up. The extent to which case companies are using extended services differ and case companies listed diverse advantages and disadvantages related to both using and not using the services which they acquire.

A summary of the important/valuable aspects, risks, and advantages/disadvantages of using and not using extended services brought up by the case companies can be found in table 4.3 below. Advantages and disadvantages related to using an authorized workshop in comparison with own or local workshop was mentioned as well. Examples of advantages are better follow-up, more knowledgeable and experienced mechanics that can help to decrease any issues and hence risks; that they can better deal with for instance the increasing computerization of vehicles. The disadvantages are though that authorized workshops are more expensive for smaller fixtures than local or own workshop is and that they do not have any experience on maintaining vehicle’s special equipment.
Table 4:3 Summary of value/advantages and risks/disadvantages listed by case companies

<table>
<thead>
<tr>
<th>VALUE/ IMPORTANT</th>
<th>RISKS</th>
<th>VALUE/ ADVANTAGES</th>
<th>RISKS/DISADVANTAGES</th>
<th>VALUE/ ADVANTAGES</th>
<th>RISKS/DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Customer wishes</td>
<td>• Not achieving profitability</td>
<td>• Service agreements</td>
<td>• Service agreements</td>
<td>• Service agreements</td>
<td></td>
</tr>
<tr>
<td>• On-time delivery</td>
<td>• Losing customer</td>
<td>• Better insight of the costs</td>
<td>• Cheaper</td>
<td>• Cheaper</td>
<td></td>
</tr>
<tr>
<td>• No damages</td>
<td>• Standstill/ breakdown</td>
<td>• Invitations/reminders</td>
<td>• Easier/convenient</td>
<td>• Easier/convenient</td>
<td></td>
</tr>
<tr>
<td>• Good customer service</td>
<td>• Delays</td>
<td>• Service and repair coincide</td>
<td>• Control over the vehicles</td>
<td>• Control over the vehicles</td>
<td></td>
</tr>
<tr>
<td>• Flexibility</td>
<td>• Traffic blockades</td>
<td>• Expenses</td>
<td>• Financing</td>
<td>• Financing</td>
<td></td>
</tr>
<tr>
<td>• Solve problems quickly</td>
<td>• Accidents</td>
<td>• Decreased availability</td>
<td>• Better deals</td>
<td>• Better deals</td>
<td></td>
</tr>
<tr>
<td>• See opportunities, not problems</td>
<td>• Theft</td>
<td>• Transporta-</td>
<td>• Insurance</td>
<td>• Insurance</td>
<td></td>
</tr>
<tr>
<td>• Knowledgeable and skilful staff/drivers</td>
<td>• Market fluctuations</td>
<td>tion information system</td>
<td>• Better deals</td>
<td>• Better deals</td>
<td></td>
</tr>
<tr>
<td>• Good quality</td>
<td>• Recessions</td>
<td>• Compatibility issues</td>
<td>• Insight and knowledge of insurance issues</td>
<td>• Insight and knowledge of insurance issues</td>
<td></td>
</tr>
<tr>
<td>• Good prices</td>
<td>• Competition from foreign drivers</td>
<td>• Drivers training</td>
<td>• Possibility to continue driver training any-where</td>
<td>• Possibility to continue driver training any-where</td>
<td></td>
</tr>
<tr>
<td>• Good service ratio</td>
<td></td>
<td>• Competition from foreign drivers</td>
<td>• Cheaper</td>
<td>• Cheaper</td>
<td></td>
</tr>
</tbody>
</table>

| **Company B**    |       |                   |                     |                   |                     |
| • Good customer service (reasonable prices, availability of staff, and trustworthy image) | • Loosing customer | • Service agreements | • Service agreements | • Financing |                     |
| • Quality (on-time delivery, trace- ability, availability, low rates of damages) | • Recessions | • Increased customer service | • Cheaper | • Cheaper |                     |
| • Image of being environmental friendly | • Damages | • Insurance | • Extra work required | • Extra work required |                     |
| • Traffic blockades | • Delays | • Cheaper | • Possibility of hidden costs | • Possibility of hidden costs |                     |
| • Accidents | • Lack of young and skilled drivers, and unavailable staff | • Closer control of the vehicles | • More flexible | • More flexible |                     |
| • Weather | • Competition from foreign drivers | • Flexibility | • Ease of communication | • Ease of communication |                     |
| • Recession | • | • Cheaper | • Cheaper | • Cheaper |                     |

| **Company C**    |       |                   |                     |                   |                     |
| • On-time delivery | • Loosing customer | • Road assistance | • Transportation information system | • Service agreements | • Service agreements |
| • “Whole concept!” | • Recessions | • Strong 24/7 service in form of availability of spare parts, and competence and knowledge of how to do it | • Compatibility issues | • Cheaper | • Cheaper |
| • Image of being environmental friendly | • Damages | • Service agreements | • Cheaper | • Cheaper |                     |
| • Traffic blockades | • Delays | • Insured | • More flexible | • More flexible |                     |
| • Accidents | • Lack of young and skilled drivers, and unavailable staff | • Possibility to share planning with workshop | • Flexibility | • Flexibility |                     |
| • Weather | • Competition from foreign drivers | • Close control of the vehicles | • Cheaper | • Cheaper |                     |
| • Recession | • | • Possibility to collaboration | • Extra work required | • Possibility of hidden costs |                     |
| • Competition from foreign drivers | • | | | |                     |

| **Company D**    |       |                   |                     |                   |                     |
| • On-time delivery | • Loosing customer (if late) | • Transportation information system | • Service agreements | • Service agreements |                     |
| • “Whole concept!” | • Accidents | • Limited capa- | • Cheaper | • Cheaper |                     |
| • Image of being environmental friendly | • Market fluctuations | bilities/functions | • More flexible | • More flexible |                     |
| • On-time delivery | • Recessions | • Insurance | • Insurance | • Insurance |                     |
| • “Whole concept!” | • Weather | • Cheaper | • Cheaper | • Cheaper |                     |
| • Image of being environmental friendly | • Delays | • Drivers training | • Cheaper | • Cheaper |                     |
| • On-time delivery | • Road conditions | • Cheaper | • Cheaper | • Cheaper |                     |
| • “Whole concept!” | • Damages | • Drivers training | • Cheaper | • Cheaper |                     |
| • Image of being environmental friendly | • Flat tires | • Cheaper | • Cheaper | • Cheaper |                     |
| • On-time delivery | • Irresponsible behavior | • Cheaper | • Cheaper | • Cheaper |                     |
| • “Whole concept!” | • Competition from foreign drivers | • Cheaper | • Cheaper | • Cheaper |                     |

| **Company E**    |       |                   |                     |                   |                     |
| • On-time delivery | • Loosing customer (if expensive) | • Service agreements | • Service agreements | • Service agreements |                     |
| • Availability of right resources | • Standstill/breakdown | • Quick service | • Cheaper | • Cheaper |                     |
| • On-time delivery | • Accidents | • Reliable service when far away | • Closer control | • Closer control |                     |
| • Availability of right resources | • Market fluctuations | • Know the cost/easy to calculate | • Cheaper | • Cheaper |                     |
| • On-time delivery | • Increasing fuel/service/salary fees | • Decreased risk of compounded costs | • Drivers training | • Drivers training |                     |
| • Availability of right resources | • Flat tires | • Refund | • Cheaper | • Cheaper |                     |
| • On-time delivery | • Competition from foreign drivers | • Good amortizations plans | • More flexible | • More flexible |                     |
| • Availability of right resources | • | • Transportation information system | • Not electronically transferrable information | • Not electronically transferrable information |                     |

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5 Analysis

The aim of this chapter is to establish the type of companies interviewed and analyze valuable/important aspects, risky issues, and case companies’ experiences related to using/not using extended services through a comparison of literature- and empirical findings.

5.1 Case companies

According to Cui & Hertz (2011), logistics service providers can be divided between carriers, logistics intermediary firms, and TPL’s. All companies interviewed possess and operate their own equipment such as trucks, trailers, staff, buildings and terminals. Furthermore it is understood that their center of attention consists of transporting goods from point A to B in the best way possible within time and budget. All companies are also operating transports on fixed lines with some few exemptions. This information shows strong connection to the characteristics established by Cui & Hertz (2011) for the carrier category. Thus, considering the characteristics of each category and the information collected from case companies, all companies interviewed can be considered as carriers.

If also considering sister- and mother companies, the situation could however be different for some of the case companies (Company C and E). When considering that Company C is part of a larger organization, the company as a whole offers more than just transportation, hence they are not only a carrier but can instead be seen as a TPL. The same goes for Company E that together with its sister company offers warehousing. Thus they can be seen as moving toward being an asset based TPL that Cui & Hertz (2011) characterize as companies that offer services to the customers with the help of physical resources such as warehouses.

From the empirical material gathered, common factors can be found that determines how companies had chose to resolve the issues of maintenance and repairs, insurances, driver training, financing, road service, and transportation information systems. Example of factors include; financial aspects, location of workshop, flexibility, size of transporter, control, compatibility of transportation information systems, cooperation, service quality, limited capabilities and offers, reliability, special equipment, and easiness of communication.

According to Cui and Hertz (2011) carriers’ focus is on efficiency, which are related to companies’ ability to transform input to output within established time limits and budget (Crawford and Bryce 2003; Fugate et al. 2010), thus it is referring to financial aspects. The transportation business is furthermore characterized as having low margins (Rodrigues et al, 2008), which also was pointed out by Company C. When discussing competition, all companies stated that the competition within the transportation industry was based on price. If not being able to offer the lowest prices, the consequence mentioned by Company A and E was that customers will choose another provider which has the possibility to offer lower rates. Company C mentioned however that they try to compete on quality, except in the circumstances when low-value goods are being transported or when having returning vehicles from consuming cities such as Stockholm. It is then clear that price and cost are important aspects for transportation companies, which also was reflected in the determining factors companies used when deciding how to acquire extended services. Price was mentioned as one of the main reasons when making these decisions, and cost for services, better deals in form of lower rates and good amortization plans, the need for expensive investments, possibility to spread out payments and hence reduce risk, was the main factors constituting the financial aspect.

Besides financial (especially price) factors that come first when companies make decision on buying or not buying extended services, other factors have also influence on companies’
decision-making processes. For instance, location of workshop is seen as an influential criterion. It has effect on either company decides to work with authorized-, local-, or provide their own workshop. Company E and A established that a closer location provides money, time and emission savings. Under some circumstances, companies need to have services for their special equipment on trucks, which requires specialized knowledge and experience. Due to this reason, Company D prefer using local and specialized workshops for their specific requirements.

On the other hand, under some circumstances, such as owning a large fleet, or when big investments are needed to establish own workshop, companies prefer having extended service agreements, or going to local/nearby workshops. In addition, Company C and D mentioned ease of communication between companies and workshops as an influential factor during their decision-making process. For instance, Company C has a common system, which is shared with a local workshop, STS. In this way, Company C is able to plan its repair and maintenance services by itself and they also have control over the service processes; everybody is informed very well about trucks’ conditions and service requirements. At the same time, as it is supported by Rodriques et al. (2008), sharing information can reduce the probability of occurrence of information uncertainties.

Control over service processes was mentioned many times as important for Company D, A and E. The need of closer workshops and traceability of service quality (what needs to be done should be done) are originated from companies’ demand of controlling service processes. When it comes to flexibility, companies evaluated the flexibility aspects of services from different perspectives. Company D mentioned flexible working hours of their workshop as an attractive criterion. In addition to that being able to chose when, where, how, and who should participate in drivers training was brought up by Company C and D. Insurance and traffic information systems are other components of extended services. Full coverage is an important aspect if company decides to get this service from manufacturer or other insurance mediators. When it comes to traffic management systems, all case companies are using a mixed bundle of trucks. They have many trucks from several brands and there are compatibility problems between different systems of different trucks. In order to solve this issue, Company A and B prefer using third party’s systems, which produces traffic information for trucks.

The rest of this section explains if companies’ types, operation areas (domestically, internationally and/or locally), and sizes do have any effect on determining extended services’ sources such as if they provide these services from manufacturers or other organizations (e.g. banks, insurance mediators, authorized-, local- or own workshops). Case companies have different characteristics that can influence how they use extended services, how they view advantages and disadvantages, and it also affects the companies’ meaning of value and risk. It can be seen that there are different mind-sets between large and smaller companies and in fact there are differences between mind-sets of larger companies. Company C and E have the biggest fleet sizes when they are compared to other case companies. Company E mentioned that since they have a lot of trucks, they cannot take care of maintenances and repairs by themselves, instead they prefer using extended service agreements and they see many advantages of using extended service agreements especially when they operate outside of Sweden.

Different situation are affecting the view of what is seen as a risk. For instance, Company C was mentioned to be big enough and this was the main reason why they prefer making payments for maintenance and repair when they need to instead of making monthly payments. Thus, the size and financial status of the organization led to the fact that Company C did not see the financial consequences of a breakdown as a risk. Company E on the oth-
er hand considered the financial consequences of a breakdown as a risk. According to Company E, with the help of monthly payment options, they do not have to make the payment at one time in case of the breakdowns, since the extended services allow them to spread out the cost over time.

5.2 Risks

5.2.1 Risk aspects for case companies

Risk and uncertainty notions are often confused with each other (Rodriques et al., 2008). They do not refer to the same issues but they are related to each other, namely, uncertainties pave the way for creating and increasing the risks within supply chains. Four main risk categories were mentioned in earlier sections such as physical risks, financial risk, information related risks and organizational risks (Waters, 2011; Cavinato 2004) and there are many sub-factors listed under these main categories. Companies’ risks and uncertainties mentioned during interviews align with literature regarding lost customers, breakdowns, congestions, damages, delays, demand related and market related fluctuations, problems with achieving desired profitability, accidents, and thefts. Also, companies mentioned some risks, which are not covered in literature such as competition created by foreign drivers.

Product losses, damages and delivery delays are some common type of risks (Coyle et al., 2011). Thefts are one of the main reasons, which lead companies to lose client’s products. According to Waters (2011), thefts occur in operators’ depots mostly and not during transportation. However, Company A mentioned that thefts can take place during the journey depending on type of products; for instance, it is more likely to happen if the goods are high-value products. Coyle et al. (2011) also says that this type of product is most exposed to the risk of pilferage. Company B and D mentioned product damages as one of the risk factors. Damages can occur due to improper handling, irresponsible behaviour of drivers and accidents (Coyle et al., 2011). Company D pointed out irresponsible behaviours of drivers as a source to damages. They mentioned that after drivers loaded products, they are fully responsible for those items and they need to be cautious during their operations. In addition, Company B mentioned that damages can be caused by bad weather.

Delays are another risk factor, which was pointed out by several case companies. Many reasons can be listed which can causes disruptions during companies’ operations. Just as Coyle et al. (2011) and Rodrigues et al. (2008) pointed out, Company B, D and C mentioned harsh weather conditions as a cause to the risk of delays. Flat tires, congestion, breakdowns, and conditions of the roads were also listed by Company E, D, A and C as other possible reasons to delay, which can end up with missing schedules. Most of the companies put emphasis on one risk factor: competition created by foreign drivers. These drivers come from other European countries such as Lithuania, Poland etc. They provide lower prices for the shippers and they try to attract market’s attention. In this case, according to case companies, they have to come up against unfair competition created by these drivers.

There are some associated factors with risk of not achieving targeted profitability levels in an industry described by Company C and Rodrigues et al. (2008) having lower profit margins. Increasing fuel prices, service fees, salaries and demand for lower prices were mentioned by case companies. These can be evaluated as factors, which might increase the risk in failing to reach companies’ financial targets. Especially, volatile pricing strategies in fuel prices can have more serious economical impacts on smaller carriers in comparison with large-scale carriers (Rodriques et al., 2008). In addition, all case companies mentioned that they are affected by more or less the same economical conditions such as demand fluctuations, recession, and seasonality. Case companies mentioned that economical recession affected demand for transportation and the consequences for Company A was problems to
fill up trucks. This situation leads to increased empty runs, which decreases companies’ operational efficiency. Seasonality was also mentioned as a consequence, which causes overcapacity during the seasons with too low demand. Furthermore, there are several factors, which can end up with losing customers. If the companies are overpricing and providing low quality service or if they do not have enough human resource to employ in their operations, they might face to lose their customers and they might fall behind of their competitors. Driver shortages can also refer to lack of human resource. As mentioned by Company B, there is a lack of young and skilful drivers and according to Rodriques et. al (2008), this can lead to lowered quality customer service.

5.2.2 Disadvantages of using and not using extended services

Companies have listed several advantages of using extended services such as better insight, ease of calculating, reduced risk of instant large costs, good amortization plans, money back, availability of qualified service during international journeys, prioritization in workshops, 24/7 road assistance, and service invitations for planned maintenance. Mentioned advantages help companies in various circumstances and can most likely help companies to fulfil customers’ demand, which Wagner (1987) states is a prerequisite in order to stay competitive.

Even though case companies listed these advantages of using extended services and they are aware of these visible advantages for themselves, they mentioned several disadvantages of using extended services. Especially, case companies, who use their own workshops and limited number of service agreements (for couple of trucks or none), mentioned these disadvantages. As it is observed during the interviews regarding responses, Company A mentioned that they did not get any positive feedback so far and as it is now, they did not notice any performance improvements regarding uptime and safety issues. If the companies are using their workshops mainly but they also have limited number of extended service agreements, the planned service and repairs might sometimes coincide. For instance, if oil exchange is needed before planned service, they make changes in their own workshop but at the same time, service agreement also covers this type of maintenance and the company already paid for them in advance. This means that they are doubling price and it becomes a drawback of having extended services. When it is thought of that the business is highly price sensitive, this condition turns into a disadvantage for the companies.

Case companies have different needs and expectations regarding repairs & maintenance, traffic information systems, driver training, insurance, finance, and road assistance. There are different types of extended service agreements such as green card, gold contract, silver contract etcetera. Vehicle manufacturers’ extended services have different scopes and provide the customers with the opportunity to include what they need in their agreements (Scania, 2012; Volvo, 2012). It can be seen though that there is a gap between services offered and services needed by the case companies. It is mentioned a couple of times that these agreements cannot offer extensive coverage and cannot meet all expectations of the companies from a service agreement. For instance, Company E mentioned that manufacturers cannot provide full insurance according to their needs. In addition, Company D pointed out that the traffic information systems provided by manufacturers do not offer necessary functions that the company needs to have. Since the extended services do not meet mentioned requirements of the companies, using and buying these extended services turn into a disadvantage for these case companies.
Lastly, as it is seen, cost is the main determinant in order to decide if a company chooses to use any extended services. Using a local or own workshop was stated by all the case companies to be a cheaper solution. However, Company C mentioned that there is a risk of hidden costs, that not all the work that actually is done and the alternative costs are calculated in the total cost. Company B and E, who are doing smaller maintenance themselves, mentioned that it was cheaper to use their own workshop for these things, but if they would take care of all the repair and maintenance in their own workshop, large investments would be required. Thus, for them, using authorized workshops was in their current situation more advantageous. In addition to the cost, it also calls for a lot of responsibility. Since, managing a workshop is not companies’ main focus; it means extra workload for them. Another drawback mentioned by Company D was the risk of losing guarantees if trying to fix breakdowns that own workshop does not have the knowledge or experience to do.

5.3 Value

5.3.1 Valuable aspects for case companies and their customers

Many changes that have taken place on the market have changed the requirements on transportation companies, and demand from customers has altered. Dimensions with relative importance when customers will choose what provider to use are reliability, frequency/regularity, speed, price, environment, handling (Lumsden, 2006), transit time, capability, safety, and accessibility (Langely et al, 2008) where flexibility and time precision has been most highly prioritized (Lumsden, 2006). During the interviews, several aspects of what case companies consider as being valuable for them and their customers were brought up. As Lumsden (2006) pointed out, to be on time was also according to the case companies one of the most important aspects. The ability to deliver on time was considered as crucial. Company D explicitly expressed that a consequence of delays could result in losing customers.

The importance of delivering goods in the same way as when picked up was mentioned as important by Company A and C, that the rates of damages were kept low. Being flexible, as Lumsden (2006) listed as one of the most important dimension, was also a valuable and important aspect mentioned by case companies, and that the providers in combination with this could solve problems quickly and see the opportunities, not problems, when receiving requests from customers, hence that customer wishes is always prioritised. Furthermore does this correspond with Wagner’s (1987) statement about the importance of transportation companies being responsive to their customers demand, and that their requirements have to be fulfilled.

In order to be competitive it is important that transportation companies can offer delivery service and have good transport quality (Lumsden, 2006) and customer service/quality was also an aspect that Company B and C pointed out as important and valuable. Apart from being on time and having low level of damages, Company B included availability of for instance staff, and reasonable prices, and Company C traceability (possibility to provide information of goods location), as factors constituting quality. Some of these aspects (time, low damages, and traceability) corresponds with what Lumsden (2006) includes in his explanation of delivery service and transport quality in terms of dependability (deliver when promised), reliability (right product, right quality, in right quantity, and ability to keep time promised), time, goods comfort and transport safety (protection against damages, theft and decrement), and abilities to control (track and trace).
Also other valuable aspects listed by case companies, but not explicitly expressed by them as belonging to service quality, does also correspond with Lumsden’s explanation of delivery service and transport quality, where he apart from dependability, reliability, time, goods comfort and transport safety, and abilities to control include; flexibility, frequency, and lead time. Examples of aspects listed by case companies that corresponds with Lumsden’s (2006) definition of flexibility (that transportation companies have the ability to adjust to customer wishes and amount of products delivered) are; flexibility, customer wishes, ability to solve problems quickly, and that transportation companies has access to right equipment so that customer requirements can be met.

Ability to offer reasonable prices and keeping low rates of damaged goods was included in service quality, and together with valuable aspects such as availability of right equipment, and having an image of being environmental friendly, the case companies had listed several aspects that corresponds with Lumsden’s (2006) examples of different dimensions that has relative importance for customers when choosing a transportation company (price, safety, capability, handling, and environment). Knowledgeable and skilful staff that enabled smooth transportation from booking to delivery, and their behaviour (good ambassadors, nice behaviour, and decent communicators) was also brought up by Company C and A as aspects which was valuable for both them and their customers.

5.3.2 Valuable aspects and advantages of using extended services

As a result of for instance manufacturers changed production focus, customers demand for responsiveness, flexibility, and high quality; great requirements have evolved on transportation companies to have efficient and effective operations, and to perform reliably and fast (Lumsden, 2006; Morash& Clinton, 1997). To always improve this is according to Lumsden (2006) an important factor if logistic service providers shall gain a competitive advantage. Thus, increased performance is important for logistic service providers in order to create value for its customers through for instance time- (goods being delivered when desired) and place utility (goods being delivered to place desired) (Langley et al, 2008). The possibility is then that extended services, provided by for instance Scania, can help transportation companies to facilitate this as the goal with their extended services is to help transportation companies to achieve a competitive advantage and assist transporters to achieve increased efficiency, up-time, service quality, and decrease their environmental impact. Diffusing extended business models that focus on offering extended services can however be hard as it initially implies increased costs compared to simpler alternatives, and this phenomenon has been seen during the interviews where case companies several times mentioned price and cost as one of the basic determining factors when deciding on whether to buy or not to buy extended services. Several advantages and hence valuable aspects according to companies currently using extended services was however mentioned, which can illustrate some of the value and advantages that extended services can provide for transportation companies.
Costs and low margins have many times been pointed out as important for and what characterize the transportation business, and also in the advantages listed by case companies with using extended services, the financial point was brought up. Better insight into the costs and ease of calculating is examples of advantages listed by Company A and E when having maintenance and repair contracts where the transportation companies can pay monthly. As a result of these monthly payments, Company E brought up the fact that it reduces the risk of instant large costs, as they then do not have to bear the full cost of for instance a breakdown at point of occurrence. Those costs have then instead been spread out over several months. Good amortization plans offered by manufacturers on how to pay for purchased vehicles mentioned by Company E, and the fact that transporters will get money back if total payments during contract period exceeds the cost for maintenance and repairs brought up by Company A and E, was also financial benefits listed.

To get invitations when time for service was another advantage, as was the increased customer service levels that extended services could help to achieve. Company B meant that this increased customer service could be gained through regular repair and maintenance services which could keep the vehicles in good shape and thus help to sustain their performances for longer time. As known is delivery service and transport quality important aspects for logistic service providers so that they can be competitive (Lumsden, 2006) and vehicles in good shape are also more likely to help transporters to respond to customer demand and help them fulfil customers’ requirements which Wagner (1987) says is important to be competitive. Becoming competitive is also what vehicle manufacturers aim their customers to become through extended services and through better service quality (Hertz et al, 2012).

Manufacturers also aim for customers to rely on that they can get the best service wherever in the world they might be (Scania, 2012; Volvo, 2012). Company E, who operated internationally, mentioned that when being far away, having an agreement with extended services was highly valuable in this aspect as it provided an assurance of access to a trustful workshop with good and reliable service.

Efficiency is the focus of carriers (Cui & Hertz, 2011) and it is important for transportation companies (Lumsden, 2006; Rodrigues et al, 2008), and it is also one of the benefits that extended services are aiming for through for instance increased up-time for vehicles (Hertz et al, 2012; Scania, 2012; Volvo, 2012). Increased up-time can be a result of what Company C listed as another advantages with extended services, namely that vehicle manufacturers has a strong 24/7 road assistance that can provide the best service as they have the best availability of spare parts, and the knowledge and competence to fix the problems, which quickly can get the vehicle up and running again. As a result, the transporter does not have to suffer from decreased delivery quality or costly penalties for being delayed. The up-time can also be increased in relation to the advantage mentioned by Company E, that an agreement on extended service will make you as a customer prioritized in the workshop, and thus provide quick service as the vehicle manufacturer otherwise have committed themselves to pay a penalty fee if taking too long.

In some cases, too little time had passed in order for the companies to make an evaluation of the extended services. Company A mentioned however that the expectation of using extended services is that it in the end will lead to better economy. In addition do they hope it will be possible to just hand in the vehicle and that all necessities are taken care of so the vehicle works properly when they pick it up. Furthermore, do Company A hope that issues are found and dealt with at an early stage so breakdowns and standstills can be avoided.
This is what case companies consider as being valuable with extended services and according to Ravald and Grönbroos (1996), it is for customers (transporters) important when deciding to make a purchase that the product or service will provide more gain than what the customer had to sacrifice (i.e. loss of performance for buying this product or service). By mentioning advantages with the extended services, the solution can, when considering the importance provided by Ravald and Grönbroos (1996) when making a purchase, be seen as valuable for the case companies. In those cases when case companies listed disadvantages with acquiring services or advantages of not using extended services, case companies appear to have made the evaluation that they would sacrifice more than what they would gain through extended services. If making this conclusion, it also means that the case companies decided that an acceptance of using extended services could not assure that they would receive desired value as Edvardsson et al. (2011) states is part of the process where transportation companies together with its vehicle manufacturer collaboratively is creating value.

The case companies did not only bring up advantages with using extended services, they did also talk about some advantages which the use of authorized workshops have compared to the use of own or local workshops. Advantages mentioned was that authorized workshops provide good service as there are many workshops available that all have experienced and knowledgeable mechanics. Company C pointed out that this service could reduce the issues and hence risk associated with for instance breakdowns. Today’s vehicles equipped and built with electronics has also decreased the possibilities to fix breakdowns related to that type of functions, hence Company B and D mentioned that authorized workshops are needed under these circumstances as they are more able to deal with these things. Authorized workshops access to the latest system updates was mentioned by Company D and B as another reason of using this type of workshops.

Advantages listed by case companies can reveal that extended services can help transportation companies to decrease some risks that are related to the goods, - information, and financial network which Phol et al. (2011) states can have negatively effect on how well companies can accomplish end-user advantage, time, cost, and quality. The decreased risks that can be found from the empirical material is that extended services can help transportation companies to decrease the risk of having a breakdown as the company are more eager to get the vehicle to the workshop to conduct maintenance according to Company A. The risk of delays and penalty fees are other examples of decreased risks that extended services can help transportation companies with as they according to Company C are able to offer a strong 24/7 service through availability of spare parts and competence and knowledge to help the company to get the vehicle up and running quickly. Thus, it is understood that the company can offer better service quality to their customers and hence increase the value for their customers as the transportation company can fulfil time- and place utility (Langley et al, 2008). As mentioned by Company E, extended services will provide reliable service when being far away and hence it reduces the risk that the company will be fooled by workshops to do more than needed. This advantage will not lead to unnecessary costs for companies as they only pay for what needs to be done. Thus, a conclusion that can be drawn from this is that it most likely will not affect the transportation rates for the customer as no unnecessary costs needs to be included in the rates. Company E also mentioned that the monthly payments offered with extended services can decrease the risk of compounded cost as a consequence of a breakdown because the cost for this has been spread out over several months.
5.3.3 Valuable aspects and advantages of not using extended services

Better insight, ease of calculating, reduced risk of instant large costs, good amortization plans, and money back were some financial advantages mentioned by case companies’ with using extended services. Financial advantages were also mentioned by case companies in the context of not using any extended services. Being a cheaper alternative, was one of the most mentioned reasons, an understandable factor as the transportation business according to both the case companies and Rodrigues et al. (2008) is characterized with having low margins and constantly are under the pressure of lowering the cost for their services. It is also understandable that price is an important aspect for transportation companies as their customers are choosing what providers to use based on price (Lumsden, 2006) and if those providers’ service can provide more value than what they have to sacrifice in terms of for instance purchase price (Ravald & Grönroos, 1996).

Cheaper was related to the fact that the case companies could get cheaper maintenance and repairs through their own or local workshops. Furthermore did the case companies argue that the cost for training their drivers was lower with the use of other external provider and their own solutions, such as certifying own drivers who then taught the other drivers at the company. Better deals with lower rates through own banks and better deals with insurance companies was mentioned by all companies not using these services as advantages with solving these issues without the help of vehicle manufacturers extended services. Furthermore Company C mentioned their cooperation with their own insurance provider of lowering the company’s damage rate and hence lower their insurance premium, as another advantage. Decreasing breakdowns can be seen as a great way of increasing the up-time of the vehicle, and defective vehicles can according to Rodrigues et al. (2008) result in transport uncertainties and cause the risk of delays which is a situation not desirable by the case companies. The last reason related to the financial aspect is that Company C through own solutions do not have to cover up the workshops risk of having to do more than what has been paid for through an agreement for maintenance and repairs. Company C meant that if having an agreement with maintenance and repairs, which you pay, monthly for, the cost each month includes a fee, which is intended to cover, the workshops risk, thus the total cost will be higher.

When talking about driver training, case companies also brought up the flexibility that own solutions or other companies providing driver training could provide. In the same way as transporters’ customers are choosing their provider based on flexibility (Lumsden, 2006), flexibility do also appear to be one of the determining reasons when transportation companies will choose what to use and how. If using for instance drivers training through TYA, drivers can move around and always and easily find a driver school where the driver can continue its education. Company A pointed out that this was not as easy when using the training provided by the vehicle manufacturers. If being able to certify own drivers through TYA who then can teach others at the company, Company C and E pointed out an even better flexibility as they then were able to chose when, where, and how to pursue the training. According to Company E, this decreased the need for other drivers that has to cover up for those participating in the training. Flexibility was also mentioned in terms of possibilities to share information, to reschedule, to access, and possibilities when suffering from for instance a breakdown. Company C had the possibility to share its planning of maintenance and repairs with their local workshop, and taking care of the planning themselves provided the company with an increased flexibility to shift, change and cancel what vehicles to send to the workshop. Longer opening hours at own workshop was mentioned by Company D as an advantage, as it provided the company with an increased access to a workshop. That the own workshop had spare parts in stock also increased the up-time of the vehicle since no time was needed to wait for spare parts to be ordered.
When suffering from for instance a breakdown or other problems, the direct contact that Company D have with its own workshop was also mentioned as an advantage as it was possible to just stop by whenever they needed via informing the workshop in advance. Responding to customer demand and their requirements has been brought up as important for logistic service providers to be competitive (Wagner, 1997), and in order to be as flexible as possible and fulfil customer demands and requirements, it is also understandable that logistic service providers value flexibility to change and plan their needs as described above.

If using vehicles with special equipment such as trucks with tumbles, different and specialized maintenance is needed. Company D, who uses these types of vehicles, stated that authorized workshops do not have the experience to maintain this type of equipment and thus it is more advantageous with other local workshops. If few drivers are using a vehicle, they are according to Company E more cautious and take better care of the vehicle than if more drivers would use it, as a result of this are the wear and tear not as severe and the need for maintenance and repair are lower. Thus, the case company stated that extended services are not beneficial in these cases.

Control over the vehicle was mentioned by Company A, E and C as one of the main advantages of not using extended services provided by vehicle manufacturers and with using an own planning system. They listed that more eyes on the planning, more knowledge about the vehicle in form of information of what is wrong, where the vehicle are, what has been done, what needs to be done and when, are the main advantages of using its own planning system and no agreements.

In table 5:1 are the increased/decreased value and risks found summarized to provide a clear vision over the results related to the research questions used in this study. The ambition with extended services is to assist transportation companies to achieve increased efficiency, up-time, and service quality (Hertz et al, 2012; Scania, 2012; Volvo, 2012). From the increased value and decreased risks that transportation companies listed, it can be found that the extended services can assist the transportation companies to achieve better performance regarding these factors. Thus, it is possible that the extended services can help transportation companies to achieve a competitive advantage.

Table 5:1 Findings related to increased/decreased value and risks with using/not using extended services

<table>
<thead>
<tr>
<th>Increased value</th>
<th>USING EXTENDED SERVICES</th>
<th>NOT USING EXTENDED SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial advantage</td>
<td>• Financial advantage</td>
<td>• Financial advantage</td>
</tr>
<tr>
<td>Increased customer service levels</td>
<td>• Possibility to cooperate</td>
<td>• Possibility to cooperate</td>
</tr>
<tr>
<td>Assurance of best service</td>
<td>• Flexibility</td>
<td>• Flexibility</td>
</tr>
<tr>
<td>Increased up-time</td>
<td>• Increased up-time</td>
<td>• Increased up-time</td>
</tr>
<tr>
<td></td>
<td>• Access to knowledgeable workshops on specialized equipment</td>
<td>• Access to knowledgeable workshops on specialized equipment</td>
</tr>
<tr>
<td></td>
<td>• Control</td>
<td>• Control</td>
</tr>
</tbody>
</table>

| Decreased value | - | - |
| Increased risks | - | • Hidden costs |
| | | • Loosing guaranties |

| Decreased risks | • Financial risk | • No control over vehicle |
| | • Risk of being fooled | |
| | • Likelihood of breakdowns | |
| | • Delays | |
6 Conclusion

All case companies, as individual companies, are characterized as carriers. There are however several differences between them both in terms of size (number of employees and vehicles used) and if they are operating only domestically or also internationally. Furthermore are there some differences in how they have chosen to resolve the issues regarding drivers training, transportation information systems used, the maintenance and repairs, insurance, and financing of vehicles. Several determining factors was found and these were; financial aspects, location of workshop, flexibility, size of transporter (e.g. number of employees and vehicles), control, compatibility of transportation information systems, cooperation, service quality, limited capabilities and offers, reliability, special equipment, easiness of communication, and operational areas. Also to what extent companies have chosen to acquire extended services from their vehicle manufacturers differ.

6.1 RQ1 – value and risks in case companies operations

Lumsden (2006) has expressed the importance that transport companies can offer their customers delivery service and transport quality. Several of those aspects which he have listed corresponds with the aspects listed by case companies in the form of dependability (deliver on time), reliability and goods comfort and transport safety (low rates of damages), reliability and time (deliver on time), abilities to control (traceability), and flexibility (fulfilling customer wishes, ability to solve problems quickly, and having right equipment). As a result it can be said that case companies generally are pinpointing the importance of what Lumsden (2006) calls delivery service and transport quality. Apart from low rates of damaged goods and availability of right equipment, valuable aspects such as ability to offer reasonable prices and having an image of being environmental friendly corresponds with the dimensions which has relative importance for a customer when choosing a transport provider (price, safety, capability, handling, and environment) (Lumsden, 2006). Being on time and flexibility is the most important (Lumsden, 2006) and being on time was also pointed out by case companies as the most valuable and important aspect for them and their customers. Flexibility was also mentioned by case companies and that they need to solve problems quickly and prioritize customer wishes, which align with the importance of transportation companies to respond to customers demand and too meet their requirements (Wagner, 1987).

Pfohl (2011) pointed out existence of risk factors, which appears as interruptions and barriers to company’s information and financial flows, and objective accomplishments of organization. The case companies highlighted also several risk factors from their business perspective such as loosing customers, congestion, damages, delays, demand fluctuations, not achieving desired profitability level, breakdowns, accidents, thefts, and competition created by foreign drivers. As mentioned by Pfohl (2011), these risk factors affect companies regarding end-user advantage, cost, time and quality. For instance, late delivery is an important issue, which cannot be counted as end-user advantage.

6.2 RQ 2 – Value and risks with vehicle manufacturers extended services

Valuable aspects and advantages of using extended services provided by vehicle manufacturers that was found which related to financial advantages (better insight, ease of calculating, reduced risk of instant large costs, good amortization plans, and money back), increased customer service levels (as a result of vehicles in good shape that can last longer), assurance that best service will be provided (when being far away and when using road assistance), and increased up-time (as a result of strong road assistance and from being priori-
tized in the workshop). Apart from experienced increased value, case companies with little experience brought up some expectations related to the use of extended services provided by vehicle manufacturers. These expectations were related to financial advantages in terms of better economy and to increased up-time as a result of problems being found and dealt with at an early stage.

Several advantages of using extended services have been found and included in these are the risks that these services can help transportation companies to reduce. These can be related to the goods/physical- and financial risk categories that affects a supply chain and the companies involved in this (Pfohl et al, 2011; Cavinato, 2004; Waters, 2011). Examples of reduced risks are the risk of being fooled by workshops far away where the company do not have any possibility to control the situation, likelihood of a breakdown, delays, and financial risks in form of penalty fees and compounded costs.

Disadvantages of using extended services is found to be decreased availability and up-time as a result of workshops location, compatibility issues with other transportation information systems, and that maintenance and repair can coincide if the company are using a agreement where repairs are not included. Finally were disadvantages found the insurance offers limitations, and transportation information systems that could not fulfill the company’s needs. Services can vary from time to time, thus it can undermine the certainty that it will meet the customer expectations (Mitchell, 1994), however, no increased risks as a result of this or any other examples was mentioned by the case companies currently using extended services.

6.3 RQ 3 – Value and risks of not using extended services

In contrast to valuable aspect of using extended services provided by vehicle manufacturers, case companies listed advantages of not using these services. These advantages are also related to (1) financial aspects (cheaper maintenance and repairs through own or local workshop and when there are no need to cover up for workshops risk. Cheaper with own or other solutions regarding driver training, better deals and lower rates through own bank and insurance provider). Furthermore are advantages related to (2) possibilities to cooperate (cooperation with insurance company to lower damages and information sharing with workshop), (3) flexibility (possible to move around, to chose when, where, and how to pursue the training, to reschedule, and to access workshop), (4) increased up-time (no need to wait for spare parts), and (5) access to workshop with knowledge and experience of specialized equipment. Lastly are (6) control listed as the most advantages and valuable aspect of not using extended services (more eyes on the planning, more knowledge about the vehicle in form of information of what is wrong, where the vehicle are, what has been done, what needs to be done and when). Thus, not using extended services can decrease the risk of losing the control over the vehicles.

Disadvantages of not using extended services were that it called for increased responsibility and workload for the company. Furthermore was it found that the limited knowledge of mechanics at own or local workshops could increase the risk of costly mistakes, leading to lost guaranties. Limited access to latest system updates was also found to be a disadvantage of using own or local workshops. Not using extended services could also increase the risk of hidden costs.
7 Future research and critique of method

This study focused on road freight transportation companies in only Jönköping region. It can be suggested that scope of study might be extended through companies in different regions in Sweden or in another countries. A similar study with more cases would be interesting in order to make another detailed investigation for establishing a pattern, which shows effect of extended services on the other companies’ risk and value experiences. Working with different type of logistics service providers would be also beneficial to create a generalization of what specific type of companies that buy extended services and estimate to what extent they prefer using extended services.

Furthermore, apart from risk factors, which were mentioned in frame of reference, there is one more risk factor, which is mentioned by all case companies. The case companies considered foreign drivers as a risk factor since they created a competitive atmosphere in the market by lowering market prices. For further studies, it can be an interesting issue to do an investigation regarding what extent of these foreign drivers has influence in Swedish road freight transportation market

Criticism of this study can be directed to design of the empirical study. Case companies only consist of buyers of extended services. However, there are other parties such as manufacturers, who offer extended services, and dealers, who play intermediary role sometimes between buyers and manufacturers. For further research, these parties might be included in order to be able to add different perspectives to the study and it leads researchers to see and to evaluate how risk and value are experienced on different side of different parties regarding offering, buying and using extended services.
List of references


Appendix 1

In appendix 1 is information of some of the services which Volvo and Scania offers.

VOLVO

1. Financing
   a. Volvo truck loan
      Volvo truck loan is a loan available for customers that will invest in a new Volvo truck and together with the loan follows a security insurance which will protect the customers in case of an accident.
   b. Volvo financial lease
      This financing option means that a company can rent a vehicle from Volvo, but uses it as if they owned it themselves. In the end of the agreement, the customer has the responsibility of selling the vehicle and will also receive some of the profit from this.
   c. Volvo truck lease
      Volvo truck lease provides customers with the possibility of fully hiring a vehicle from Volvo, but uses it as if they owned it themselves. A truck lease includes service and repair, contractual mileage, funding and residual value risk.

2. Insurance
   Volvo offers complete insurance solutions for both vehicle and business, which can be tailored according to customers’ needs.

3. Dyna fleet
   Dyna fleet is a web-based transportation-information system, which consists of four different building blocks which can be combined according to the customers’ needs. The building blocks are (1) fuel and environment, which provides detailed reports of for instance fuel consumption (2) positioning, which provides information of for instance exact position of the vehicle and its speed (3) driver times, provides information about the drivers, if they are working, resting or waiting, (4) messaging, possibility to send messages to the drivers.

4. Drivers training
   Volvo offers drivers training and the education fulfils the requirements that EU has established for professional drivers (YKB). The training incorporates effective driving, safe driving, transportation business and legislation, health and first aid, and finally safe transports.

5. Volvo service agreements
   a. Volvo original service
      Individual service plans are created for every truck and includes preventive maintenance, Volvo action service (includes road assistance, financial help for drivers if they have unforeseen expenses, help with renting a vehicle if repairs cannot be done on time, legal help for drivers if problems with authorities, etc.), and Volvo availability insurance (compensation for standstills).
   b. Volvo service agreements
      i. Volvo gold contract
         This agreement covers and includes all preventive maintenance and repairs. It also includes availability insurance.
Appendix

ii. Volvo silver contract
Volvo silver contracts include preventive maintenance and repairs of the driveline.

iii. Volvo blue contract
This agreement includes all preventive maintenance.

Source:


SCANIA

1. Financial services
Scania together with their dealers offers customers financing solutions when buying a new vehicle. Financing can be done either through down-payment or leasing. Leasing is divided between financial leasing (the customer buys the vehicle after ended leasing period) and operational leasing (the vehicle is returned to Scania after ended leasing period).

2. Insurance
Scania offers insurance solutions for vehicles and for ScaniaFinans customers.

3. Fleet management
A so called Scania communicator is installed in all Scania vehicles, and the scania fleet management provides information of for instance exact location, fuel consumption, and potential problems.

4. Drivers training
Scania offers drivers training and the education fulfils the requirements that EU has established for professional drivers (YKB).

5. Workshop services
a. Scania agreements
i. Supervision agreements
A supervision agreement includes a preventive maintenance plan for the customers Scania vehicles. The customer can chose to pay either per month or through a onetime payment in advance. For more information about the agreement see figure 1.

ii. Driveline agreement
A driveline agreement can be added to a supervision agreement and includes repairs of the vehicles driveline.

iii. Green card agreement
This agreement is a comprehensive supervisory- and repair contract for trucks and it includes all costs for Scania assistance (on-call, emergency and tow operations). Furthermore will the customer receive compensa-
Appendix

tion if the vehicle is standing still for more than 24 hours due to stand-still.
iv. Classic agreement
This agreement is created for older vehicles and includes the basic maintenance such as lubrication of chassis, and exchange of oil.
b. Scania assistance
Scania assistance is offered to all Scania customers and some examples of what this service can help with are; repairs on site when affected by breakdowns along the way, to contact help for salvaging and assistance for starting aids, accommodation and transportation in combination with repairs.

Source:
Appendix 2

The following questions were used as a guide throughout the interviews held with the case companies.

**COMPANY**

1. Describe your company and your business in brief?
   a. Organizational information (e.g. type of ownership, number of employees, number of representatives/facilities etc.)
   b. Changes (e.g. partnerships, acquisitions etc.)
   c. Problems and challenges which your company/business faces (e.g. competition in the market, increasing environmental concerns, rules and regulations)
   d. Financial status (e.g. turnover and growth rate)

2. What is your job position?
   a. Responsibilities, background etc.

**EXTENDED SERVICES**

3. To what extent are you using vehicle manufacturers’ services such as maintenance, planned inspection, repairs, drivers training, road assistance, insurance etc?
   a. What are the opportunities and problems of using services?

4. If you are not using any services today provided by your vehicle manufacturer, what are the reasons for this?
   b. What aspects would get you to consider the possibility of buying extended services from e.g. Scania or Volvo in the future?

**VALUE**

5. What aspects are important to you in your operations?
   a. What does your customers appreciate / value with you as a supplier

Companies using services

6. With the service packages that you have, what were you’re expectations before purchase regarding the possible value (e.g. operational efficiency, higher uptime, on-time delivery, less damage, safety, environmental concerns etc.) that it could create?

7. What are your experiences of vehicle manufacturers services related to for instance operational efficiency, higher uptime, on-time delivery, less damage, safety, environmental concerns?
   a. Problems, opportunities, recent changes

Companies not using services

8. What are your experiences when it comes to taking care of for instance the maintenance of trucks yourself; what do you consider being advantageous with this solution?
   a. Problems and opportunities
### Appendix

**RISK**

9. What is problematic and riskful in a long term and a short-term perspective regarding your type of business?

**Companies using services**

10. In what way did you expect and experience vehicle manufacturers services as fitting with your situation?
   a. Anticipated risks that could be mitigated
   b. Experiences of other decreased risks which were not anticipated

11. Have you experienced any pros and cons with buying/using this type of solution (buying services)?

**Companies not using services**

12. What are the pros and cons when it comes to taking care of for instance the maintenance, driving training, insurance etc. of trucks yourself?
   a. Experiences related to risks that this solution might trigger/increase