Barriers to Sustainable UCC-Cooperation and Coopetition in Municipality Goods Distribution in Swedish Mid-Sized Cities

A Cross-Case Analysis

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Abstract

**Purpose:** The purpose of this thesis is to investigate the barriers for and their impact on *cooperation* and *coopetition* for sustainable distribution of Municipality goods in three selected cities.

**Design/Methodology/Approach:** This thesis is based on a qualitative approach using a *multiple case study* as data collection strategy. The population building up three cases consists of ten Swedish mid-sized cities with an urban consolidation center. Of these are the three cities Växjö, Kalmar and Borlänge sampled and both the *municipality* and two locally active *freight forwarders* (one RFP-winner and one non-RFP-winner) per city are interviewed. These interviews aimed at identifying barriers to cooperation between municipalities and freight forwarders and barriers to coopetition between private freight forwarders for a sustainable distribution of municipality goods. The secondary data is based upon three literature streams: *Sustainability, Distribution in Urban Environments* and, *Cooperation and Coopetition*.

**Findings:** The results indicate that the main barriers to cooperation from a freight forwarder perspective are *incorrect or missing data in the RFP, price for municipality goods distribution* and *prohibition of goods consolidation*. The main barrier to cooperation, *fossil fuel free trucks*, is a potential future barrier. The main barriers to coopetition are *higher costs, lack of trust* and *price*. These barriers have mainly an impact on the economical sustainability but can, and in some cases, will have effects on the other TBL-aspects.

**Research Limitations/Implications:** The findings of this thesis provide the municipality with knowledge about barriers from the perspective of the freight forwarders which can aid construction of future RFPs. It also provides both municipality and freight forwarders with knowledge of the potential future barriers which could affect ongoing cooperation. Lastly it provides involved actors with knowledge of barriers hindering a coopetition approach in distribution, enabling the next step of solving the barriers. The value of this thesis is the knowledge of the implications as well as the combination of the three chosen literature streams which have not been researched in this context previously.

**Key words:** Cooperation, Coopetition, Distribution, Last Mile Problem, Sustainability, Triple Bottom Line, Urban Consolidation Center, Urban Freight
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Växjö, May 2017

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Philip Einhaus        Benedikt Fuchs
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### Definitions

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<thead>
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<th>Term</th>
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<tbody>
<tr>
<td>City Logistics</td>
<td>“City logistics studies the problems relating to freight movement, such as congestion, time-window regulations, etc.” (Stathopoulos, et al., 2012, p. 34).</td>
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<tr>
<td>Competition</td>
<td>“The direct rivalry that develops between firms due to the dependency that structural conditions within the industry give rise to” (Simoni &amp; Caiazza, 2012, p. 321)</td>
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<tr>
<td>Cooperation</td>
<td>Cooperation strives for joint value creating and sharing benefits (Raza-Ullah, et al., 2014).</td>
</tr>
<tr>
<td>Coopetition</td>
<td>Cooperation of companies that are competing on the same market (Simoni &amp; Caiazza, 2012)</td>
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| Sustainability| “It [sustainability] contains within it two key concepts: the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs [...]” (World Commission on Environment and Development, 1987, p. 54).

The three fundamental aspects of sustainability are “(1) economic growth, (2) social equity for meeting the needs of today’s generation; and (3) environmental protection for the ability to meet today’s and future generation’s needs” (Behrends, et al., 2008).

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<tr>
<td>Triple Bottom Line</td>
<td>The Triple Bottom Line acts as a measure and attempts to balance the three aspects of sustainability (Elkington, 1997).</td>
</tr>
<tr>
<td>Urban Consolidation Center</td>
<td>A “logistics facility that is situated in relatively close proximity to the geographic area that it serves [...] from which consolidated deliveries are carried out within that area” (Browne, et al., 2005).</td>
</tr>
<tr>
<td>Urban Freight</td>
<td>Urban Freight refers to the distribution in urban areas and the distribution within urban areas.</td>
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# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>GiD</td>
<td>Godsservice i Dalarna AB</td>
</tr>
<tr>
<td>Horeca</td>
<td>Hotel, Restaurant, Café</td>
</tr>
<tr>
<td>HVO</td>
<td>Hydrogenated Vegetable Oils</td>
</tr>
<tr>
<td>ICT</td>
<td>Information &amp; Communication Technology</td>
</tr>
<tr>
<td>LMP</td>
<td>Last Mile Problem</td>
</tr>
<tr>
<td>LOU</td>
<td>Lag om Offentlig Upphandling (Swedish Law of Public Procurement)</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>RFP</td>
<td>Request for Proposals</td>
</tr>
<tr>
<td>RME</td>
<td>Rapeseed Methyl Ester (Biodiesel)</td>
</tr>
<tr>
<td>SEK</td>
<td>Swedish Crown</td>
</tr>
<tr>
<td>TBL</td>
<td>Triple Bottom Line</td>
</tr>
<tr>
<td>UCC</td>
<td>Urban Consolidation Center</td>
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<td>UF</td>
<td>Urban Freight</td>
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1 Introduction

This chapter provides the background of the research, including a practical example of cooperation and coopetition, followed by the problem discussion, and the purpose and the research questions of the study. Finally, the delimitations and the subsequent structure of the thesis are presented.

1.1 Background

CO₂-emissions are arguably one of the biggest challenges humanity faces during the start of the 21st century. This challenge and the impact of the freight of goods have certainly been recognized by the Swedish government which has introduced different kinds of visionary goals regarding the CO₂-emissions and general energy consumption. The goal of the Swedish government is to have no net greenhouse gas emissions by 2050, of which the transport sector is highly affected (Miljödepartementet, 2014).

One of the major parts in the reduction of emissions is the improvement of freight transports in urban areas. In 2013 goods freight transport caused approximately 5.7 million tons of carbon dioxide emissions. One third of all emissions in Sweden are caused by the transport sector (Trafikanalys, 2015). Moreover, 40% of the pollution within cities is caused by goods freight while only being responsible for 10–15% of the total kilometers driven in the urban area (Lindholm, 2012). This challenge is then further trickled down to the municipalities, such as for example Kalmar (Kalmar Kommun, 2007), which have their visionary goals, often called “Vision 2020” or “Vision 2030” (WSP Sverige AB, 2016). Many municipalities, among them Växjö, Kalmar and Borlänge, have recognized the challenges of urban freight distribution and have thus implemented solutions, such as urban consolidation centers (UCC) to improve the distribution of municipality goods such as food for schools and elderly homes or of other products municipality units need. Most of these solutions as indicated by Sveriges Kommuner och Landsting (2013) and Sven-Gunnar Andersson Konsult AB (2016) are not driven by the municipality and which is why the solution is dependent on
cooperation with freight forwarders from the private sector (see Appendix 1: Swedish Mid-Sized Cities with UCCs).

Through the establishment of a UCC, inner-city traffic will be reduced and the achievement of the city logistics goals comes closer. Preliminary inquiries made to ten Swedish municipalities which operate UCCs confirm their support of the UCC.

To find efficient solutions to the distribution of municipality goods grows increasingly urgent, especially in Swedish cities, as consumption and therefore the need for transportation of goods increases within city boundaries. The reasons for this increase are found in the development of the population. According to the Statistiska Centralbyrån (2016), Sweden’s government agency for official statistics, the country’s population has increased by 83% between 1900 and 2010 (from 5.1 million to 9.4 million) and has experienced a significant trend of migration from rural areas to urban ones. In 2010 61% of Sweden’s population lived in cities larger than 10,000 inhabitants, compared to 20% in the beginning of the 20th century (Figure 1).

This increase in population should naturally lead to greater throughput in municipality owned units such as schools, retirement homes and offices which increases their resource consumption and need of transportation of resources. Besides the growth of population within cities itself, which is not unique to Sweden as it is estimated that 80% of Europe’s population will reside in urban areas by 2020 (Uhel, 2011), other factors have led to an increase in consumption (Schor, 2005) and thus to an increase in transportation (Post Nord, 2016).
The transportation and overall physical flows in urban areas are not a new recent topic as it is seen in section 14 and 15 of Law of Caesar on Municipalities from 44 B.C. (Savelsbergh & Van Woensel, 2016), which is found quoted in Appendix 2. This two century old problem has been tackled, amongst other measures, through the use of UCCs but could still be further improved (Lindholm, et al., 2014). To further improve the transportation of freight in urban areas authors such as Limoubpratum et al. (2015) propose coopetition as an approach. Coopetition implies that companies that compete on the same market simultaneously compete and cooperate to gain synergy effects such as improved vehicle utilization which can lead to decreased total distance driven and lower transportation costs (Bengtsson & Kock, 2000). Limoubpratum et al. (2015) summarize coopetition as a solution for sustainable distribution. Coopetition can take different forms such as a buyer-seller-relationship or even a more joint strategic approach such as the use of a common UCC. This and the benefits of coopetition are best exemplified using the SAMLIC project.

### 1.1.1 The SAMLIC-Project

In order to get a better understanding these broadly phrased concepts, the example of Linköping’s SAMLIC project can contribute to a better understanding of it. With around 140,000 inhabitants Linköping belongs to the largest cities in Sweden, making it prone to inner city congestion and pollution (UNSD Demographic Statistics, 2016). In 2000 three logistics service providers founded the cooperation SAMLIC (Coordinated Retail Distribution in Linköping City) with the goal of increasing the effectiveness of parcel distribution in the Swedish city (Björklund, 2012).

During a pilot trial in 2004, DHL, Posten, and DB Schenker divided up the city into three zones. Each company would be responsible for the parcel distribution in one zone, reducing the total amount of trips necessary for the distribution and ultimately the minimizing the costs for distribution and the traffic congestion of the city. In addition to the zoning of the city, the mutual usage of a consolidation and distribution center located at the outskirts of the city represents the second pillar of the project (Eriksson & Svensson, 2008). This center was necessary to consolidate the deliveries so that the companies could exchange deliveries between one another.

Apart from the three logistics service providers, the customers, primarily shop owners in the city center, and the municipality were involved in this project. Especially the shop
owners had a positive attitude to the idea of coordinated distribution (Eriksson & Svensson, 2008) as they were able to receive their goods through few deliveries. The goods reception process of the retailers was therefore shortened through SAMLIC. The municipality on the other hand was interested in reducing the amount of heavy vehicle traffic in the city, which the project achieved through the utilization of the forwarder’s UCC; both the amount of driven kilometers in the city center (-50%) and the total time spent in the city center (-24%) went down. This is also beneficial for DHL, DB Schenker, and Posten as this reduces their delivery costs and increases truck utilization (+50%) (Eriksson & Svensson, 2008).

There are, however, not only positive results of the project. Firstly, the matter of liability has not been resolved which becomes especially relevant when one forwarder loses or damages the delivery which is transported on the behalf of another forwarder (Björklund, 2012). Secondly, the distribution of costs, revenues, and profits can lead to conflicts as this issue has not been in focus of SAMLIC. Thirdly, lawsuits can threaten the coordinated distribution concept as the portioning of the city can be seen as a cartel which is a barrier for competition (Björklund, 2012).

Despite the fact that the advantages of the project outweigh the disadvantages, the project failed. The reason is not the performance of the project itself, but the corporate strategy of one of the freight forwarders. The SAMLIC-trucks used for distribution were not supposed to show the name and logo of the company executing the transport but the name of the project. This inclined one company to retreat from the project. Furthermore, a mutual IT system which is tailor-made for coordinated distribution was required for the idea to work. However, a suitable IT system was not available at the time.

That being said, what can be taken away from this project and what does this mean for the cooperation between freight forwarders and for urban distribution in general? On the one hand, the example points out the slim line between a successful and an unsuccessful cooperation of freight forwarders. Even if all the objectives are met, the project is possible to fail. On the other hand, the goal of urban distribution, to find a sustainable urban freight solution, that minimizes the negative effects of transports within cities and at the same time aligning the interest of the stakeholders (Lindholm, 2012; Witkowski & Kiba-Janiak, 2014), is a takeaway point of the SAMLIC-example. This exposes two key elements of urban freight distribution: stakeholders and sustainability.
1.2 Problem Discussion

A successful urban freight layout is a complex issue due to the vast amount of stakeholders involved and the individuality of each urban area (Tadic & Zecevic, 2016). Local, national, and EU authorities, individuals, such as residents and customers, and companies, for instance local stores, logistics service providers, and public transportation operators, all have special interests in urban freight, which in many cases are incongruent with one another (Russo & Comi, 2012). The complexity of the matter therefore consists of taking all stakeholders’ concerns into account when adjusting the urban freight system of a city.

In addition to that, not only the stakeholders, but the city characteristics play an important role in urban freight (Marcucci & Danielis, 2008; Muñuzuri, et al., 2012). The current infrastructure, freight and passenger flows, population size, and the organizational situation, amongst others, influence the approach towards urban freight (Russo & Comi, 2012; Muñuzuri, et al., 2012). This complexity is paired with a high relevance of urban freight for the environment (Kunze, et al., 2016) and the economy (Allen, et al., 2012).

Due to the high relevance since many years, extensive research on urban freight (Dablanc, 2007; Crainic, et al., 2004; Ambrosini & Routhier, 2004; Gatta & Marcucci, 2014) has been conducted. This includes thorough analyses of urban freight stakeholders (Kunze, et al., 2016), inner-city traffic congestion (Zhuoran, 2015; Erdenich & Huang, 2014), fleet management (Franceschetti, et al., 2017), freight distribution (Fossum, 2013), collaborative strategies in city logistics (Montoya-Torres, et al., 2016), urban consolidation centers (Roca-Riu & Estrada, 2011) and on other aspects relevant for this topic.

Especially the usage of UCCs and cooperative approaches can be considered a relevant solution for the increasing problems of urban areas, such as congestion, pollution, noise, and traffic accidents (Taniguchi, et al., 2003; Russo & Comi, 2010; Limouepratum, et al., 2015). Preliminary inquiries made to ten Swedish municipalities which operate or are planning on opening a UCC confirm that the municipalities try to improve the sustainability of goods freight. These ten cities (see Appendix 1: Swedish Mid-Sized Cities with UCCs) for preliminary inquiry were selected based on the existence of a UCC, indicated by Sven-Gunnar Andersson Konsult AB (2016) and the population size.
of the cities. The municipalities in question, however, disclosed that these UCCs still have potential for improvements when it comes to the cooperation between the municipality and the private freight forwarder handling and distributing the municipality’s goods to schools, retirement homes, etc.

Verlinde et al. (2012) states further that UCCs do not only benefit the local government, but also freight forwarders which makes cooperation necessary. The discrepancy in the theory can be found in the findings that the initiation of coordinated goods distribution through a UCC by a municipality entails benefits for the municipality (for example less pollution, less congestion, reduction of procurement costs, etc.) (Chwesiuka, et al., 2010). The reasons for freight forwarders to operate from a UCC in order to distribute municipality goods (economies of scale, ability to handle varying volumes etc.) (Verlinde, et al., 2012) are established, but not the tackling of barriers to cooperation between municipality and freight forwarders in a UCC.

While cooperation and UCC usage have been studied in large cities, both internationally (Ville, et al., 2013; Arvidsson & Browne, 2013) and in Sweden (Erdinch & Huang, 2014; Zhuoran, 2015), small and medium sized cities generally have not, with the exception of cities with their own universities such as Linköping (Eriksson & Svensson, 2008) and Gävle (Gelle & Karlsson, 2016). Given the relevance of UCC-cooperation for medium-sized cities, the term itself is ambiguous. No general classification for medium-sized cities exists since the size (both in area and in population) differs between countries and the absence of clear boundaries between small cities, medium-sized cities and large cities in Sweden.

The large extent of unresearched cooperation between Swedish municipalities and freight forwarders demands a deeper analysis of the reasons for this phenomenon. Especially projects in Swedish mid-sized cities lack previous research. After identifying the extent of cooperation in Swedish mid-sized cities, the details for the barriers for cooperation are to be analyzed. While the reasons for cooperation are well-established in the literature, the discrepancy between the known benefits of a UCC for all urban freight stakeholders and the actual cooperation status in Swedish mid-sized cities legitimizes this research.
In order to capture the points of view of both the municipalities and the freight forwarders on the subject of UCC-cooperation, and to provide an overview over cooperation barriers, the following research question will be answered:

**What are the most impactful barriers to sustainable distribution cooperation of municipality goods between municipalities and private freight forwarders in three selected Swedish mid-sized cities?**

As indicated in Chapter 1.1, urban freight is in need of improvements due to the large amount of CO₂-emissions as well as problems related to the physical flow. Great advances can however not be accomplished by single companies alone so that Limoubpratum, et al. (2015) propose a cooperative approach. This cooperation can both be vertical and horizontal from a supply chain perspective. An example of vertical cooperation is the cooperation between a supplier of goods and the supplier’s customer. Horizontal cooperation, on the other hand, refers to the cooperation between companies which are on the same level in the supply chain. If those companies compete with one another for the same customers and markets the cooperation is called coopetition, a portmanteau of cooperation and competition (Simoni & Caiazza, 2012; Barratt, 2004). This relationship, including vertical cooperation and competition, is shown in Figure 2.

![Figure 2: Competition and Horizontal and Vertical Cooperation (Based on Barratt, 2004)](image_url)

Benefits for companies when they pool their resources with their competitor(s) are increased productivity, more efficient usage of resources, reduction of wastes, benefits from economies of scale, and leaning improvements (Limoubpratum, et al., 2015). However, in order to obtain these benefits of coopetition, several obstacles must be
overcome (Verstrepen & Dullaert, 2009). Traditionally, there are several reasons why competitors do not cooperate, according to Bouncken et al. (2015). One example is their relation as competitors in which each participant tries to generate the biggest profits possible for themselves. Another is that the market depends on competition between the providers of goods and services in order to keep the prices low and to incentivize innovation (Bouncken, et al., 2015).

One opportunity for freight forwarders to cooperate is through long-term contracts with a municipality. The municipality has many goods receivers gathered under it responsibility, often schools, kindergartens, hospitals, retirement homes, and the municipality offices themselves, which need to be supplied with primarily fast-moving consumer goods, such as food, beverages, toiletries, and other consumables, but also working clothes, office supplies, and other goods which are in high and frequent demand of the municipality’s units. The municipality can be considered a customer which is reliable as municipalities usually do not default which is why there is little risk for forwarders to have a municipality as a customer. Further, inquiries show that the volumes which municipalities order are often both high and destined for destinations spread out all over the municipality area. These customer features are especially interesting for logistics companies operating in the highly competitive market with low profit margins and provide the opportunity to reap the benefits of coopetition.

A scan of scientific journals regarding the cooperation for municipality goods distribution using UCCs between freight forwarders reveals a lack of research in this area. Due to vast quantity of possible barriers to coopetition in the distribution of municipality goods it becomes important to establish the most important barriers which have the biggest effect on the establishment of a UCC-cooperation between forwarders.

Coopetition between several freight forwarders in UCCs with the goal of distributing the goods of the municipality is an unresearched topic in Swedish mid-sized cities. Research on coopetition in general does exist (Simoni & Caiazza, 2012), just like research on sustainability (Marshall & Toffel, 2005), on distribution from UCCs (Browne, et al., 2005), and on Swedish municipalities’ procurement process and forwarder selection (Konkurrensverket, 2017). The lack of research, however, can be identified when looking for the barriers which forwarders and municipalities experience
when two or more freight forwarders attempt to cooperate in one UCC in order to obtain
the benefits which a coordinated distribution of goods can entail.

On the basis of three Swedish mid-sized cities with a UCC and a focus on sustainability,
an overview over coopetition barriers is provided by answering the second research
question, which is:

**What are the most impactful barriers to sustainable distribution coopetition of
municipality goods between private freight forwarders in three selected Swedish
mid-sized cities?**

### 1.3 Purpose & Research Questions

In order to identify and evaluate the underlying barriers to cooperation between
Swedish mid-sized municipalities and private freight forwarders (“cooperation”) and
between private freight forwarders amongst each other (“coopetition”), this paper
analyzes three Swedish mid-sized municipalities with a consolidated goods distribution
approach through a UCC.

In accordance with this research purpose, the following research questions are being
answered.

- What are the most impactful barriers to sustainable distribution cooperation of
  municipality goods between municipalities and private freight forwarders in
  three selected Swedish mid-sized cities?
- What are the most impactful barriers to sustainable distribution coopetition of
  municipality goods between private freight forwarders in three selected Swedish
  mid-sized cities?

### 1.4 Delimitations

This paper is limited in three aspects namely the scope, the data gathering site, and the
typology of freight forwarder. Firstly, only cities with UCC-projects that combine the
goods flows of the public domain are to be considered.

The second delimitation concerns the areas or sites for data collection. To get sufficient
empirical data, the data will not be collected from cities that are deemed as too small for
any application or benefit from UCC-cooperation, UCC-coopetition, or their research.
Thus, smaller cities with a population of less than 10,000 in the city center will not be
researched. Further, large Swedish cities with more than 100,000 inhabitants in the city center are excluded as well due to the fact that extensive research has been conducted in these cities. In addition to that Swedish cities with their own universities which conducted UCC-cooperation or UCC-coopetition research in the past will be excluded to avoid a repetition of the research.

The third and final delimitation of this study concerns the freight forwarders. A main requirement of the selection of freight forwarders is the actual presence of a logistics service provider in a given mid-sized Swedish city. A company which does not deliver goods to any of the case cities is outside of the research’s scope as for each case the problems and obstacles of cooperation between the forwarders and the municipality are to be examined. If a freight forwarder does not deliver goods to the city in question, it is disregarded. It is, however, irrelevant if the company has a UCC in the vicinity of the case city and that the forwarder is able to transport municipality goods.

### 1.5 Structure

Figure 3 illustrates the structure of this thesis. Sequentially to the introduction the methodology contains a description of the approach chosen. Then the three chosen literature streams are presented followed by the empirical findings. Thereafter, the empirical findings are analyzed using cross-case studies followed by a reflection over the findings in the discussion chapter. Lastly, conclusions are drawn.
Figure 3: Research Structure
2 Methodology

This chapter presents the methodology which is to be applied to the research of the barriers to cooperation and coopetition in the distribution of municipality goods. Furthermore, a justification for the selected methodology approach is provided. First, the research philosophy, the research approach, the research strategy, the design of the research questions, research perspective, the research methods, the data collection strategy, the population and the sampling approach, followed by the data analysis methods, the quality criteria, and finally the research ethics. These aspects each have subchapters presenting alternative choices and the reasoning of the researchers.

2.1 Research Philosophy

Research philosophy regards the paradigm, also called the worldview (Creswell, 2014), of a researcher. The worldview is a “general philosophical orientation about the world and the nature of research that a researcher brings to a study” (Creswell, 2014, p. 6). This paradigm, or worldview, includes four elements: epistemology, ontology, methodology and ethics (Denzin & Lincoln, 2005; Punch, 2013).

Ontology refers to the nature of reality or being – the ontological assumptions of the researcher (Saunders, et al., 2009; Prasad, 2005). The underlying assumptions of researchers regarding reality are founded in objectivism and subjectivism (Saunders, et al., 2009). Objectivism addresses the assumption that “social entities exist in reality external to social actors concerned with their existence” (Saunders, et al., 2009, p. 110). Models and theories are central in this ontological assumption (Burrell & Morgan, 1985) Subjectivism on the other hand holds that “social phenomena are created from the perceptions and consequent actions of those social actors concerned with their existence” (Saunders, et al., 2009, p. 110). The ontological assumptions of objectivists and subjectivists therefore differ in the question whether social entities exist in a reality dependent or independent of social actors.

Besides the ontology, a worldview is determined by one’s epistemological assumptions. “Epistemology concerns what constitutes acceptable knowledge in a field of study”
or the “ground of knowledge” (Burrell & Morgan, 1985, p. 1). In general, epistemology refers to the theory of knowledge, meaning that questions regarding the existence and obtainment of knowledge are in focus (Bryman & Bell, 2011). Questions, such as “How do I know the world?” and “What is the relationship between the inquirer and the known?” (Denzin & Lincoln, 2005, p. 183), determine the researcher’s attitude towards knowledge and therefore to research.

The third element constituting a worldview is methodology (Denzin & Lincoln, 2005). Methodology, influenced by ontological and epistemological assumptions (Näslund, 2002), is concerned with “the best means for acquiring knowledge about the world” (Denzin & Lincoln, 2005, p. 183). The way of undertaking research is closely linked to theoretical and philosophical assumptions which the research is based upon (Saunders, et al., 2009). The aforementioned objectivists and the subjectivists play a major role when it comes to the methodology. The objectivists on the one hand believe that “the scientific method requires publicly observable, replicable facts” (Diesing, 1966, p. 124), whereas subjectivists are convinced that “human action is governed by subjective factors” (Diesing, 1966, p. 124) which is why science needs to take the standpoint of the actor into consideration.

Ethics, also called axiology, impacts one’s worldview as the research’s values and sense for what is “right” influence his/her research. As a consequence, research ethics is concerned with “the appropriateness of the researcher’s behavior in relation to the rights of those who become the subject of a research project, or who are affected by it” (Saunders, et al., 2009, p. 600). Examples of ethical issues arising throughout the research are participants’ consent, information retention, privacy and participant’s deception, amongst others (Robson, 2011).

The ontological and epistemological assumptions, the common methodology, and the ethics of researchers within four research philosophies which are of relevance for business research are introduced below. These four philosophies are positivism, realism, interpretivism and pragmatism (Saunders, et al., 2009).

2.1.1 Positivism

Positivism refers to the belief that “objective accounts of the world can be given” (Punch, 2013, p. 17) and that the purpose of science is to describe and explain this objective, tangible and fragmental reality (Sachan & Datta, 2005). The ontological
assumption of positivism is that reality is “external, objective, and independent from social actors” (Saunders, et al., 2009, p. 119). Only observable phenomena are considered to be credible data and facts (Saunders, et al., 2009). Research findings are considered “value free, time free and context independent” (Sachan & Datta, 2005, p. 665). When conducting research in a positivistic tradition, which dominates logistics research (Näslund, 2002), quantitative methods are traditionally preferred, resulting in highly structured research approaches, large samples and the measurement of phenomena (Saunders, et al., 2009). The role of the researcher here is to be objective towards and independent of the research subjects (Saunders, et al., 2009).

2.1.2 Realism

Realism is a research tradition in which reality exists independently from the human thoughts and believes (Saunders, et al., 2009) and facts are always disputable (Robson, 2011). Some phenomena in the “field” are non-observable by researchers, but the ones that are observable provide credible data and facts (Saunders, et al., 2009). Due to the fact that realism is focused on the invention and subsequent testing of theories to explain the world, researchers need to select research methods which suit the subject matter (Saunders, et al., 2009; Robson, 2011; House, 1991). However, the researchers are biased per definition due to their world views and cultural experiences which impacts the research (Saunders, et al., 2009).

2.1.3 Interpretivism

Interpretivism concerns the meanings people bring to situations and behavior (Punch, 2013; Burrell & Morgan, 1985). The goal of interpretivism therefore is to deeper understand a phenomenon (Sachan & Datta, 2005) making this tradition anti-positivist (Burrell & Morgan, 1985; Näslund, 2002). The world is considered to be relativistic, non-objective, so that the researcher is urged to understand it from the inside (Näslund, 2002; Robson, 2011). Reality is socially constructed and is viewed differently by every individual (Saunders, et al., 2009) which is why “there are as many realities as there participants” (Robson, 2011, p. 24). The meanings which are to be analyzed are subjective in nature setting the details of a situation into the focus (Saunders, et al., 2009). This requires in-depth investigations of small samples during the qualitative research (Saunders, et al., 2009). The findings of research within the interpretivist tradition are “time specific, contextual, and idiographic and causality is unattainable.”
The researcher is part of what is being researched and is therefore approaching the research subjectively (Saunders, et al., 2009).

2.1.4 Pragmatism

Pragmatism, named “anti-philosophical philosophy” by Robson (2011), prioritizes the progress of the actual research higher than the philosophizing about it. Not picking clear sides on issues such as truth and reality means that the research questions stand central so that the ontology, epistemology, and the axiology are dependent on the research questions (Saunders, et al., 2009). Reality is therefore seen as both socially constructed and natural/physical, depending on what fits best to the research questions (Robson, 2011; Saunders, et al., 2009). Both “observable phenomena and subjective meanings can provide acceptable knowledge” (Saunders, et al., 2009, p. 119). The focus always lies on practical applied research. Based on the research questions qualitative methods, quantitative methods, and mixed methods are applied within pragmatic research (Punch, 2013). The research questions are more important than the method and its underlying paradigm (Punch, 2013). Due to the variable assumptions within pragmatism, ethics play a significant role in the interpretation of data.

2.1.5 Research Philosophy in this Thesis

The research philosophy applicable to this thesis is interpretivism as this research is concerned with the meanings people bring to situations – in this case the municipalities’ and freight forwarders’ barriers to cooperation and coopetition in the distribution of municipality goods. The goal of interpretivism, to deeper understand a phenomenon, is pursued. The interpretivist characteristics “qualitative research” and “small sample sizes” are part of this research as well.

2.2 Research Approach

The aforementioned research philosophy is closely linked to the research approach (Bryman & Bell, 2011). The research approach revolves around the relationship between the theory and research (Saunders, et al., 2009). The question is whether the starting point is the theory, followed by the research (deductive approach), or whether the research is executed to build up theory (inductive approach) (Bryman & Bell, 2011).
2.2.1 Deductive Research
The deductive approach describes the research approach in which theory guides the research (Bryman & Bell, 2011). The theoretical framework is developed prior to the gathering of empirical data. The research questions are derived from the theoretical literature and are subsequently scrutinized by the means of empirical data (Bryman & Bell, 2011). Deductive research is the research approach which is most common in the scientific community (Bryman & Bell, 2011) and often involves the testing of hypotheses which are formulated based on existing theory (Saunders, et al., 2009).

2.2.2 Inductive Research
When following an inductive research approach theory is the outcome of research, meaning that the observations/findings lead to the theory (Bryman & Bell, 2011). The inductive research approach, often closely linked to qualitative research, sets the gathering of information (for example through interviews or observations) as a starting point from which the researcher moves on to the analysis of data in order to form themes or categories to enable the identification of broad patterns, and ultimately to generalize the data, supported by previous experiences and literature (Creswell, 2014). When conducting inductive research issues which are identified through the empirical data gathering are often contextual, making a flexible approach necessary (Bryman & Bell, 2011; Creswell, 2014; Saunders, et al., 2009).

To sum up, the inductive approach sets the research as a starting point and in the process develops theory based on the observations and findings. The inductive approach is flexible and aims at building theory.

2.2.3 Research Approach of this Thesis
This research of the barriers in cooperation and coopetition in the distribution of municipality goods applies a mix of inductive and deductive elements. The theoretical framework of sustainability, urban freight distribution, and cooperation and coopetition is set up prior to the research and at the same time the research contributes to the development of new theory on barriers to cooperation and coopetition in the chosen context. As this research is new in many aspects, the theoretical contribution is due to the inductive elements of this research. A flexible approach to the gathering of empirical data is chosen to do the contextual dimensions of the data justice.
2.3 Research Strategy

The research strategy of researchers is often influenced by their worldviews. These “types of believes held by individual researchers […] will often lead to embracing a qualitative, quantitative, or mixed methods approach in their research” (Creswell, 2014, p. 6). The research strategy can therefore be described as a “general orientation to the conduct of business research” (Bryman & Bell, 2011, p. 26). This general orientation is decided based on the attempt to either gather and analyze qualitative or quantitative data (Bryman & Bell, 2011; Saunders, et al., 2009). As mentioned previously, qualitative research is often associated with an inductive research approach, whereas quantitative research is linked to deductive research (Creswell, 2014).

2.3.1 Qualitative Research

Qualitative research is used as a synonym for the data collection technique or data analysis procedure which “generates or uses non-numerical data” (Saunders, et al., 2009, p. 151). These non-numerical data can include data other than words, for example videos and pictures (Saunders, et al., 2009). When qualitative research is conducted, the researcher is concerned with “the meaning that a person attaches to a situation or experience” (Verhoeven, 2011, p. 30). The data collection usually involves interviews, ethnography, focus groups, conversation analysis, and documents, which will be discussed in Chapter 2.7.2 (Bryman & Bell, 2011). Qualitative research is often inductive, generating theory in the process of the research (Bryman & Bell, 2011).

2.3.2 Quantitative Research

Quantitative research is used as a synonym for the data collection technique or data analysis procedure which “generates or uses numerical data” (Saunders, et al., 2009, p. 151), representing “objects, organizations and people” (Verhoeven, 2011, p. 29). When conducting quantitative research researchers are not part of the reality they are trying to measure. They want to be objective so that the result of the research can be duplicated, which is why but they take a step back and do not interfere with the objects or units they are researching (Smith, 1983; Verhoeven, 2011). The principal orientation of quantitative research is a deductive approach as theory is being scrutinized, often through the application of structured interviews (Bryman & Bell, 2011).
2.3.3 Research Strategy of this Thesis

The research strategy of this thesis is of qualitative nature. To fulfill the purpose of the research, to identify the barriers for cooperation and co-opetition, research is conducted and in the process interpreted in order to contribute to theory. An entirely structured strategy, as it is necessary in the quantitative strategy, is not applied as the aforementioned barriers are a result of the gathering and analysis of the empirical data.

2.4 Design of the Research Questions

Bryman and Bell (2011) state that the framework for the collection and the subsequent analysis of data is determined by the research design. Verhoeven (2011) lists nine types of research question designs: descriptive, defining, explanatory, predictive, comparative, evaluative, prescriptive, exploratory, and trend analysis. Hereafter, the most common designs, according to Ghauri and Grønhaug (2010) are being discussed: descriptive, explanatory and exploratory.

2.4.1 Descriptive Research Design

Descriptive research attempts to portray “the setting, the people and the events that have taken place” (Robson, 2011, p. 324) or in other words to “draw a picture” of a situation/phenomenon or of a process (Punch, 2013). The research questions within a descriptive research design need to be formulated so that their answers describe such a setting, people, event or situation. This sets the basis for further explanatory research (Chapter 2.4.3) as in order to understand why something happens, an exact description of the occurrence must be provided (Punch, 2013). When conducting descriptive research, it is important to avoid a “descriptive excess” where the amount of details in qualitative research overwhelms and neglects the analysis of data (Bryman & Bell, 2011).

2.4.2 Exploratory Research Design

The purpose of studies with an exploratory research design is to gain insights into phenomena and “to assess phenomena in a new light” (Saunders, et al., 2009, p. 139). This research design is useful to get a better understanding of a problem (Saunders, et al., 2009) which is why the answers to the research questions aim at providing an overview over little-researched topics. The design itself is flexible in nature and changes
during the course of the research. Initially, there is a broad focus which becomes progressively narrower during the research process (Saunders, et al., 2009).

### 2.4.3 Explanatory Research Design

Explanatory research involves a description of a situation (see Chapter 2.4.1: Descriptive Research Design) plus an account for what happened – an explanation (Punch, 2013). That is why explanatory research reaches further than descriptive research. An explanatory research analyzes a situation or a problem to identify the relationships between the variables (Saunders, et al., 2009). This is why explanatory research questions often ask “why” a situation is the way it is (Verhoeven, 2011).

### 2.4.4 Research Questions Design of this Thesis

In this thesis, descriptive research questions are formulated. The questions for “what” are the most impactful barriers to cooperation and coopetition in the sustainable distribution of municipality goods in Swedish mid-sized cities are answered.

### 2.5 Research perspective

The research objects are the barriers for cooperation and coopetition in the distribution of municipality. Therefore, the research object is interpreted by a research perspective, and exists in this case on two levels, on the first it contains two actors (or nodes), the municipality and freight forwarder, and the relation between. On the second level three actors are included, the municipality, the RFP-winning freight forwarder and the cooperating freight forwarder. Therefore, two research perspectives become relevant, the dyadic and triadic perspectives.

#### 2.5.1 Dyadic perspective

The dyadic perspective is a simplification of the relationship between two actors in a network. Data from a dyadic approach is more complicated than data from a single source due to the interdependence of the collected data and the study object (Wasserman & Pattison, 2004).

#### 2.5.2 Triadic perspective

Holma (2010) advocates the use of a triadic approach when an intermediate is involved in a relationship since it enables a multilevel understanding of how relationships between actors influence other relationships (Vedel, et al., 2012). The triadic approach
as a perspective is an aggregation of dyadic data according to Wasserman and Pattison (2004) and Holma (2010). This increases the complexity due to the attention that is given to the relations’ effects on the three actors. Resulting from this are three different alternatives for the triadic perspective. Either all three actors are directly related, unitary or serial triad, or all three are related through a common actor in a bridge triad (Holma, 2010). These relationships are illustrated in Figure 4.

![Figure 4: Unitary, Serial, and Bridge Triad](image)

2.5.3 Perspective of this Thesis

In this thesis the adoption of perspective depends on the research question. To answer Research Question 1 a dyadic perspective is adopted as only the barriers to the cooperation between the municipality and the freight forwarder is researched. The triadic perspective is not an option as no third party influences the relation between the two actors and as freight forwarders are regarded as a cohesive unit.

For Research Question 2 a triadic perspective is adopted as the barriers to coopetition between freight forwarders concerning the distribution of municipality goods are researched. Thus, three actors are involved and the relation between freight forwarders influences the relationship between the RFP-winning freight forwarder and the municipality. As the non-RFP winner has no direct relation with the municipality the bridge triad alternative is chosen. This choice of perspective is illustrated in Figure 5.
2.6 Research Methods

Researchers have a range of data gathering methods at their disposal: Interviews, ethnography, focus groups, and documents (Bryman & Bell, 2011, p. 387). Within (qualitative) interviewing the researchers conduct unstructured or semi-structured interviews with research subjects individually (Bryman & Bell, 2011). Within the ethnographic research method research subjects are observed in their natural settings. In this setting the researcher tries to understand the behavior of the subjects within their social group (Bryman & Bell, 2011). Being similar to the interview approach, focus groups are being interviewed but in a group as opposed to the interview approach in which the research subjects are interviewed individually. Finally, documents which are not created due to the researchers’ request are a source of data (Bryman & Bell, 2011). These secondary data can be found in personal documents (letters, diaries), and public and official documents (e.g. company reports), amongst others (Bryman & Bell, 2011).

During this research interviews form the research method. Interviews will be conducted individually with the various municipality representatives and two freight forwarders per city of which one has won the RFP of the municipality and the other one having lost the bidding or not having participated in it.

2.7 Data Collection Strategy

The data collection strategy regards the issues of data sources. The data sources refer to the types of data which are to be collected: Primary and secondary data (Saunders, et al., 2009). The four qualitative data collection strategies, case study, observation,
experiment, and survey, and the two quantitative data collection strategies, and structured interviews, are listed by Bryman and Bell (2011) and Saunders (2009).

### 2.7.1 Data Sources
Data can be broken down based on their source. Primary data on the one hand are data which have been collected specifically for the research project which is undertaken while secondary data on the other hand is collected by researchers or other institutions, such as companies (Bryman & Bell, 2011), for a different project and for a different purpose than the own research (Saunders, et al., 2009). While the origin of the data varies, they are nevertheless often used complementarily (Yin, 2014).

### 2.7.2 Case Study
A case study entails the detailed and intensive analysis of one or several cases (Bryman & Bell, 2011). In order to ensure cross-case comparability within a multiple case study, the structure of the research is important (Bryman & Bell, 2011). Semi-structured interviews are a legitimate tool to ensure this comparability.

A case study entails the detailed and intensive construction analysis of one or several cases (Bryman & Bell, 2011; Ghauri & Grønhaug, 2010). In other words, a case study is the description and analysis of a management situation. Ghauri and Grønhaug (2010) point out that the method is associated with descriptive and explorative research without being restricted to those areas. This is shown by Figure 16 which describes studies as a blend of both qualitative and quantitative data as illustrated in Appendix 6: Qualitative and Quantitative Methods and Techniques. In order to ensure cross-case comparability within a multiple case study, the structure of the research is important (Bryman & Bell, 2011). Semi-structured interviews are a legitimate tool to ensure this comparability. Case studies are of particular use when the research is to answer questions of the why or how nature and when the researcher has little influence over the situation. Case and multiple case studies are then used in order to understand specific phenomena’s and to then compare and contrast them as well a situation that has not been studied extensively before (Ghauri & Grønhaug, 2010).

### 2.7.3 Observation
When researchers conduct an observation during their research they employ “explicitly formulated rules for the observation and recording of behavior” (Bryman & Bell, 2011,
These rules are important as the researchers know what they are looking for during the observation and how they are going to record the behavior observed.

2.7.4 Experiment
An experiment is conducted by manipulating the independent variable in order to determine whether the independent variable does in fact have an impact on the dependent variable (Bryman & Bell, 2011). Here, often one or more experimental groups are used in order to test various graduations of the dependent variable. Differences between the groups and variations of the impact of the dependent variable on the independent variable can be identified in the process (Bryman & Bell, 2011).

2.7.5 Survey
Surveys, as opposed to observations, cover a large sample size at a single point in time (Bryman & Bell, 2011). A main feature of a survey is its structured approach of collecting data (Saunders, et al., 2009). Collecting data through a survey commonly includes questionnaires, structured observations and structured interviews (Saunders, et al., 2009).

2.7.6 Interviews
Interviews can be divided up into structured, semi-structured and unstructured interviews (Saunders, et al., 2009). In structured interviews respondents are all asked the identical questions in the same order (Bryman & Bell, 2011) whereas in semi-structured interviews the interviewer has a set of topics at their disposal, but the order of the questions can vary based on the development of the interview, just like the spontaneous formulation of new questions. In unstructured interviews the interviewer only has a rough guideline of the topics and issues which are to be discussed (Saunders, et al., 2009). In this case the interview style is rather informal and the questions and answers vary from interview to interview (Bryman & Bell, 2011).

2.7.7 Data Collection Strategy of this Thesis
The data collection framework of this thesis consists of a multiple case study of three UCC-cooperation projects in Swedish mid-sized cities. Additionally, locally active freight forwarders have been included in the framework to gain the perspective of an actor that has no current relationship with the municipality on cooperation and coopetition. Through semi-structured interviews with municipality representatives,
representatives of the distributor of the municipality's goods, and another freight forwarder operating in the city primary data is being collected. The semi-structured interviews ensure a comparability of the projects and therefore of the cases. The formulation of spontaneous interview questions is enabled by the selection of the interview strategy.

Semi-structured interviews with one municipality and two freight forwarders per city are conducted. The purpose of these interviews is the identification of the underlying barriers to cooperation and coopetition. To enable an in-depth comparison of the various cities, at least three cases are selected as one or two cases solely represent opposing sides disallowing valid conclusions.

2.8 Population and Sampling

This chapter characterizes and describes the population of the study. After this, the sampling method is introduced and the sample itself is outlined.

2.8.1 Description of the Population

As of January 31st, 2015, there are 115 Swedish mid-sized cities between 10,000 and 100,000 inhabitants in its core (see Table 10 in Appendix 3: Swedish Small, Medium-Sized and Large City Classification) (Statistiska Centralbyrå, 2016; Nurhadi, et al., 2014) which all qualify for the general inclusion in the population. However, only those municipalities which organize the transportation of their goods with the help of a private freight forwarder through the usage of a UCC are considered for the sample to be picked from. This means that eleven mid-sized Swedish cities with a UCC-cooperation remain as the population: Växjö, Kalmar, Halmstad, Ängelholm and Vejbystrand, Kristianstad, Jönköping, Karlstad, Katrineholm, Borlänge, Östersund, and Eskilstuna.

2.8.2 Sample Methods

For sampling, Marshall (1996) mentions three approaches in qualitative research: Convenient, judgement and theoretical sampling. Convenient sampling entails the involvement of the most accessible subjects. This has the benefits of minimizing costs and effort but at the price of data quality and credibility (Marshall, 1996). The next approach, judgement sampling, is the most used approach. The researcher chooses the sample that s/he assumes to give the best data yields. For judgement sampling the selection of the sample is based on the researcher’s practical and theoretical knowledge.
as well as evidence gathered in the research process. The last approach, theory sampling, is a design involving theory driven sampling meaning that emerging data is used for building interpretative theory which in turn leads to the selection of a new sample (Marshall, 1996).

### 2.8.3 Sampling Method and Sample Description of this Thesis

In this thesis, a blend of convenient sampling and judgement sampling is chosen. Convenient sampling is used when no other sampling option was available and judgement sampling when there was. The choice of sampling methods was based on a trade-off between availability and data quality. Nevertheless, the research is more susceptible to subjectivity which must be kept in mind. Also, the researchers are aware of the risk of low quality data which might be the result of convenient sampling.

As illustrated in Figure 6 judgement sampling was first used as Katrineholm Municipality was excluded from the research because the city executes its goods distribution itself without the help of a private forwarder, thus becoming illegible for cooperation research. Thereafter the remaining ten cities (see Appendix 1: Swedish Mid-Sized Cities with UCCs) where the municipality’s goods are stored and distributed by a private freight forwarder were approached. There, convenient sampling is used as six of the approached municipalities (Ängelholm and Vejbystrand, Kristianstad, Jönköping, Karlstad, Östersund, and Eskilstuna) where unable to partake in the research. Either the municipalities or freight forwarders had no interest in participating or did not have time to set aside for interviews.

The last sampling method used to sample the municipalities was judgement sampling. Växjö, Kalmar, and Borlänge (see Figure 15 in Appendix 4 for a map) were chosen as Halmstad was deemed as too similar to Växjö. This could, according to the researchers, lead to a skewed view on barriers as Växjö and Halmstad potentially could differ from Borlänge without validating the authenticity of the barrier.

Lastly, as the researchers were not able to choose their subjects (freight forwarders) due to project group size as well as subject availability, convenient sampling was chosen. Since the ideal sample size was set to three as this would allow an in-depth analysis of each city and at the same time a thorough cross-case comparison, the sample consists of the three Swedish mid-sized cities Växjö, Kalmar, and Borlänge.
2.9 Data Analysis Methods

After the gathering of the empirical data there is in most cases a need to summarize, categorize and restructure the data to the form of a narrative to enable further analysis (Saunders, et al., 2009). Important for this is that the researcher in this step minimizes the effect of subjective biases from his/her side and ensures quality data from participants by using quality ensuring methods (see Chapter 2.10) (Bryman & Bell, 2011). Nonetheless, researchers must be aware of their natural subjective inclinations (Cohen, et al., 2011). When it comes to the actual data analysis method no clear instructions or “cookbook” exist that guarantee success as it mostly depends on the researchers’ way of rationalizing (Yin, 2014). Nevertheless, the chosen data analysis strategy should be based on theory in order to ensure valid and reproducible results (Bryman & Bell, 2011).

2.9.1 General Analytic Strategy within Case Studies

The purpose of the general analytic strategy is according to Yin (2014) to create a narrative that elevates and links information from the case to key concepts. Case studies are narratives/stories as they have a beginning, middle and end with the inclusion of data. The general analytic strategy itself is then to guide the case narrative creation (Yin, 2014), or in Ghauri and Grønhaug’s (2010) words the case construction.

Yin (2014) suggests four general strategies. The first strategy is to follow the cases’ theoretical propositions. This strategy implies that the story will be guided by the original objectives and design of the case study which in turn reflect the research questions and literature review. The second strategy is to develop a case description
where data is organized in a descriptive framework. This approach is used when having difficulties with the theoretical proposition strategy and/or the amount of data exceeds the expectations without answering the research questions directly. According to Yin (2014) the method has found use to identify patterns. The third strategy implies the use of both qualitative and quantitative data which then are to be organized using a framework (Yin, 2014). Thus, this method uses both quantitative data subjectable for statistical analysis and central qualitative data to provide an understandable story for further analysis. This strategy is used in two cases when a substantial amount of quantitative data is collected. Firstly, when the data explains the studied phenomena, or secondly when quantitative data is related to the unit of analysis such as prices or other numerical units. The last strategy, examining rivalling explanations, involves research of other explanations to the original assumptions (Yin, 2014). As an example Yin (2014) states that if the original hypothesis proclaims that some sort of result is reached by funding the rivalling explanation, another explanation and not the funds lead to the results. Rivalling explanations can however also be stated by different participants or different case studies. The goal of this strategy is to prove the validity of the rivalling explanations rather than rejecting them (Yin, 2014). This method is to be used when the current hypothesis is to be proven wrong of if rivalling explanations are obvious.

2.9.2 Analytic Techniques within Case Studies
Besides the general analytic strategies, Yin (2014) also provides five analytic techniques within case studies. These techniques, which are pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis, are to be used in order to analyze the case and answer the research questions. The techniques the researcher should use depend on the gathered data and the research design (Yin, 2014).

Important for the technique is that a trend can be traced over time at specific moments which then must be comparable with the presumed trend (Yin, 2014). The technique is therefore not used in explorative research.

The logic model technique searches for matches between theoretically predicted events and events observed in sequentially stages. Thus, it may be regarded as another form of pattern matching. The events and its stages are sequenced in a cause-effect-chain from
which patterns can be compared (Yin, 2014). In other words, event A leads to effect B, B in-turn becomes its own event which leads to effect C etc. (Yin, 2014).

The last technique, cross case synthesis, is used in order to compare and find similarities between different cases. As the name implies multiple cases are needed in order to compare cases to identify similarities and determine if the different cases can be classified as ‘same type cases’ (Yin, 2014).

Gained data, including patterns and/or stages, can then be grouped and broken down to it’s in a problem tree, resembling an Ishikawa diagram (Lumsden, 2012). This diagram then enables further analysis and comparison with other cases.

2.9.3 Analytic Strategy and Technique used in this Thesis
This thesis will make use of the theoretical proposition strategy for the case construction. This is chosen in order to make the different cases follow the same structure for better comparison. The descriptive case and rivaling explanations strategy will not be used due to the risk of loss of oversight and comparability. An argument for the rivaling explanation strategy is the goal to find barriers to cooperation between municipalities and freight forwarders and amongst freight forwarders themselves. However, it is not of use in the stated form as this research does not include hypotheses which are to be proven or disproven.

Furthermore, the approach will make use of a mixture of different analysis techniques. The deductive part, where already identified barriers to UCC-cooperation and UCC-coopetition are to be confirmed, will make use of pattern matching in order to compare primary and secondary data. This technique will, however, also be used for the comparison of the different cases of the multiple case research. The explanation building and/or logic model will then be used in order to identify new barriers. Overall, cross-case synthesis will be used in order to identify similarities and differences in the multiple case study.

2.10 Quality Criteria
Within the field of business and management research reliability and validity act as the two main criteria for evaluation of quality (Saunders, et al., 2009). However, Bryman and Bell (2011) discuss that these criteria primarily have been used and are more suited when conducting quantitative research and less in qualitative approaches. To remedy
the problem Bryman and Bell (2011) and Shenton (2004) point to Guba and Lincoln’s (1987) abbreviation of the quality criteria truthfulness and authenticity as a more specified set of criteria for qualitative research. They advocate the use of these criteria instead of the simpler reliability and validity criterion as there is not a “single absolute account of social reality feasible” (Bryman & Bell, 2011, p. 395).

2.10.1 Truthfulness

Truthfulness handles the internal and external validity as well as the reliability criteria (Bryman & Bell, 2011). It is made up of four criteria:

- Credibility, which corresponds to internal validity
- Transferability, which corresponds to external validity
- Dependability, which corresponds to reliability
- Confirmability, which corresponds to objectivity

Credibility ensures that the test or research actually measures or tests what is intended, or in other words how congruent the findings are with reality (Shenton, 2004). In order to ensure credibility researchers can make use of several techniques which test or validate the measured phenomena. For example, researchers can make use of well-established methods, use random sampling, use multiple methods or other techniques that re-question subjects or help subject honesty (Bryman & Bell, 2011; Shenton, 2004).

Transferability corresponds to the external validity and is concerned with the findings’ applicability in other situations, to a wider population that is. The generalizability is however questionable as a fair amount of subjectivity in the empirical data gathering is involved both from the information sender as well as information receiver (Whittemore, et al., 2001). On the other hand,” although each case may be unique, it is also an example within a broader group and, as a result the prospect of transferability should not be immediately rejected” (Shenton, 2004, p. 69). Shenton (2004) stresses that the researcher has to make the essential contextual features clear in order to give potential readers the possibility to generalize the findings. Thus, the researcher should state number of subjects and their location, restrictions faced by subjects when giving data, employed data collection method, number and length of data collection sessions and the time period of data collection (Shenton, 2004).
As dependability corresponds to reliability, it tries to ensure that similar approaches (method, area and subject-wise) result in similar results (Bryman & Bell, 2011). The changing nature of qualitative research makes this, however, problematic. Shenton (2004) points to Florio-Ruane’s (1986) statement which declares that “the published descriptions are static and frozen in the ‘ethnographic present’” (Shenton, 2004, p. 71). Dependability is achieved by clearly stating the research approach in detail, both taken steps and their circumstances to make replication possible (Golafshani, 2003).

The last criterion of truthfulness is confirmability, which aims at the objectivity of research. Confirmability recognizes “that complete objectivity is impossible in business research” (Bryman & Bell, 2011, p. 398). Further, Guba and Lincoln (1994), as cited by Bryman and Bell (2011), emphasize the auditor’s role in confirmability of the research. Here the researcher is to make sure that the results are based on the experience and ideas of the informants instead of the subjective thoughts of the researchers (Shenton, 2004). Here the methods from credibility such as re-questioning become important for the same purpose as the reality is to be captured. As total objectivity is near impossible Huberman and Miles (1994) state that a key criterion for confirmability is the degree of which the researcher is aware and discloses their own subjectivity.

### 2.10.2 Authenticity

The second criterion, besides truthfulness, is authenticity (Guba & Lincoln, 1994). It refers to the wider political impact of the research (Bryman & Bell, 2011), and reflects the meanings and experiences that are perceived by the subjects and researchers (Shenton, 2004). Authenticity is concerned with the researcher’s ability to illustrate and describe the phenomena as they really are and their impact. The impact is regarded in ontological authenticity, meaning that it helps participants and readers to get a better understanding of the phenomena, educational authenticity as in the consideration of the realization of other members viewing angles as well as the overall impact on society and research (Bryman & Bell, 2011). In this thesis ontological and educative authenticity are realized through the use of the semi–structured interviews including follow-up questions to fully grasp the subjects’ perspective.

### 2.10.3 Realization of Quality Criteria in this Thesis

In this thesis, the authors use follow-up questions as well as a general re-questioning of respondents in order to live up to the credibility criterion. Follow-up questions are asked
in form of rephrased questions and in repeated response to confirm that the authors understand the interviewee correctly. Moreover, the transcription of the interview is sent to the respondents in order to validate its correctness and consent. Transferability is assured by the documentation of the methodological approach during the presentation of the primary data. The authors state the number of subjects, their location, restrictions faced by subjects when providing data, employed data collection method, number and length of data collection sessions and the time-period of data collection as proposed by Shenton (2004). The dependability is achieved by clearly stating the methodological approach as well as the circumstances of its usage. The truthfulness of this research will be achieved on two stages. Firstly, the confirmability of the primary data is to be ensured through achieving credibility. Secondly, as this research will be affected to a certain degree by subjectivity, confirmability will be achieved by the usage of scrutiny of opponent groups, the tutor and the examiner.

In order to secure credibility and the appropriateness of secondary data is used in order to interpret and analyze the gathered empery, the researchers have also established quality criteria for the secondary data. In order to be considered credible the secondary data has to stem from a highly ranked scientific journal or author. Journals that are ranked in the upper 2\textsuperscript{nd} quartile based on their impact factor are considered as viable. Authors are ranked by their amount of cites per paper and number of top-ranked papers. These criteria will be checked using Thomson Reuters’ “InCites”.

2.11 Research Ethics

Research ethics guide actions such as how to design the research, how to attain, process, and store empirical data, and how to analyze as well as write up research findings in a morally justifiable way (Saunders, et al., 2009). These guidelines are to be followed in order to fulfill the researcher’s obligations to society, funders and employers, colleagues, and to the subjects (Social Research Association, 2003).

“Obligations to society” implies that the research is relevant for the society as a whole and the groups within while at the same time work according to the standards that are set within the society. “Obligations to funders and employers” implies that the researchers should not jeopardize their commitment to morality and law in favor of those parties. “Obligation to colleagues” is according to the Social Research Association (2003) the maintenance of professional behaviors and concern for
wellbeing of colleagues. Lastly, the “obligations to the subject” are the responsibilities towards research participants (Social Research Association, 2003). These are captured by Bryman and Bell (2011) who provide four principles researches should follow in order to fulfill commitments to subjects. These four are “harm to participants”, “lack of informed consent”, “invasion of privacy” and “deception”.

The first principle, “harm to participants”, is concerned with the participants’ exposure to potential or real harm as a cause of the research. Harm is any sense (e.g. physical or psychological) is deemed as unacceptable (Bryman & Bell, 2011). “Lack of informed consent”, the second principle, should be avoided by giving the research participant as much information as needed in order to make an informed decision about his or her participation. This might however come in conflict with the overall research goal as the researchers’ goal is to attain as truthful information as possible which the participant might not be willing to give. Thus, the researcher needs to balance with the given data with the participants needs. “Invasion of privacy” which is the third principle handles the approach to empirical data gathering. As the name implies is it concerned with not breaching the privacy of subjects in a harmful or offensive manner by respecting the individuals’ values. The last principle, “deception”, can cause a conflict with the second principle of informed consent as it implies the minimization of and the effect of deception, but only when necessary. A conflict with the second principle might be a consequence if deception is a vital part of the research. However, the principle does also include elimination of deception through detailing the empirical data gathering process and the handling of the data. The subject can then decide on his/her willingness to participate in the research (Bryman & Bell, 2011).

Pimple (2002) summarizes research ethics within three questions researchers are to ask themselves. Firstly, he/she needs to ask if it is “true”, concerning the question whether the findings correspond to reality. Secondly, is it “fair”, asking whether social relationships are respected during the research. Thirdly, is it “wise”, concerning the benefit of the research to society.

In conclusion, the mentioned principles and obligations become especially important in qualitative research according to Bryman and Bell (2011) due to the need for trust between the researcher and subject, which if lacking might lead to lower quality or non-compliance.
In this thesis, all ethical guidelines presented will be followed. Any kind of deception is not deemed acceptable to obtain the desired data and will therefore not be part of the research. The guidelines will be followed in the above stated manner, as participants for example will be informed about the research and consent will be asked for prior to the recording or publication of obtained data.

### 2.12 Summary of the Methodology

Table 1 summarizes the various methodological topics and the selection made for this thesis.

<table>
<thead>
<tr>
<th>Methodology Topic</th>
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<td>Data Analysis Method</td>
<td>Theoretical Propositions, Pattern Matching, The Explanation Building, Logic Model</td>
</tr>
<tr>
<td>Quality Criteria</td>
<td>Truthfulness (Credibility, Transferability, Dependability, Confirmability), Authenticity</td>
</tr>
<tr>
<td>Research Ethics</td>
<td>Avoidance of Deception, Respect of Social Relationships, Correspondence to Reality, Societal Benefits</td>
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3 Literature Review

The theoretical framework for the identification of barriers to cooperation and coopetition for a sustainable distribution of municipality goods in Swedish mid-sized cities consists of three literature streams: Sustainability and the Triple Bottom Line, Distribution in Urban Areas, and Cooperation and Coopetition. Sustainability serves as a measurement of the impact on sustainable distribution. The distribution in urban areas sets the scene of the UF transport functions and problems. Lastly, the characteristics of cooperation and coopetition are included in order to enable the identification of barriers.

3.1 Sustainability and the Triple Bottom Line

The term and concept “sustainability” is without a doubt a widespread and well researched concept. Nevertheless, it remains elusive as no organization or institute has gained leadership over the term. This is stated by Marshall and Toffel (2005) who also point out that as many as one hundred definitions of the term had been created by the mid1990s. The amount of definitions is staggering regarding that the term itself first rose to prominence in 1992 at the United Nations-sponsored Earth Summit in Rio de Janeiro where the publication of “Our common future”, commonly known as the Brundtland Report of 1987, was discussed (Marshall & Toffel, 2005). The report states the following about sustainability:

“It contains within it two key concepts: the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs [...].“

(World Commission on Environment and Development, 1987, p. 54)

From this definition Behrends et al. (2008) highlight three fundamental aspects of sustainability: “(1) economic growth, (2) social equity for meeting the needs of today’s generation; and (3) environmental protection for the ability to meet today’s and future generation’s needs” (Behrends, et al., 2008). Sustainability as a concept is however
complex to grasp and realize according to McIntyre (2003) as it puts emphasis on the careful use of resources while recognizing the need of all involved parties, both present and future. Thus, it needs to consider the protection of the environment, the social need, and progress of everyone while at the same time maintaining acceptable long-term economic viability (McIntyre, 2003). It can consequently be said that sustainability is formed by three aspects: economical, environmental, and social sustainability as seen in Figure 7.

![Figure 7: Three Aspects of Sustainability (Derived from Björklund, 2012)](image)

These aspects are found within the Triple Bottom Line which acts as a measure and attempts to balance the three aspects (Hall, 2011; Elkington, 1997).

### 3.1.1 Economical sustainability

Economical sustainability is defined as the economical longevity of firms and projects (Jamali, 2006) which are determined by long term profits (Hall, 2011) or holding a manageable level of depth depending on the operation (Ahmed & McQuaid, 2005) implying balancing requirements with costs (Mota, et al., 2014). This aspect is according to Erol et al. (2011) and Labuschagne et al. (2005) affected by the investments made, innovation, and strengths and weaknesses of the trading system in operation.

### 3.1.2 Environmental sustainability

Environmental sustainability implies consideration of environmental consequences regarding products or activities (Belz & Peattie, 2012), or in other words, the minimizing of companies’ negative impact on the environment (Elkington, 1998). The negative impact is defined through the usage and consequences of resource utilization.
such as for example the type of resource used, the rate of usage in relation to its availability, and usage consequences such as emissions and degradation of the ecosystem (Dyllick & Hockerts, 2002). Therefore, the usage of resources should be minimized in regard to their regeneration rate and the impacts on the environment. Among the practices to optimize the usage of resources are logistics concepts such as lean management, reverse logistics and supplier selection, in regard to environmental criteria (Lumsden, 2012). Other factors are the selection of environmental friendlier materials (Belz & Peattie, 2012; Hall, 2011), transportation (Kauf, 2016), as well as material and resource saving techniques (Kunze, et al., 2016).

3.1.3 Social sustainability
Social sustainability, on the other hand, is defined as the long-term impact on affected parties’ quality of life (Gonzalez-Feliu & Morana, 2010). Within projects or organizations it is not limited to the internal actors but also external such as communities and other individuals with activities within the area. As the social aspect is concerned with the effects of activities on the social system it contains social-related aspects such as labor rights or preferences of stakeholders (Jamali, 2006).

3.1.4 Interdependence of sustainability aspects
Important to considers is the effect, the interdependence and the overlaps in-between the three aspects (Behrends, et al., 2008). Björklund (2012) mentions that there are overlaps in-between the aspects as a polluted environment also implies a bad quality of life for those living in the polluted area. Gonzalez-Feliu and Morana (2010) mention that the quality of life (social aspect) has a big impact on the economical and the environmental aspect. The interdependence is best illustrated by Björklund’s (2012) example. She uses poor districts in India as an example for insufficiencies of the social and economical aspects, which according to her means that the people living in this situation do not have the means to work on the environmental aspect. On the other hand, a damaged environment will make it difficult to be economically profitable.

3.1.5 Summary: Sustainability and the Triple Bottom Line
Sustainability is a term that describes the use of resources that allows meeting current and future generation’s needs. The TBL is a measure of sustainability and is built of the aspects economic, environmental and social sustainability. Economical sustainability
entails the economical longevity of projects as in the long-term profits and/or managing depth levels. Environmental sustainability focuses on the resource utilization regarding its impact on the environment, both holistically and with regards to the rate of usage in relation to its regeneration. Lastly, social sustainability is defined as the long-term effect on the quality of life of those affected by activities. The sustainability aspects are interrelated which is why changes in one aspect affect the others, for example environmental pollution influences the quality of life.

3.2 Distribution in Urban Environments

The subchapter “Urban Freight Transportation” explains the characteristics of transportation in general and in urban areas through an urban freight system. Next, the functions and problems within urban freight transportation, according to previous research, are scrutinized. Finally, the concept of UCC, a facilitator of sustainable urban freight transportation, is introduced.

3.2.1 Urban Freight Transportation

Freight transportation, similar to the distribution of goods, is one of the central aspects of logistics. In its most simple definition it is the transportation of goods from one location to another (Lumsden, 2012). The performance of this service is measured by the delivery service which comprises of logistics lead time, delivery reliability, and delivery flexibility (Christopher, 2011). Delivery flexibility is in this context defined as the ability to adapt to changes in customer demands, such as example fluctuating order volumes (Christopher, 2011). The delivery service requirements have an influence on costs as the higher the delivery service requirements are the higher the efforts and thus costs will be to meet the requirements. For example, short logistics lead times or fluctuating order volumes may affect the vehicle utilization and thus both the operational and fixed cost within distribution (Yongjin, et al., 2004). Important to note, however, is that the demands on delivery service and what is seen as a high or low service level depends on the beholder.

This transportation connects different entities and from a conceptual standpoint supply network as illustrated in Figure 8 (Lumsden, 2012). The dots in the illustration represent the nodes where transported goods come to a halt, for consolidation, change of transportation mode or end destination. The arrows represent the process of
transformation including its functions (transfer, loading, transshipment and unloading). The end of the supply network is usually close to in urban areas, due to the residence of end customers and commercial hubs (Russo & Comi, 2012). This distribution in urban areas and the distribution within urban areas are called Urban Freight (UF) (Lindholm, 2012). The characteristics that separate UF from normal distribution is that the goods distribution system is located in the urban area and thus needs to adapt to its features and that it shares the infrastructure with the transportation of people, including public transportation, private cars and even bicyclists and pedestrians (Muñuzuri, et al., 2005).

![Nodes in supply network](image)

**Figure 8**: Nodes in supply network (Inspired by Lumsden, 2012)

Boerkamps et al. (2000) classify aspects of the UF system, which are the spatial organization of activities, commodity market, trade relations, transport services and traffic system. The spatial organization of activities provides insights into the locations of activities, for example the loading of goods at the terminal, transportation within the urban area or the landing of goods at the receiver. The commodity market, connecting the demand and supply of goods, results in trade relations between the origin and the destination of goods. The transport services are needed to enable trade needed and are determined by the availability of vehicles, terminal facilities, and other means” (Boerkamps, et al., 2000, p. 18). The last aspect is traffic systems as vehicles use the transport services to enter the traffic system which sets conditions for the distribution in the process.

### 3.2.2 Functions and Problems within Urban Freight Transportation

When considering the process of distribution, it becomes relevant to understand the origin of costs. Lumsden (2012) states that the costs of distribution are related to its functions (transfer, loading, transshipment and unloading) and are thus variable in nature dependent on the UF system. For example, the transportation length and transport capacity in the transport service affect the cost of distribution per unit
transported. Yongjin et al. (2004) state the fixed costs in addition the variable cost as all
cost associated with the vehicle and other investments.

The cost of distribution can be affected through route planning. Jonsson and Mattson
(2005) as well as Daganzo and Hall (1993) describe route planning as the planning of
transportation between different nodes. The planning can have different goals such as
reducing transportation distance and time or increasing customer service and is thus
dependent on the service demanded. Taniguchi et al. (2003) state that the route planning
can also influence the number of vehicles used depending on the trade-offs chosen
directly affecting the fixed costs. For instance, if delivery service is paramount, short
routes independent of vehicle utilization might be chosen which increases the amount of
necessary vehicles. On the other hand, if delivery service is of lesser importance, long
routes with optimized vehicle utilization become an option in order to minimize costs.
Summarizing, it can be said that route planning is the managing of vehicle utilization
adapted to the route planning goals within the boundaries of the UF system.

The problem with UF is from a cost perspective summarized as the last mile problem
(LMP). The last mile refers to the problems arising in distribution when the cargo has
no inherently common distribution route (Minten, et al., 2013). In other words when
goods are distributed unnecessarily or when there are extra delivery points during a
route in order to enable the deliverance of other goods. This increases the resources
consumed per goods and thus increases the variable cost in distribution. High frequent,
low volume products cause the highest number of trips (Anderson, et al., 1996) which
further worsens the economic, social (e.g. traffic accidents), and environmental (e.g.
CO2-emissions) aspects. In the case of UF the last mile entails the “transportation of
[...] goods from a transportation hub to a final destination” (Nathanail, et al., 2016, p.
232), or put differently from an urban consolidation center to the receivers.

### 3.2.3 UCC
An Urban Consolidation Center (UCC) can be defined as a “logistics facility that is
situated in relatively close proximity to the geographic area that it serves [...] from
which consolidated deliveries are carried out within that area” (Browne, et al., 2005).
UCCs can further be summarized as “all initiatives that use a facility, in which flows
from outside the city are consolidated with the objective to bundle inner-city
transportation activities” (van Rooijen & Quak, 2010). These logistics bases are
“...located in the vicinity of the place of performing services where numerous enterprisers deliver goods destined for the serviced area from which consolidated deliveries as well as additional logistic and retailed services are realized.”
(Allen, et al., 2012)

They are especially interesting for high frequency, low volume deliveries containing simple products (van Rooijen & Quak, 2010) as the UCC takes care of goods reception, sorting, storage, and loading on other means of transportation (Chwesiuka, et al., 2010). Independent and small retailers, as opposed to large chains, and operators delivering “small multi-drop deliveries” (Browne, et al., 2005) in areas which are affected by delivery constraints (governmental restrictions, narrow streets, etc.) are the main beneficiaries of UCCs (Browne, et al., 2005).

The purpose of a UCC is to “separate the distribution activities in activities inside the city and outside the city” (van Rooijen & Quak, 2010). A UCC can be considered successful if it contributes to the reduction of trips to the city through consolidation, to an increased utilization of the transport fleet, to the reduction of noise and pollution, and to the synchronization of orders and cargo flows (Chwesiuka, et al., 2010).

Prior to the establishment of a UCC, the necessity must be identified. Verlinde et al. (2012) list three behavioral/mindset-related mistakes of suppliers, forwarders, and retailers which make UCCs necessary: The order behavior of retailers (retailers place orders scattered in time instead of bundled (Verlinde, et al., 2012)), the “short lead-time mindset of suppliers and forwarders” (suppliers and forwarders carry out deliveries as fast as possible, resulting in small deliveries), and the “round trip delivery approach” (freight vehicles enter multiple cities in a single extradition resulting in partially loaded trucks when they enter the second or third city on their way and therefore operate inefficiently by contributing to pollution and congestion) (Verlinde, et al., 2012).

It is, however, often difficult to convince suppliers, forwarders, and retailers of the benefits of UCCs as their interest is traditionally low (Verlinde, et al., 2012). Suppliers and forwarders are entirely focused on the needs of their customers and the retailers themselves are commonly satisfied with the way they receive their deliveries (Verlinde, et al., 2012). The need for a UCC, despite its economical benefits, is often exclusively understood by local governments (Verlinde, et al., 2012). As this leads to a dependency of UCCs on subsidies in order to operate, these centers are expected to have a short
lifespan (Verlinde, et al., 2012; van Rooijen & Quak, 2010). While it is consensus that UCCs need to be financially viable on their own in the medium- and long-term, initial funding by the government can rarely be avoided (Transport and Travel Research Ltd., 2010).

Nevertheless, several factors which lead to the success of UCCs can be identified. Restricted traffic conditions in the city, scientific support in the initial phase of establishing a UCC, the enforcement of regulations by local authorities, and early involvement of all stakeholders result in a need for and establishment of UCCs (Koehler, 2004). Allen et al. (2012) suspect UCCs to be successful only if the initiating actor (freight forwarder, airport operator, shopping mall operator, local government, etc.) remains in full control over the operations, including the activities of the inbound and outbound carriers and the receivers of the goods.

When it comes to the retailers’ decision to choose between the service of a UCC and the organization of own transportation to the city center, the service costs of the UCC, the delivery time, the annual costs of the access permit to the limited traffic zone (LTZ), and the delivery vehicles’ parking distance from the shop are pivotal (Marcucci & Danielis, 2008).

On the other hand, a bad selection of the UCC’s location (for example too far away from a highway or from the city center), an opposition against UCC-supporting policy measures (for instance delivery-windows and vehicle restrictions which primarily benefit the city’s UCC), a reluctance in the transport industry to use the UCC (for example due to already thin margins), electric vehicles slowing down traffic, and a lack of volumes necessary to make the UCC financially feasible may cause a failure of a UCC-project (van Rooijen & Quak, 2010). Browne et al. (2005) and Marcucci and Danielis (2008) add that some UCC trials have been based on intuition rather than on quantified assessments which made them nonviable.

3.2.4 Summary: Distribution in Urban Environments

Transportation is a vital part of the supply chain as it connects different actors. The service itself is in general measured upon its service level. When this service is carried out in urban areas it is defined as UF transport which can be conceptualized as a UF system containing the spatial organization of activities, commodity market, trade relations, transport services and traffic system. The layout of the system and the
transports affects the costs of transportation, the last mile problem, and the route planning. To reduce the costs and last mile problem UCCs are often used.

3.3 Cooperation and Coopetition

This chapter refers to the interest in cooperation of the municipalities and the freight forwarders. This is followed by the characteristics and the definition of cooperation (including and horizontal and vertical cooperation). Finally, theory on the concept of coopetition is introduced.

3.3.1 Cooperation interest of municipalities

Cooperation with a municipality in a business context, for example distribution service, is only possible through public procurement once the municipality makes a public request for proposal (RFP). In Sweden the RFP for distribution services falls under LOU, the “Lag om offentlig upphandling” (law of public procurement). The six basic principles of the LOU RFP, as stated by Konkurrensverket (2017), the Swedish competition authority, are shown in Table 2.
Table 2: Basic Principles of LOU

1. **Non-discrimination**
   Prohibits discrimination of any supplier based on nationality (nationality, country of operation or start-up)

2. **Equal treatment**
   Give all supplier the same conditions for competition (ex. give them information at the same time etc.)

3. **Proportionality**
   Requirements and conditions should be proportional to the service or product that is to be procured.

4. **Transparency**
   Ensures transparency in the Bidding process, from RFP to supplier selection

5. **Mutual recognition**
   Certificates and the like that are accepted in other EU and ESS countries shall be recognized in Sweden

6. **Competition**
   The RFP shall not be formed in such a way that certain companies are favored or are disadvantaged.
   This includes the overall competition

The formulation of the RFP has to follow the regulations stated in LOU and the six principles mentioned above. Nevertheless, it has to be formulated and adapted to fulfil the demands of the government unit and use the competition on the market (Konkurrensverket, 2017), which thus means that the parameters such as demands contract time are adaptable.

In the bidding process the RFP winner is selected in two steps. The first step is the supplier qualification which separates the eligible participants from those that were not eligible. In this step the public RFP-issuing party ensures that the bidding participants meet all the “skallkrav” (compulsory requirement) which are based on the financial stance of the service or product supplier and technical and professional capacity. Important to note is that all participants that meet the demands are order qualifiers if they meet the requirements and therefore, if the requirements are met with large or small margins makes no difference (Konkurrensverket, 2017). In the second step the order winner is selected amongst the order qualifiers. This selection is based on the best relation between price and quality, costs, or price (Konkurrensverket, 2017).

From an actor perspective in UF the Municipality represents both their own interests and of the residents, including workers and shoppers (Muñuzuri, et al., 2012). Thus,
their aim in UF transportation is to increase quality of life through the absence of noise, air pollution, congestion, and traffic accidents (Taniguchi, et al., 2003; Russo & Comi, 2010). Taniguchi et al. (2003) list the authorities with their interest in limited social and environmental costs, and that they have the responsibility to balance the three aspects of stainability as the authorities are considered to play a vital role in coordinating urban freight.

3.3.2 Cooperation interest of freight forwarders

As the municipalities aim for the best sustainability trade-off they often buy the service from freight forwarders. Their interest are low freight costs, high service levels, and high delivery speed, accuracy, and reliability while at the same time maximizing their profits, reducing service costs, avoiding city congestion, avoiding the inefficient usage of vehicles, and reducing waiting and (un)loading times (Taniguchi, et al., 2003). Like any other company freight forwarders strive to increase their competitiveness on the market and maximize their profits which may cause problems for potential cooperation. In addition to that, these companies want to avoid exposing exploitable weaknesses and to leak sensitive information (Wang & Kopfer, 2014). When cooperating with an external part, freight forwarders have to balance a three-way trade-off according to Forsberg (2014) (Figure 9). This involves customer service, tied-up capital and costs. In short, the chosen customer service affects the costs and tied-up capital necessary (in form of trucks, terminals and other investments) to deliver the desired service level.

![Figure 9: Transportation Trade-Off (Based on Forsberg, 2014)](image)

3.3.3 Cooperation within the Distribution of Municipality Goods

Cooperation strives for joint value creation and benefits sharing (Raza-Ullah, et al., 2014). Based on convergence of interests companies strive to enhance their utilization of resources, performance and capabilities, and risks may be shared (Bouncken, et al., 2015).
Cooperation is the opposite of competition and while competition benefits from seeking benefits for oneself through opportunistic behavior, cooperation instead strives for joint value creating and sharing benefits (Raza-Ullah, et al., 2014). This joint approach is based on merging interests in the form of joint utilization of resources, capabilities, and capacities. Amongst the benefits are the sharing of risks and economies of scale (Bouncken, et al., 2015; Cruijssen, et al., 2007).

Cruijssen et al. (2007) mention three ways to gain the benefits of cooperation within networks. Firstly, by having parties pooling their resources and assets and then using these concentrated in core operations. The second way entails the leveraging of each participant’s strengths. The third and last way emphases the trade of resources, such as information or other assets, in order to gain mutual benefits and eliminate wastes such as costs arising from duplication (Cruijssen, et al., 2007).

This cooperation can both be conducted vertically and horizontally from a supply chain perspective. Vertical cooperation entails the cooperation upstream with suppliers and downstream with customers (Bengtsson & Kock, 2000). These relationships are mostly based on mutual interests and are the easiest to grasp according to Bengtsson and Kock (2000) as the activities are visible and follow the normal flow of activities and resources in a supply chain. Horizontal cooperation is instead the cooperation of companies that are on the same level of the supply chain (Bengtsson & Kock, 2000), such as for example freight forwarders in the distribution (McKinnon, et al., 2012).
3.3.4 Coopetition

The concept of coopetition is defined as cooperation of companies that are competing on the same market (Simoni & Caiazza, 2012), and are on the same stage within a supply network, such as for example freight forwarders (Cruijssen, et al., 2007). Therefore, in order to understand coopetition, it is necessary to understand competition. Competition is defined as “…the direct rivalry that develops between firms due to the dependency that structural conditions within the industry give rise to” (Simoni & Caiazza, 2012, p. 321). In other words, when two or multiple actors attempt to seize system- / industry-exclusive advantages such as the favor of the customer they are in a competitive situation. Thus, in a distribution context another firm is a competitor if the customer has the possibility to choose on which they want to invest their resources in.

These structural conditions lead to several benefits for both the competing firms and the customers. Bengtsson and Kock (2000) claim that competition is a central driving force for innovation and improvement of performance as companies strive to upgrade their competitive performance. Moreover, companies with local competitors in the same area face even greater pressure to create improvements in innovation and operations (Porter, 1990). However, with competitors in the same area companies run the risk of losing the competitive advantage as competitors may gain the knowledge to improve their

![Coopetition Diagram]
products and services or even imitate those through observations (Simoni & Caiazza, 2012).

Deriving from this coopetition is a form of horizontal cooperation with emphasis on cooperating with competitors (Barratt, 2004), as seen in Figure 10. This relationship between companies is often called paradoxical and dynamic as during a period companies simultaneously compete in some activities while also competing in others (Bengtsson & Kock, 2000). Coopetition is according to Cruijssen et al. (2007) not unseen among logistics service providers as the customers have higher demand on service quality while competition in the markets increases and product life cycles decrease. This coopetition relationship can be on strategic, tactical and operational level and thus varies in the benefits and risks (Verstrepen & Dullaert, 2009).

Logistics service providers gain several advantages through coopetition and the implied cooperation. By combining resources, capabilities, and effective governance productivity can be increased improving load factors and reducing empty mileage (Cruijssen, et al., 2007; Bengtsson & Kock, 2000). A reduction of the ton-km driven due to increased volumes enables load exchanges and coordinated planning (Verstrepen & Dullaert, 2009). Coopetition can also enable reduction of non-core operations costs which improves the competitiveness of the company. The main point of the coopetition is nonetheless to gain a synergy effect which Dyer and Singh (1998) define as:

“a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners” (Dyer & Singh, 1998, p. 662).

Cruijssen et al. (2007) state that these rational rents can be economies of scales, knowledge and learning improvements, higher customer service and financial benefits due to reduction of costs. Moreover can cooperating companies increase their bargaining power and thereby increase their total market share (Cruijssen, et al., 2007).

### 3.3.5 Impedes in Coopetition

However in order to gain the benefits of coopetition a win-win-win-situation (Company 1, Company 2, and Customer) has to be created, but this leads to multiple sources of conflict due to the complex and interdependent nature of the “coopetitive” relationship.
found in the fundamentally contradicting ways of thinking in cooperative and competitive relationships (Bouncken, et al., 2015). Several impedes have to be managed which are managerial and information communication technical (Bouncken, et al., 2015; Schulz & Blecken, 2010; Cruijssen, et al., 2007).

Managerial

Managerial impedes have to be managed in order to handle distrust and the competitive disposition in coopetition (Pathaka, et al., 2014) summarized in trust, operational compatibility and coopetition set-up. The first hurdle to coopetition, operative compatibility, centers on finding competitors to cooperate with. This is difficult due to partner unreliability and the complexity of intercompany operations cooperation (Schulz & Blecken, 2010). There exists a divide amongst scholars about the degree of similarity between the cooperating competitors when selecting potential partners. Stadtler and Van Wassenhove (2016) state that managers should select companies with different strategic goals and competitive similarities. Competitive similarities within distribution are technological expertise, and geographical and product/service range. In contrast, Ritala (2012) states that similarities among partners help to improve by “integrate and bundle similar resources in order to share risks and decrease the overlap in resource utilization for similar tasks” (Ritala, 2012, p. 309).

Secondly, after a potential partner is found, the next difficulty is to create a functioning set up as cooperation in distribution is an undertaking that is difficult to plan (Cruijssen, et al., 2007). Cruijssen et al. (2007) point out that the delegation of workload is a common problem as competing companies have similar goals such as executing revenue generating operations and visibility. This is then further complicated as Schulz and Blecken (2010) state that it is difficult to estimate the costs and benefits from the cooperation prior to the actual coopetition. Thus as neither the benefits nor the costs for the operations are known it becomes difficult to agree on a benefits and costs sharing model beforehand (Bouncken, et al., 2015). The last managerial problem is the unequal negotiation position between the companies when deciding on the coopetition set-up that is in the interest of both and does not cause distrust or a competitive disposition (Cruijssen, et al., 2007). The unequal negotiation power is caused by differences competitive strength and need of cooperation (Christopher, 2011).

Technical
The next main impede is information sharing, as in sharing specific and up to date information, as it is described pivotal in coopetition in distribution (Limoubpratum, et al., 2015; Peng, et al., 2012). Information sharing is important for coordinating the coopetitive companies’ activities and is usually handled by ICT systems (Limoubpratum, et al., 2015; Loebbecke, et al., 2016). However, companies may have differently advanced ICT solutions (Gunasekaran & Ngai, 2004) which can hinder those forms of cooperation that are dependent on the flow of information (Cruijssen, et al., 2007). The process of making ICT solutions compatible is dependent on trust as the sharing of information with competitors can be a sensitive matter. For example, companies fear that shared information will improve competing operations (Lou, et al., 2006). Additionally, the compatibility often entails adaption and investments in ICT solutions such as upgrading versions or custom solutions, which are costly (Buijs & Wortmann, 2015).

3.3.6 Summary: Cooperation and Coopetition

Cooperation is defined as two or more companies attempting a joint approach to value creating and sharing benefits based on a convergence of interests. Three ways to gain the benefits of cooperation are mentioned 1. pooling resources and assets for concentrated use in core operations 2. leveraging of participant’s strengths 3. trade of resources, such as information or other assets, to gain mutual benefits and eliminate wastes. This cooperation can be conducted vertically (with customers and suppliers) and horizontally (with other companies on the same level in the supply chain and direct competitors). The horizontal cooperation with competitors is conceptualized as coopetition and entails the simultaneous cooperation and competition with other companies on the same market. There are several impedes that must be managed which are of managerial and technical nature. When it comes to cooperation with a municipality for goods distribution the cooperation it must be managed through a request for proposal which is to follow the LOU. On the other end of the cooperation for distribution are the freight forwarders which must manage a trade-off between costs, tied-up capital and service level.
The frame of reference serves the purpose of operationalizing the barriers which are to be identified. To provide credibility, in the sense of validating the measurement, the researchers provide a two-dimension matrix of their own creation (Figure 11), which in turn is based upon the literature review and empirical data. The credibility of the sources is stated in in 2.8 and 2.10. The first dimension is “impact” which will be categorized in high, medium, and low impact. The impact of a barrier will be determined by the statements of the respondents in combination of its implications according to the literature review. Thus in other words the extent to which the barriers hinder the cooperation or coopetition between the involved parties for sustainable distribution. The second dimension is commonness which is determined by the number of respondents naming a specific barrier. The names of the quadrants are based on the abbreviations of both dimensions, thus a barrier which is deemed as highly impactful and highly common is in the HIHC quadrant, low impact and low commonness is in LILC, etc.

Figure 11: Impact-Commonness Matrix
5 Empirical Findings

After having contact with ten municipalities regarding their cooperation with private freight forwarders through UCCs, three cases are selected. Next, the results of the interviews with the municipalities of Växjö, Kalmar, and Borlänge including the municipalities’ (absence of) cooperation with the freight forwarders Alwex AB, DHL Freight (Sweden) AB (both Växjö), GDL Transport AB (Kalmar), and MaserFrakt AB and Godsservice i Dalarna AB (both Borlänge) and the freight forwarders’ stand on coopetition are introduced. The interviewees and their respective positions are found in Table 3.

Table 3: Interview Respondents

<table>
<thead>
<tr>
<th>Company / Municipality</th>
<th>Interviewee(s)</th>
<th>Position Interviewee(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Växjö Municipality</td>
<td>David Braic</td>
<td>Head of Procurement</td>
</tr>
<tr>
<td>Alwex AB</td>
<td>Ulf Holgersson</td>
<td>Head of Strategic Planning</td>
</tr>
<tr>
<td></td>
<td>Marlin Eklund</td>
<td>Strategic Traffic Planner</td>
</tr>
<tr>
<td>DHL Freight (Sweden) AB</td>
<td>Kenneth Berglund</td>
<td>Site Manager</td>
</tr>
<tr>
<td></td>
<td>Alexander Milosevic</td>
<td>Subcontractor</td>
</tr>
<tr>
<td>Kalmar Municipality</td>
<td>Maria Kleveborn</td>
<td>Head of Procurement</td>
</tr>
<tr>
<td>GDL Transport AB</td>
<td>Magnus Dahlgren</td>
<td>Head of Transportation</td>
</tr>
<tr>
<td></td>
<td>Joakim Mårtensson</td>
<td>Co-Owner &amp; CEO (Nya Ottenby Åkeri AB)</td>
</tr>
<tr>
<td>Nybro Transport AB</td>
<td>Johan Gunnarsson</td>
<td>Company Co-Owner &amp; Vehicle and Staff Manager</td>
</tr>
<tr>
<td>Borlänge Municipality</td>
<td>Kjell Friman</td>
<td>Enterprise Developer</td>
</tr>
<tr>
<td>MaserFrakt AB</td>
<td>Joakim Högås</td>
<td>Sales and Customer Responsible</td>
</tr>
<tr>
<td>Godsservice i Dalarna AB</td>
<td>Fredrik Fagerström</td>
<td>CEO</td>
</tr>
</tbody>
</table>

5.1 Case 1: UCC-Cooperation & Coopetition in Växjö

The first case is set in Växjö and involves the interaction of Växjö Municipality, its distributor Alwex AB, and the independent freight forwarder DHL Freight (Sweden) AB.
5.1.1 Case Introduction

In 2010 Växjö Municipality issued the latest public request for proposal for the transportation of the municipality’s goods, primarily food products designated for the city-operated institutions, such as school kitchens, but also paper products, cleaning products, amongst others. In order to reduce the amount of trips within the city center, the municipality demanded the winner of the bidding to operate a UCC to which the suppliers would deliver the municipality’s goods. Furthermore, the winner of the bidding would take over small parts of the inbound transportation, the storage of the goods, goods consolidation in the terminal, and distribution to the municipality’s units.

Alwex AB, a provider of logistics services established in Växjö in 2000, won the bidding for the distribution of the municipality’s goods. The company and its subsidiaries Alwex Intermodal, Alwex Recycling, and Alwex Lager & Logistik operate primarily in Southern Sweden with offices in Växjö (HQ), Alvesta, Kalmar, Uddevalla, Älmhult, and Malmö. Amongst the core products are transport, distribution, storage and warehousing services and heavy machinery rental.

With its 80,000 m² storage area and 300 transport vehicles, Alwex is in state to store and forward all of the municipality’s goods. In the company-owned distribution center, which is located in Räppe in the outskirts of Växjö, Alwex blends the goods of the municipality and the goods of the private retailers of the city center in its distribution vehicles. This means that during each delivery both the school kitchens and the private shops are served which increases the effectiveness of the consolidated goods distribution system.

Sustainability is the main reason for the municipality’s usage of the UCC. Växjö Municipality and Alwex state the following reasons for the parties’ cooperation:

- **Trips reduction**: Since Alwex distributes these goods through its UCC, the amount of trips into the city center of Växjö decreased from 1,900 to 350 per week (a reduction of 82%).
- **Increased work efficiency**: The municipality assumes that its employees save 258 hours of working time each week which they do not spend on receiving goods which improves the working environment as well.
- **Reduced CO₂-emissions**: As the municipality required the freight forwarder winning the bidding to use delivery trucks which are fueled by Hydrogenated
Vegetable Oils (HVO) or rapeseed biodiesel, the CO₂-emissions caused by these trucks distributing the municipality’s goods are reduced from 61kg to 4kg of CO₂ per ton delivered (a reduction of 93%).

- Reduced procurement costs: A reduction of suppliers increased the order volumes per supplier. This in turn increased the municipality’s bargaining power so that the procurement costs were lowered by 3.6 Million SEK (a reduction of 4%).

- Financial sustainability: Despite the fact that the costs exceed the lower procurement prices due to the consolidated goods distribution system by 1.5 Million SEK, the municipality is convinced that these 1.5 Million SEK are counterbalanced by non-quantifiable financial benefits, such as higher environmental and social sustainability within the city. The goal of the municipality is nevertheless to eliminate this financial deficit.

- Better working environment: Both for the receivers of the goods and the truck drivers and other employees of Alwex the cooperation between the freight forwarder and the municipality is beneficial. The receivers have less stress due to fewer deliveries which improves the working environment and the drivers are under a strict no-drugs policy, expanded by a formal personal agreement to distribute the municipality’s goods after the bidding was won in 2010.

5.1.2 Växjö Municipality
Cooperating with a private freight forwarder through a UCC was initialized by the city council in order to improve the environmental, social, and economic sustainability of the city.

According to David Braic, head of procurement at Växjö Municipality, the city’s decision to focus on sustainability entailed practical problems. As the usage of a UCC brings major advantages, the city itself did not have the competencies to manage the distribution of its goods (Braic, 2017). This task is not considered to be in the core area of activities. Outsourcing was consequently imminent. This lack of competencies is further paired with a lack of interest from the city’s politicians to insource these competencies due to the aforementioned core area of activities (Braic, 2017). The municipality did not think it should organize its goods distribution itself. The expertise of external freight forwarders would be more cost saving than building up this expertise
itself (Braic, 2017). Finally, regardless of the municipality’s distribution management competencies and the lack of interest to insource these competencies, the city did and does not own the storage capacities which would be necessary to set up a consolidated goods distribution system. High investments would consequently have been required in order to set up such a system. The cooperation with a professional freight forwarder was the obvious choice, according to Braic (2017).

The political determination to outsource the distribution of municipality goods to a freight forwarder resulted in only one bidder: Alwex. While the municipality does not know why only one logistics service provider participated, it claims that the requirements which are stated in the RFP, such as the availability of a terminal in the city’s vicinity and the capacities to distribute both chilled/frozen food and non-food articles, were not unrealistic for participants to fulfill (Braic, 2017). In addition to that, the price the municipality pays Alwex for the distribution of the goods is satisfactory for the municipality and according to Braic a fair market value.

Despite the fact that Växjö Municipality is satisfied with the cooperation with Alwex, having a second freight forwarder operating in the same terminal would be an option for the municipality as long as the demands are fulfilled (Braic, 2017). As the transportation requirements of food and of non-food articles differs, Växjö considered to split up the food distribution which makes up approximately 70% of the total municipality’s volumes and the non-food distribution. This possibility was disregarded when Alwex won the bidding since the freight forwarder is able to store and distribute both kinds of goods. Also, this idea was regarded as only one logistics company participated in the bidding (Braic, 2017).

The initially mentioned SAMLIC-project, revolving around the sectioning of the city of Linköping so that three usually competing freight forwarders reduce the amount of total trips during their distribution resulting in higher environmental, social, and economical benefits has not been discussed within Växjö Municipality. A reason, according to Braic, is the limited size of Växjö that might make a similar project infeasible. A need for a zoning project is not given in Växjö.

To sum up, Växjö Municipality describes the cooperation with Alwex as “good”. The communication between the authorities and Alwex works smoothly and the two parties utilize joint task forces searching for improvements in the goods distribution process.
5.1.3 Alwex AB

The winner of the bidding process for the distribution of Växjö Municipality’s goods, Alwex, forwards 100% of the articles the city requires. These goods, primarily food products, are the same kind as private retailers would ask Alwex to forward. This means that in its terminal Alwex mixes goods of the municipality with retailer goods which the municipality allows. Both food and non-food articles are distributed in the same trucks. In the past this has led to a fleet reduction and higher average truck utilization.

Alwex describes the cooperation with the municipality as a good business opportunity, especially since the infrastructure necessary for distributing the municipality’s goods already exists, and the knowledge and assets present at Alwex facilitate the distribution process. According to Ulf Holgersson, head of the strategic planning department, and Marlin Eklund, strategic traffic planner, Alwex did not have to make any investments in order to qualify for the bidding of the municipality.

Today, Alwex fulfills all of the municipality’s requirements as stated in the RFP. The change in fuel type and the purchase of additional vehicles are not a result of the cooperation with the municipality, but a consequence of additional distribution volumes. Despite not being in focus on the daily basis, social norms and rules are followed, which is indicated by the environmentally friendly delivery vehicles and the company’s participation in the “Fair Transport” of the “Svenska Åkeriförfundet”, the Swedish Haulage Association (Holgersson & Eklund, 2017). This initiative ensures traffic safety, climate-protection measures, and good working conditions for the employees of freight forwarders.

On the operational side, Alwex does not struggle with the last-mile problem to a high extent (Holgersson & Eklund, 2017). In Växjö, only trucks queuing at the private retailers cause occasional delays in the delivery. Also, the reduced amount of trucks as a result of the coopetition with competing freight forwarders led to higher truck utilization and ultimately to varying lead times due to changing demand patterns (Holgersson & Eklund, 2017). Highly utilized delivery trucks make spare delivery capacities scarce which can lead to higher costs and more complex routing as many retailers order at irregular intervals.

The RFP of the municipality states that the forwarder should have trucks with limited emissions, but beyond that Alwex is not affected in its daily operations by city policies.
However, once the bidding was won by Alwex, errors regarding the weight specifications in the RFP became evident resulting in renegotiations between Alwex and the municipality.

Coopetition, on the other hand, is an important topic at Alwex (Holgersson & Eklund, 2017). The freight forwarder regularly distributes goods of its competitors, such as Bing, TransFargo, Dachser, and Freja. These companies book transport space at Alwex because they might not have the volumes to distribute the last mile efficiently themselves. This coopetition, however, is limited to commercial goods and does not include the municipality’s goods. Regarding the other direction of coopetition, Alwex can generally imagine itself outsourcing volumes to competing forwarders, but it tries to keep volumes together as it makes the routing easier and cheaper (Holgersson & Eklund, 2017). Also, the market position of Alwex in Växjö is predominant, which means that the amount of competitors which are able to offer the services that Alwex can offer for a lower price is highly limited. Alwex does not show a general aversion against coopetition nonetheless.

The zonification of Växjö, as it was implemented within the SAMLIC-project in Linköping, is not an option for Alwex (Holgersson & Eklund, 2017). Firstly, the company considers Växjö as too small for such a plan. Secondly, there are only few forwarders Alwex could consolidate its goods with. Thirdly, the retailers are often not open to freight forwarder changes due to years of experience with a certain company. Fourthly, Alwex states, that big retailers, often part of a chain, do not determine their forwarder on a local level but the delivery strategy is determined in a central, supra-regional or even nationwide headquarter disallowing local branches to participate in a SAMLIC-like project.

As mentioned previously, Alwex does have experience with coopetition (Holgersson & Eklund, 2017). This experience, however, first had to be built up. Several difficulties for coopetition had to be overcome in order to have a good relationship with its competitors. When thinking about technical difficulties of coopetition the integration and automation of the processes can be a hindrance (Holgersson & Eklund, 2017). The sharing of information between the competitor and Alwex, too, caused a problem as errors occurred when a different freight forwarder booked transports with Alwex. Information sharing currently leads to manual labor and time pressure as the orders are
placed very late by competitors. Trust, for example to share information, on the other hand, is not considered a barrier for integration by Alwex.

An operational barrier to coopetition includes the loading and unloading of competitors’ trucks (Holgersson & Eklund, 2017). There are trucks of other freight forwarders which need to be loaded and unloaded from the sides, not from the back. Alwex is not able to do this as its trucks are loaded and unloaded from the back. The most impactful barrier to coopetition is, however, not of operational nature, but of economical nature: the right price. If the price is low enough for Alwex, the company is willing to outsource transports. Also, the reliability of the other forwarders when outsourcing transports needs to be guaranteed. As an example Holgersson and Eklund state his company’s participation in “Fair Transport” (Holgersson & Eklund, 2017).

Alwex wants other stakeholders of the distribution process, such as suppliers, competitors, and receivers, to work together with them, orchestrated by the municipality. The company proposes that only electric vehicles are allowed in the city center, making long distance deliveries to the city center impossible. This would encourage local companies as well.

All in all, Alwex describes the cooperation with Växjö Municipality as “good”. While there have been problems in the beginning of the cooperation, such as incorrect weight specifications in the municipality’s RFP, the authorities give leeway to Alwex which the forwarder perceives as positive. Also the coopetition with other freight forwarders in general works well for Alwex, but late and incompatible orders cause difficulties for the Växjö-based company.

5.1.4 DHL Freight (Sweden) AB

The global freight forwarder DHL is specialized in the transportation of parcel goods and general cargo. In its terminal in Växjö this includes food products as well, but not frozen goods. DHL does not distribute the goods of the municipality as Alwex has won the bidding. The reason why DHL Växjö did not participate in the bidding for the distribution of the municipality’s goods is that the company did not get notified of the bidding. In addition to that, the interest in the bidding was low as DHL’s headquarter possibly would have denied the participation in the bidding.
As the municipality does not have a say in the daily operations of DHL, the company consolidates different kinds of goods (e.g. food and non-food articles) in its trucks which could have been different if the municipality were a customer of DHL. The possibility to consolidate goods has led to a reduction of the fleet size. This is in line with the company’s agenda on environmental sustainability. It set itself the goal to reduce its CO₂-emissions by 30% by 2020 as compared to 2008. Annual revisions of its operations and of the operations of its subcontractors are measures to reach this goal. Engine, tires, oil and other vehicle-related components are checked regularly. Finally, DHL cooperates with Volvo Trucks to improve the design of its vehicles in order to meet the environmental requirements of the future.

Social sustainability is, on the other hand, not a top priority of DHL. Improvements in the “psycho-social work environment” and continuously reviewing the work safety standards are measures in this area that DHL takes nevertheless.

In its daily operations, the last mile problem does not play a big role at DHL Växjö as compared to the DHL branches in bigger cities. A relevant concern in Växjö, however, is deliveries to malls as the goods reception there is often unorganized. The biggest problem mentioned by DHL, however, is the large amounts of delivery points which need to be served within small time windows. There are not many fluctuations in the lead times, but whenever they do occur, it is primarily due to occupied loading zones in the city center. In that case the truck driver needs to wait until the zone becomes available.

When it comes to the authorities as a facilitator of DHL’s distribution Kenneth Berglund, site manager, and Alexander Milosevic, subcontractor at DHL, mention increased time windows during which the freight forwarder can deliver the goods. Further, the municipality should, wherever possible, increase the amount of loading zones in the city center.

DHL does have a certain degree of coopetition with other freight forwarders, but this is primarily the case in rural areas and therefore not in Växjö (Berglund & Milosevic, 2017). According to Berglund and Milosevic (2017), the company could see itself cooperating with competitors in Växjö if “the deal is good and holistically beneficial” (Berglund & Milosevic, 2017). For DHL a SAMLIC-like project is difficult to evaluate as the company does not know the transport volumes of its competitors. The project
would only be possible to be successful if all freight forwarders involved forwarded similar volumes. In addition to that, the payment formalities might become an issue as some transports are paid by the sender of the goods, and some transports are paid by the recipient (Berglund & Milosevic, 2017). Also, low margins make the business vulnerable, which can have a large negative impact if the coopetition with another freight forwarder goes wrong. This circumstance adds complexity to a possible coopetition.

As technical barriers to coopetition, Berglund and Milosevic (2017) mention IT security and the integration of different IT systems. In the long run, however, these problems can be overcome as the development of IT systems advances and platforms become compatible. Trust issues between DHL and its cooperating competitor and the willingness to finance the mutual project could be of higher relevance.

One concern that DHL sees when cooperating with another freight forwarder is the creation of a cartel. The customer would be limited in its choice of supplier and might be overcharged which can create legal issues of the joint distributors (Berglund & Milosevic, 2017). From the company’s point of view, a coordinated order placement by the retailers would facilitate the distribution process to a large extent. As they are competitors themselves, the two DHL-representatives do not see this happening in the near future.

On the operational level, the increased amount of trips, especially internally, but also between the two forwarders’ terminals, creates additional costs which the parties need a cost-sharing agreement upon. It might become a difficulty to fairly split up the transport volumes amongst the companies while at the same time having equal benefits in mind. Daily and seasonal variances in volumes do not make the task easier for DHL and its partner (Berglund & Milosevic, 2017).

DHL further states the lack of available truck capacities as a potential barrier for coopetition. The utilization of its trucks is already high, which is why the investment in additional ones needs to be contemplated carefully. Additional loading and unloading can also lead to more damages in the process, putting the coopetition at stake (Berglund & Milosevic, 2017). Finally, DHL mentions its service portfolio which the company needs to offer anywhere it operates. If the company collaborates with a different freight forwarder, it might become difficult for that forwarder to uphold the minimum services
DHL guarantees. All in all, DHL considers the changing transport volumes as main barrier for coopetition.

Despite the fact that DHL does not distribute the municipality’s goods, its relationship is good as the freight forwarder is part of an information exchange network which consists of the municipality, other freight forwarders, and retailers. The company does not have a close cooperation with competitors in Växjö, but is generally open to this idea. Technical, legal, and operational concerns are, however, off-putting for DHL in Växjö.

5.2 Case 2: UCC-Cooperation & Coopetition in Kalmar

The second case is set in Kalmar and involves the interaction of Kalmar Municipality, its distributor GDL Transport AB, and the independent freight forwarder Nybro Transport AB.

5.2.1 Case Introduction

GDL built and owns the UCC located in an industrial park in Kalmar. In its terminal, GDL consolidates municipality goods and retailer goods and distributes these goods in the same trucks since the company signed the eight-year cooperation contract with the municipality in 2014. The municipality left the decision to blend the goods destined for the municipality and the retailers up to the forwarder which resulted in GDL’s decision to mix them. However, the municipality does not permit the forwarder to mix food and non-food articles in its trucks. In the UCC GDL primarily handles and distributes food, both frozen and chilled, for the municipality. In addition to the terminal and outbound activities, GDL executes minor inbound transports from selected suppliers.

At the moment GDL distributes municipality goods in Kalmar by utilizing two trucks which satisfy today’s demand. If, however, the municipality were to increase the volumes so that two trucks would not be enough for the distribution, the forwarder faces a problem as the third truck would be utilized very unsatisfactorily. From its terminal in Kalmar GDL does not only distribute the goods for Kalmar Municipality, but also for two other municipalities, Nybro and Torsås.

The municipality has not considered buying the terminal from GDL, but it considered to build its own terminal before the RFP for the distribution of municipality goods was issued. The decision to work with a private freight forwarder was supported by the high
costs of building a terminal and the opening hours of such a UCC as it is against municipality policy to work during night times and holidays which would have been necessary to do.

5.2.2 Kalmar Municipality

The need for UCC-cooperation arose as the municipality faced operational problems when distributing its goods by itself, according to Maria Kleveborn, head of procurement at Kalmar Municipality. The fact that the municipality had no terminal available, including the staff for operating it, and building one would take up too much time led to the decision to cooperate with a private freight forwarder. A license for handling food, as GDL has it, was another criterion to seek external help with the distribution (Kleveborn, 2017).

The requirements of the municipality to the freight forwarder GDL was therefore to have both a terminal available in the proximity of Kalmar and the trucks necessary for the distribution (Kleveborn, 2017). Further, the municipality wants the GDL to be able to store municipality goods for up to one week, which complicates the circumstance as the forwarder primarily forwards food for the municipality. Finally, the forwarder which was to win the bidding had to be creditworthy and was not allowed to have any outstanding tax liabilities (Kleveborn, 2017). The goal of the cooperation was that both the municipality and the freight forwarder would have equal economic gain, according to Kleveborn (2017). Nevertheless, the successful bidder amongst all participants which fulfilled all of these criteria was chosen based on the bid price.

Kalmar Municipality is satisfied with the performance of GDL and has therefore also not considered let multiple forwarders at the same time operate from the same terminal and a SAMLIC-like project is also nothing the municipality considers feasible in Kalmar. The beginning of the cooperation, however, has brought up several initial problems which can be traced back to the contract which both parties interpreted it differently.

5.2.3 GDL Transport AB

GDL won the bidding process of Kalmar Municipality in 2015. The freight forwarder itself was the result of a merger of the transport and logistics companies Samfrakt, Östgötafakt, GKF, and GDL in 2011. The firm’s head office is located in Helsingborg
with subsidiaries in 14 other Southern Swedish cities, one of them being Kalmar. The company offers a wide range of services, amongst them the transportation of chilled and frozen goods, as well as container and road tanker transportation within Sweden and Europe wide.

GDL’s role in the distribution process of municipality goods in Kalmar is that of an agent. The company owns and operates its own terminal in the city, but the transports to the schools are outsourced to the freight forwarder Nya Ottenby Åkeri AB, a specialist in the transportation of chilled goods which is represented by Joakim Martensson.

For GDL the decision to cooperate with the municipality was a strategic one. By participating in the bidding process, the company wanted to avoid losing market share to its competitors. The cooperation secures the company future operations and the employment of its assets. Magnus Dahlgren, head of transportation at GDL in Kalmar, however, doubts if the company would have participated in the bidding today having today’s information available. By this, the manager refers to an error in the RFP of the municipality which did not state a deadline by which the distributor had to deliver the goods to the schools. The company calculated its costs and vehicle utilization in a way that the costs are lower than the competitors’ due to the fact that the company assumed that the goods can be delivered within a time window of 12 to 13 hours (Dahlgren, 2017). The additional costs which occurred when the municipality stated that the goods had to be delivered within a six hour window had to be paid by the forwarder.

On top of the time window error, incorrect goods weights specifications – the municipality stated net figures instead of gross figures without packaging and pallets –, and the receivers were unprepared for the change of the distribution schedule (Dahlgren, 2017). Many of these especially in the beginning occurring problems could be solved in the process, but the forwarders opinion on the municipality and the cooperation contract could be better still today.

For the municipality GDL’s partner Nya Ottenby Åkeri distributes all kinds of goods requested, but primarily food, both chilled and frozen, to the schools, offices, and kitchens in the area (Martensson, 2017). Approximately 15% of GDL’s distribution activities are executed on behalf of the municipality. The quantity amounts to two trucks per week.
Environmental sustainability is very important to GDL. Environmental protection is a core principle and responsibility of the company, but in the end the customer has the last word whether it is worth paying more for environmental friendly services (Dahlgren, 2017). For instance, the freight forwarder converted all of its vehicles to rapeseed biodiesel for which GDL was willing to invest 450,000 SEK.

On top of that, in order to increase the company’s social sustainability, the vehicles which had been converted to rapeseed biodiesel in 2015 were equipped with 360° cameras and a collision detection system to increase the safety of the driver and other road users, especially children playing in school yards (Dahlgren, 2017). These trucks, further, emit lower noise levels to avoid disturbance of residents in the city.

On the operational level, the last mile problem is solved by consolidating large volumes of goods for different customers (Dahlgren, 2017). The result is a high average level of truck utilization which causes problems in the distribution process of seasonally varying goods. When the goods are being delivered to the municipality’s kitchens, for example, the recipients often have storage problems which is why they demand smaller deliveries (Martensson, 2017). This is, however, not in the interest of GDL and also not in the interest of the municipality’s procurement department.

The time window during which GDL must deliver to the schools in Kalmar is, according to Dahlgren (2017), unrealistic as the company has too little time to deliver to all of them in time. As a result, the company had to allocate a second truck for the distribution increasing the costs further. The environmental demands of the municipality, to reduce CO₂-emissions and congestion through fewer trips in the city, have therefore been difficult to fulfill.

Generally speaking, GDL is satisfied with the cooperation with the municipality. The communication could be improved, according to Dahlgren (2017), but overall the relationship has improved after the starting problems have been solved.

When being asked about GDL’s opinion on cooperation with a competing freight forwarder in Kalmar, Dahlgren (2017) says that GDL is generally open to negotiate a cooperation with competitors but also assumes that the freight volumes for Kalmar are too small for coopetition. The limited delivery-windows during which the customers demand the forwarders to unload the goods are in fact an opportunity to cooperate with a competitor, but in the end such a step needs to be financially viable. For GDL both the
insourcing of competitors’ transport and the outsourcing of transports which are executed by Nya Ottenby Åkeri are within the realm of possibility.

Dahlgren (2017) considers the regulations regarding the transportation of food as a barrier to coopetition. GDL mainly forwards food, which is why a possible partner would have to have the same licenses as GDL so that no disruption of the cooling chains are guaranteed and that the handling of the food is up to standard.

A threat for GDL when outsourcing key processes to competitors would a loss of quality. If the competitor is not as reliable in the distribution of goods, especially when the competitor distributes in the name of GDL, the customers could be disappointed and choose a different freight forwarder for their goods in the future (Dahlgren, 2017).

One requirement that Dahlgren (2017) considers relevant for coopetition is the usage of the same ERP-system so that information can easily be exchanged and both forwarders know the expected volumes which each of them is going to forward.

As of today, GDL is involved in coopetition to the extent that the firm allows other freight forwarders of cooled goods to use the terminal (Dahlgren, 2017; Martensson, 2017). A closer cooperation, however, is deemed to fail as Kalmar is too small for such efforts of the distributors. The volumes are too low which is why the market in Kalmar-dominated by DHL, PostNord, and DB Schenker – is not attractive enough for these three companies to get involved with one another or with GDL for that matter.

According to Dahlgren (2017), the municipality cannot do much to incentivize coopetition. The introduction of time windows during which trucks may enter the city center would be counterproductive as the forwarders had to use additional trucks to unload all the goods in time. For the logistics companies this would result in higher costs and for the municipality a decline in social and environmental sustainability. In order to improve the sustainability, the city should introduce stricter emission standards, for example the Euro V or Euro VI classification standard for trucks.

Technical issues that can arise through coopetition are incompatible ERP-systems (Dahlgren, 2017). Each company has its own IT solution, but this should be, according to GDL, rather easily be solved as the systems might not be identical, but nevertheless similar. The technical equipment of the trucks would have to be modified, which is, in
Dahlgren’s (2017) opinion, a minor step to take. Transparency amongst the coopetitors is in his opinion crucial.

Dahlgren (2017) further doubts that other freight forwarders are willing to cooperate with GDL in the same way DB Schenker, PostNord and DHL cooperated in the SAMLIC-project. A parallel to Linköping would be the company strategy of PostNord to be visible in public during the distribution. If some transports are transferred from PostNord to GDL, the publicity of PostNord in Kalmar would decrease. Consequently, the business strategy could be a hindrance of coopetition.

Another problem which is noted by GDL is the billing process (Dahlgren, 2017). Today, the company picks up goods from the supplier, brings them to its terminal, stores and consolidates them, and finally distributes them to the receiver. For all of these processes GDL issues one bill to the customer. If one or several parts of the process chain is/are taken over by a different forwarder, this forwarder would issue a bill itself, which both in the end must be paid by the customer. For GDL the billing process would become more complicated and it is not an option to issue two or more bills to the customer (Dahlgren, 2017).

The locations of the terminals of GDL’s main competitors impose a problem of a possible coopetition. Nybro Transport AB, a forwarder operating on behalf of DB Schenker, is located in Nybro, DHL’s terminal is located in Oskarshamn, and PostNord, just like GDL, in Kalmar. The distance between Kalmar and Nybro is around 35 km and between Kalmar and Oskarshamn it is around 70 km. Transferring goods amongst the forwarders will be complex and possibly financially not viable, especially against the background that Kalmar is a small city with a limited amount of good to be distributed.

On the operational level, GDL has a high level of truck utilization. If the amount of goods increases significantly because of coopetition, the company would be forced to invest in additional trucks, which, if financially beneficial, is something the company is willing to do. However, if there are no significant increases in goods volumes, investments in extra trucks will not be profitable (Dahlgren, 2017).

To sum up, GDL is satisfied with the cooperation with the municipality despite the fact that in the beginning the relationship was anything but good. Misunderstandings of the distribution process led to renegotiations until both parties better understood what was being expected from them. Cooperation beyond the one with Nya Ottenby Åkeri, on the
other hand, is an interesting aspect for the company, but there are too many obstacles for GDL, the distances between the terminals of the different competitors and the unknown financial terms on which the companies would need to agree upon being the ones sticking out above all others.

5.2.4 Nybro Transport AB

Nybro Transport is a family-owned freight forwarder located in Nybro, 35 km outside of Kalmar. The company is specialized in long distance haulage and distribution of chilled goods. Through its 65 vehicles and 100 employees, Nybro Transport generates an annual turnover of 90 Million SEK. The forwarder’s main area of operation is in the four Southern Swedish provinces of Småland, Skåne, Blekinge, and Västergötland. On behalf of DB Schenker Nybro Transport distributes from DB Schenker’s terminal in Nybro to surrounding municipalities, Kalmar being one of them.

Nybro Transport does not forward any goods for Kalmar Municipality as the company did not win the bidding against GDL. During the bidding process the forwarder was in contact with the municipality due to follow up questions regarding the distribution of municipality goods. For Nybro Transport it was a strategic decision to execute the distribution as it is similar to the operations which the company already conducts. Winning the bidding would have secured assets in form of a terminal and employment. According to Johan Gunnarsson, one of three family business owners responsible for vehicles and staff, there are two reasons for not winning the bidding. On the one hand, Nybro Transport could not match the price that GDL had to offer and on the other hand, the current fleet size was insufficient to distribute all of the municipality’s goods. While the first reason led to the municipality’s decision to cooperate with GDL, the second problem could have been solved as Nybro Transport was willing to invest in additional trucks if the bidding was won.

One of the reasons why Nybro Transport qualified for the bidding was its specialization in the transportation of chilled goods. In its daily operations it primarily forwards non-chilled goods on behalf of DB Schenker, but chilled goods transportation is also in the company’s portfolio. The costs for the distribution of retailer goods are, as Gunnarsson assumes, lower than for the distribution of municipality goods as the company would have more flexibility when distributing retailer goods. For example, it would be up to
Nybro Transport to consolidate food and non-food in its trucks as compared to many municipalities’ demand to not mix these two kinds of goods.

Environmental sustainability is, further, an important matter for Gunnarsson’s company. Its strategy is to use the latest technology, techniques, and fuel types. In that line, new trucks of the Euro-6 classification have been purchased and the fuel type was changed to HVO and rapeseed biodiesel. Courses on environmental protection were given to truck drivers and motor heating of the trucks was introduced to reduce CO₂-emissions. All of these measures, however, need to be financially stable in order for Nybro Transport to be competitive in the market, Gunnarsson states.

Social sustainability is a less important issue for Nybro Transport in its daily operations. The company does keep all stakeholders of the company’s distribution activity in mind when implementing any changes. Reducing the running time of engines while the vehicle is idle standing in front of schools could be something the freight forwarder will focus on in the future.

In its daily operations the last mile problem is not a key factor for Nybro Transport. There are traffic congestions at certain places at certain times in Kalmar, but the negative impacts of this circumstance are balanced out by the consolidation of goods leading to highly utilized vehicles. A more significant role for the forwarder is played by the rather small time windows during which the delivery should arrive at the receivers. Both the time windows imposed by the municipality on all forwarders and the time windows requested by the retailers made Nybro Transport increase its distribution fleet and its staff count.

In DB Schenker’s terminal in Nybro, the forwarder consolidates both food, frozen and cooled, and non-food articles. If it had won the bidding of Kalmar Municipality, the company would have stayed with this strategy and would have consolidated goods which are determined for the municipality and for the private retailers.

The topic coopetition is encountered cautiously by Johan Gunnarsson. The manager sees the difficulty of how coopetition can be made feasible. The benefits of a SAMLIC-like cooperation are easier route planning and quicker consolidations of trucks, just like a faster unloading process. It is, however, questionable if the zonification of Kalmar alone would benefit all forwarders due to the small city and volume size. Optimized routes would not counterbalance this circumstance. If the forwarders increased the zone,
for example by including Nybro, the attractiveness of coopetition in the region could increase as well. Generally speaking, the company can imagine insourcing and outsourcing orders which are difficult to handle or especially profitable, but there are no concrete plans to cooperate with a direct competitor at the moment.

Gunnarsson appreciates it if the municipality supported a SAMLIC-like project, for example through financial incentives and longer access hours for trucks to the city center. The municipality can therefore actively influence the decision of Nybro Transport to consider coopetition.

As mentioned earlier, the main technical barrier for coopetition is, in Gunnarsson’s opinion, the sharing of information and the IT setup. For instance, the implementation of a mutual truck tracking system can create problems which cannot be solved in the short run. Sharing customer demands and follow-ups can fail due to the incompatibility of the forwarders ERP-systems. This problem, however, can be solved as all freight forwarders use similar, but nevertheless often incompatible, systems.

For Nybro Transport, the sharing of information is a risk. If the competitor knows the company’s customers, prices, financial assets, and freight volumes, it could rather easily be replaced by a competitor. Trust is consequently a big barrier for coopetition.

Due to the fact that the distribution market in Kalmar is dominated by the three big forwarders DHL, PostNord, and DB Schenker, for which Nybro Transport executes certain transports in the region, the possibility is given that a coopetitive move might be classified as cartelization. In that case the legal barriers would be too high for these companies to work together.

The smallest barrier to coopetition is, according to Nybro Transport, operations. Exchanging goods amongst the forwarders is not considered a problem. More relevant could be the question of what products what forwarder is going to transport. This could be a cause of friction as it is a matter of negotiation between the forwarders.

Overall, Gunnarsson says that forwarding information to other freight forwarders and letting a customer be served by a competitor feels wrong. The possibility of being replaced because the competitor has important information could put Nybro Transport out of business and is consequently considered the main barrier to coopetition.
5.3 Case 3: UCC-Cooperation & Coopetition in Borlänge

The third case is set in Borlänge and involves the interaction of Borlänge Municipality, its distributor MaserFrakt AB, and the independent freight forwarder Godsservice i Dalarna AB.

5.3.1 Case Introduction

For the municipality in Borlänge, MaserFrakt transports mostly food, but also paper, plastics, and work clothing for the municipality. These goods are delivered to the municipality’s retirement homes and schools. MaserFrakt won the bidding process in 1999 for a total of six municipalities located in Sweden’s province Dalarna. The company divides up its activities into the three subsidiaries MaserFrakt AB, MaserFrakt Anläggning AB, responsible for construction projects, and MaserFrakt Distribution AB, responsible for the distribution of goods from two terminals located in Borlänge (province of Dalarna) and Gävle (province of Gävleborg). MaserFrakt as a whole is one of the largest machine and transport forwarding agent in Sweden.

MaserFrakt can handle 100% of the goods the municipality requires, which is in parts due to the rather small amount of goods being forwarded in the city center with 41,000 inhabitants. Making up 15-20% of the total volumes of MaserFrakt, the freight forwarder handles terminal activities and outbound (distribution) activities for the municipality goods. The company has its own UCC exclusively for municipality goods in Borlänge. Before the bidding in Borlänge was won, the company had one terminal for retailer goods, but had to rent a second one from Godsservice i Dalarna AB, a competitor which did not win the bidding, in order to handle the goods of the municipality. The handling and distribution these two kinds of goods is consequently separated at the request of the municipality, which, according to Joakim Högås, sales and customer responsible for the municipality at MaserFrakt, makes no difference qua operational costs. This request to separate municipality and retail goods was a requirement stated in the RFP.

MaserFrakt does not mix municipality and retailer goods as the municipality does not see the inefficiencies the company is facing, according to Högås (2017). Borlänge Municipality states that time constraints and billing issues would arise if MaserFrakt mixed municipality goods and retailer goods in its delivery vehicles, despite the fact that this measure would increase load factors, the amount of trucks on the road, and the
distances driven. Chilled goods are distributed together with frozen goods in the same trucks regardless (Högås, 2017).

The requirements stated by Borlänge municipality in the RFP led MaserFrakt to the decision to invest in additional trucks and in the rental of the second terminal. This additional tied-up capital is necessary in order to meet the service expectations of the municipality. In line with the additional investments are more fuel-efficient trucks, which, according to Högås (2017), was according to the agenda of MaserFrakt to improve the company’s carbon footprint and to meet customer demands. These steps further have a positive impact on social sustainability as they reduce the CO₂-emissions and consequently improve the quality of life for city residents and MaserFrakt staff. The company, however, admits that social sustainability is not a top priority.

With regards to the last mile problem, MaserFrakt is primarily affected by time and storage constraints as the size of the company is limited (Högås, 2017). The lead times of the deliveries are another problem of MaserFrakt as they fluctuate on a regular basis without the company knowing the exact reasons for this. The distances between the terminal and the delivery points or the distances between the different delivery points are, however, not an issue that the company is concerned with.

5.3.2 Borlänge Municipality

The step to outsource the municipality’s distribution of goods was necessary as Borlänge does not have the competencies to not only distribute the goods itself, but also to four other municipalities in the surrounding of Borlänge. This coordinated approach put the municipalities in a better negotiation position with the freight forwarders, says Kjell Friman, Enterprise Developer at Borlänge Municipality.

Borlänge Municipality is satisfied with the distribution services which MaserFrakt executes as the freight forwarder fulfills all of the requirements that are important to the municipality (Friman, 2017). Amongst these are the vehicle types, the environmental friendliness, and the forwarder’s working conditions. Further, the company has a suitable terminal for the operations and the municipality is lacking the expertise and equipment to distribute its own goods.

The temperature-controlled terminal in which the forwarder can handle food is one of the major requirements the municipality had to forwarders and therefore the key
criterion for exclusion of a bidder (Friman, 2017). This requirement, however, reduced the amount of bidders as the market in Borlänge is limited in size and the amount of forwarders owning a terminal in the city’s vicinity is limited, especially the temperature-controlled terminals.

Overall, the cooperation with MaserFrakt works well and the municipality is happy with the distributor’s performance. The lack of alternatives to MaserFrakt is, however, not in the interest of the municipality as it hinders competition.

5.3.3 MaserFrakt AB
Högås (2017) states that MaserFrakt sees the cooperation with the municipality positively and that the municipality is well aware of the terminal and distribution process of the company. In case of problems the two parties are in close contact with one another.

According to MaserFrakt AB, the municipality’s calling for a bid in itself is feasible to follow, but some formulations in the RFP could have been formulated better. Errors in the RFP led to problems with statistics and the delivery notes were based on information which the municipality in turn had based on its previous distributor (Högås, 2017). Incorrect assumptions in the RFP consequently led to initial problems after MaserFrakt had won the bidding, but these problems were solved after a bumpy start.

Another issue mentioned by Högås (2017) is the delivery times determined by the municipality. The freight forwarder needs to deliver to the schools and retirement homes before ten o’clock in the morning which is a challenge to MaserFrakt. Renegotiations were not possible, but the distributor is able to meet this deadline.

Apart from the positive cooperation with Borlänge Municipality, MaserFrakt is also confident about cooperation with a competing freight forwarder (Högås, 2017). The fact that the company already shares the terminal from which the municipality goods are delivered is being shared with another freight forwarder makes it realistic for MaserFrakt to extent this coopetition and/or adding another partner to the coopetition. Högås (2017) is confident that coopetition reduces the amount of trucks required and the distances travelled, and could increase the utilization of the fleet. Both taking over transport from competitors and outsourcing certain transports to a different freight forwarder are imaginable from MaserFrakt’s point of view.
Starting up a project like the SAMLIC-project with competitors in Borlänge is possible, according to MaserFrakt. However, due to the fact that each freight forwarder uses a different kind of system, for example for creating invoices, technical difficulties could occur in such a project. High investments would be a consequence which could scare off possible partners (Högås, 2017). If such a problem is overcome, however, MaserFrakt could see itself in a SAMLIC-like project.

Besides the technical barrier, which does not only involve the incompatibility of two or more systems but also the willingness to share sensitive information with competitors, MaserFrakt considers the delegation of tasks as a major issue when cooperating with a competitor. The question of what forwarder takes over what tasks for what customers, considering that the tasks differ in profitability, needs to be answered (Högås, 2017).

Further, the creation of a cartel could pose a legal barrier to coopetition, according to Högås (2017). In many aspects coopetition can weaken competition resulting in disadvantages for the customers. Högås (2017) stresses that also forwarders which are not in the coopetition network might claim the legality of such a network as it bundles the potential of several forwarders creating a stronger forwarder to compete against. MaserFrakt would only agree to coopetition if all legal barriers are removed.

On the operational level, MaserFrakt mentions the characteristics of food, which the company primarily forwards, as a hindrance to coopetition. Not all competitors are specialists in the transportation of chilled and frozen goods, which makes collaboration unrealistic (Högås, 2017). This problem is related to the UCC, too, as food cannot be stored in any warehouse. The infrastructure is therefore vital for coopetition, according to MaserFrakt.

The most impactful barrier to coopetition, from the point of view of MaserFrakt, is the costs (Högås, 2017). In the logistics industry the profit margins are already low. This is why any risky endeavor, such as cooperation with a competitor, can threaten the financial survival of a freight forwarder. In the case of MaserFrakt, the coopetition was necessary as the company required a second terminal for the distribution of municipality goods. Its coopetition involves renting such a terminal from a competitor.

When it comes to the question whether the company considers the facilitation of coopetition as a responsibility of the municipality, MaserFrakt assigns a crucial role to Borlänge Municipality. The municipality can be a central actor that should encourage
freight forwarders to cooperate with each other, making use of subsidies and tax cuts as incentives and also applying restrictive policies moving the forwarders into coopetition (Högås, 2017).

Overall, MaserFrakt is satisfied with the cooperation with the municipality and the communication channels between the two parties work well. Some minor issues with the municipality are manageable. The coopetition with another forwarder is limited to operating from the competitor’s terminal. It is, nevertheless, beneficial for MaserFrakt which is why the topic of coopetition is viewed positively by the company.

5.3.4 Godsservice i Dalarna AB

Godsservice i Dalarna AB is a freight forwarder executing transports for DB Schenker in the Swedish province of Dalarna. The company, established in 2002, turns over 100 million SEK per year and operates 85 distribution vehicles. Since 2013 Godsservice i Dalarna has its own terminal in the proximity of DB Schenker’s terminal in order to better coordinate the companies’ business activities.

Godsservice i Dalarna did not participate in the RFP of Borlänge Municipality because the municipality did not convincingly calculate the costs that the distribution of the goods would bring with it. According to Fredrik Fagerström, CEO of Godsservice i Dalarna, MaserFrakt, the winner of the bidding, distributes the goods of the municipality with a loss. The manager accuses the municipality of not knowing the details of the distribution process, which is why his company withdrew from the bidding process (Fagerström, 2017).

Another reason for the withdrawal from bidding was the investment that would have been necessary for Godsservice i Dalarna to qualify for the bidding (Fagerström, 2017). The length of the contract would have allowed this investment in the infrastructure, but the municipality was not able to present the case convincingly. Too many questions from Godsservice i Dalarna regarding the foundation of the distribution activities remained unanswered.

Godsservice i Dalarna is rather skeptical towards coopetition despite the fact that the company, to a small extent, already cooperates with a competitor: MaserFrakt, which uses Godsservice i Dalarna’s terminal for the distribution of municipality goods. Fagerström (2017) sees a difference between theory and practice. Theoretically, deep
coopetition would lead to benefits, but it also includes technical and legal question marks (Fagerström, 2017).

The need for coopetition in Dalarna is more acute in the rural areas outside of Borlänge than in the city center. Godsservice i Dalarna and several of its competitors distribute goods to remote villages with less than 1,000 inhabitants which is costly for each of them. This is why in the medium-distance distribution the benefits of coopetition could be larger than coopetition in the distribution of municipality goods into the city center of Borlänge (Fagerström, 2017). Nevertheless, Fagerström (2017) could imagine his company to take over some of the MaserFrakt’s municipality orders. The coopetition already includes outsourced municipality food transports from Godsservice i Dalarna to MaserFrakt, which in turn operates from the terminal owned by Godsservice i Dalarna.

In Fagerström’s opinion there are too many trucks driving around in Borlänge, which is why he can imagine a SAMLIC-project being started in the city. As mentioned previously, however, for Godsservice i Dalarna coopetition is more relevant on the countryside (Fagerström, 2017). There, long distances and low volumes limit the profitability of the transports. If, nevertheless, such a project would be started, retailer goods might have priority as the goods volumes for the schools and retirement homes are too low for a distribution layout with several forwarders.

The municipality should therefore also not be involved in such a private sector decision, according to Fagerström (2017). The rule that a municipality must not take any measures which limits competition in the market is established in the Swedish “Competition Law” (Konkurrenslag). According to the CEO, the law would object to a SAMLIC-like project.

If, however, a cooperation between Godsservice i Dalarna and a competitor were to be started, Fagerström (2017) sees the problem that his company cannot be integrated with its new customers’ ERP-systems as they are often customized. Taking over customers from competitors is therefore not an easy step. Also, the ERP-system integration with other forwarders is difficult due to the same reason. Coopetition could consequently lead to technical difficulties.

Legal barriers to coopetition, on the other hand, are limited to the aforementioned violation of Sweden’s “Competition Law” if the cooperation with other forwarders limits the competition in the market. Due to the fact that the amount of freight
forwarders operating in Borlänge is low, coopetition would likely result in an imperfect market situation. The party that would adversely be affected by coopetition is the customers as their choice of transporter is limited as most transports would be executed by one and the same network of forwarders (Fagerström, 2017). This limited competition will cause slack and the customer service of the forwarders will not improve in the future.

No operational barriers to coopetition come to Fagerström’s mind, but the greatest barrier to coopetition for Godsservice i Dalarna, and supposable also for other freight forwarders, is the “old tradition” of not working together. It is a habit in the industry to compete fiercely with each other (Fagerström, 2017).

In conclusion, Godsservice i Dalarna is open to a limited amount of coopetition as the company already cooperates with its competitor MaserFrakt. However, the legal and technical aspects of coopetition are, according to the company’s CEO, severe and the city of Borlänge a too small market for deep coopetition or a SAMLIC-like project. A possibility would be to cooperate with competing firms in the area of distribution to remote townships in the province.

5.1 Summary of Findings

Table 4 (Växjö), Table 5 (Kalmar), and Table 6 (Borlänge) summarize the findings of each case.
### Current Distribution Layout

<table>
<thead>
<tr>
<th></th>
<th>Växjö Municipality</th>
<th>Alwex AB</th>
<th>DHL Freight (Sweden) AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributor and Types of Goods Forwarded</td>
<td>-</td>
<td>Food and non-food products for the municipality</td>
<td>Parcels, (Non-frozen) Food</td>
</tr>
<tr>
<td>UCC-Owner</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>In-Truck Goods Consolidation?</td>
<td>-</td>
<td>Consolidation of municipality and retailer goods and food and non-food articles</td>
<td>Consolidation of food and non-food articles</td>
</tr>
<tr>
<td>Environmental Sustainability Measures</td>
<td>Initiation of the UCC-cooperation</td>
<td>Trips reduction. Reduced CO2 emissions due to clean trucks</td>
<td>CO2-reduction by 30% through annual revisions of operations. Regular vehicle checks. Design cooperation with Volvo.</td>
</tr>
<tr>
<td>Social Sustainability Measures</td>
<td>Initiation of the UCC-cooperation</td>
<td>Better working environment for receivers &amp; forwarder employees due to fewer weekly deliveries.</td>
<td>Not a high priority. Improvement in the work environment and reviews of safety standards.</td>
</tr>
<tr>
<td>Last Mile Problem (incl. Lead time variances)</td>
<td>-</td>
<td>Little problem. Occasional idle time due to occupied loading zones in the city. Lead time variances due to fluctuating order quantity.</td>
<td>Little problem. Only when delivering to malls. Many delivery points in a short time. Few lead time variances due to occupied loading zones in the city.</td>
</tr>
<tr>
<td>City Policies affecting Operations</td>
<td>-</td>
<td>None</td>
<td>Limited access hours in the city center. Too few loading zones.</td>
</tr>
</tbody>
</table>

### Municipality-Freight Forwarder-Cooperation

<table>
<thead>
<tr>
<th></th>
<th>Växjö Municipality</th>
<th>Alwex AB</th>
<th>DHL Freight (Sweden) AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons for Cooperation</td>
<td>Increase social, environmental and economic sustainability. Lack of competencies and interest to manage distribution. No storage capacities available.</td>
<td>Profitability due to already existing infrastructure (terminal, trucks, etc.) and knowhow</td>
<td>-</td>
</tr>
<tr>
<td>Municipality RFP Quality</td>
<td>-</td>
<td>Wrong weight specifications stated initially by the municipality (Renegotiations)</td>
<td>-</td>
</tr>
<tr>
<td>(Potential) Investments made to Qualify for Bidding</td>
<td>-</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Opinion on the Request for Proposal</td>
<td>-</td>
<td>Good cooperation and a fair deal</td>
<td>-</td>
</tr>
<tr>
<td>Reasons to avoid Cooperation</td>
<td>-</td>
<td>-</td>
<td>No notification of the RFP. Low interest in participating if notified.</td>
</tr>
</tbody>
</table>
### Coopetition amongst Freight Forwarders

<table>
<thead>
<tr>
<th>Openness to / Feasibility of Coopetition</th>
<th>Växjö Municipality</th>
<th>Alwex AB</th>
<th>DHL Freight (Sweden) AB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Already distributes goods for competitors to retailers. No coopetition for municipality goods. Generally open for coopetition, but no other similar competitor in Växjö. SAMLIC-project unlikely because of limited market size and lacking interest by retailers.</td>
<td>Generally open, but deal needs to be good and holistically beneficial. Unlikely to happen. SAMLIC-project unlikely because of unknown volumes of the competitors and difficulties with payment formalities.</td>
<td></td>
</tr>
<tr>
<td>Operational Barriers to Coopetition</td>
<td>-</td>
<td>Incompatible trucks of competitors</td>
<td>More trips. Lack of truck capacities. Order volume fluctuations. More goods damage due to additional (un)loading. Incompatible service portfolio of competitor.</td>
</tr>
<tr>
<td>Technical Barriers to Coopetition</td>
<td>-</td>
<td>Integration and automation of processes. Information sharing</td>
<td>IT security. Integration of IT-systems.</td>
</tr>
<tr>
<td>Legal Barriers to Coopetition</td>
<td>-</td>
<td>None</td>
<td>Cartelization</td>
</tr>
<tr>
<td>Main Barrier to Coopetition</td>
<td>-</td>
<td>Price</td>
<td>Trust. Costs. Changed transport volumes</td>
</tr>
<tr>
<td>Table 5: Summary Empirical Findings Kalmar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Current Distribution Layout

<table>
<thead>
<tr>
<th>Distributor and Types of Goods Forwarded</th>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Cooled and frozen) Food for the municipality</td>
<td>-</td>
<td>(Cooled and frozen) Food for the municipality</td>
<td>Parcels. General Cargo. Frozen food.</td>
</tr>
<tr>
<td>UCC-Owner</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>In-Truck Goods Consolidation?</td>
<td>-</td>
<td>Consolidation of municipality goods and retailer goods but no consolidation of food and non-food articles</td>
<td>Consolidation of food and non-food articles.</td>
</tr>
</tbody>
</table>

### Environmental Sustainability Measures

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental friendly trucks running on rapeseed biodiesel</td>
<td>-</td>
<td>Environmental friendly trucks. Courses in environmental sustainability for staff.</td>
</tr>
</tbody>
</table>

### Social Sustainability Measures

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe and noise-reduced trucks</td>
<td>-</td>
<td>Low Priority. Safe trucks. Considerations of stakeholders.</td>
</tr>
</tbody>
</table>

### Last Mile Problem

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal volume variations cause capacity problems. Insufficient storage capacities of the receivers.</td>
<td>-</td>
<td>Little congestion. Small delivery time windows.</td>
</tr>
</tbody>
</table>

### City Policies affecting Operations

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short delivery time windows</td>
<td>-</td>
<td>Short delivery time windows</td>
</tr>
</tbody>
</table>

### Municipality-Freight Forwarder-Cooperation

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Reasons for Cooperation

<table>
<thead>
<tr>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality Request for Proposal Quality</td>
<td>-</td>
<td>Wrong delivery deadlines and goods weights stated initially by the municipality.</td>
</tr>
<tr>
<td>(Potential) Investments made to Quality for Bidding</td>
<td>-</td>
<td>None</td>
</tr>
<tr>
<td>Opinion on the Request for Proposal</td>
<td>-</td>
<td>Good cooperation, but communication can be improved.</td>
</tr>
<tr>
<td>Reasons to avoid Cooperation</td>
<td>-</td>
<td>RFP Quality</td>
</tr>
</tbody>
</table>
## Coopetition Amongst Freight Forwarders

<table>
<thead>
<tr>
<th></th>
<th>Kalmar Municipality</th>
<th>GDL Transport AB</th>
<th>Nybro Transport AB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Openness to / Feasibility of Coopetition</strong></td>
<td>-</td>
<td>Already outsources municipality and retailer transports to a competitor. Generally open for coopetition. SAMLIC-project unlikely because of limited market size and long distances between terminals.</td>
<td>Generally open, but feasibility questionable due to lack of trust and risk of competitive disadvantages through misused information by cooperating competitors.</td>
</tr>
<tr>
<td><strong>Operational Barriers to Coopetition</strong></td>
<td>-</td>
<td>Retailers object to a consolidated distribution of their and competitors’ goods. Billing issues.</td>
<td>None</td>
</tr>
<tr>
<td><strong>Technical Barriers to Coopetition</strong></td>
<td>-</td>
<td>Incompatible ERP-systems.</td>
<td>Information Sharing. Incompatible IT systems.</td>
</tr>
<tr>
<td><strong>Legal Barriers to Coopetition</strong></td>
<td>-</td>
<td>None</td>
<td>Cartelization</td>
</tr>
<tr>
<td><strong>Main Barrier to Coopetition</strong></td>
<td>-</td>
<td>Price. Costs Sharing.</td>
<td>Trust. Unwillingness to share information.</td>
</tr>
<tr>
<td>Current Distribution Layout</td>
<td>Borlänge Municipality</td>
<td>MaserFrakt AB</td>
<td>Godsservice i Dalarna AB</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>UCC-Owner</td>
<td>No</td>
<td>Owns one terminal for retailer goods and rents one for municipality goods</td>
<td>Yes</td>
</tr>
<tr>
<td>In-Truck Goods Consolidation?</td>
<td>Not permitted</td>
<td>No consolidation of municipality goods and retailer goods. No consolidation of food and non-food articles but consolidation of frozen and cooled food articles.</td>
<td>Consolidation of all kinds of parcels and industrial goods.</td>
</tr>
<tr>
<td>Environmental Sustainability Measures</td>
<td>-</td>
<td>Environmental friendly trucks</td>
<td>Environmental friendly trucks.</td>
</tr>
<tr>
<td>Social Sustainability Measures</td>
<td>-</td>
<td>Low Priority. Lower CO2-emissions due to environmental friendly trucks</td>
<td>Low Priority.</td>
</tr>
<tr>
<td>Last Mile Problem</td>
<td>-</td>
<td>Time and storage constraints. Regular lead time variances.</td>
<td>Limited time windows for delivery. Limited storage capacities of the receivers. No lead time variance problem in the city.</td>
</tr>
<tr>
<td>City Policies affecting Operations</td>
<td>-</td>
<td>Second terminal required. No consolidation of municipality and retailer goods.</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Municipality-Freight Forwarder-Cooperation</th>
<th>Borlänge Municipality</th>
<th>MaserFrakt AB</th>
<th>Godsservice i Dalarna AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Potential) Investments made to Qualify for Bidding</td>
<td>-</td>
<td>Rental of second terminal. Environmental friendly trucks. New truck engines. Changed fuel type.</td>
<td>Willingness to invest in new equipment.</td>
</tr>
<tr>
<td>Opinion on the Request for Proposal</td>
<td>-</td>
<td>Good cooperation and good communication.</td>
<td>No participation in the bidding.</td>
</tr>
<tr>
<td>Reasons to avoid Cooperation</td>
<td>-</td>
<td>-</td>
<td>Unrealistic cost estimates by the municipality. High investments necessary.</td>
</tr>
</tbody>
</table>
## Coopetition Amongst Freight Forwarders

<table>
<thead>
<tr>
<th></th>
<th>Borlänge Municipality</th>
<th>MaserFrakt AB</th>
<th>Godsservice i Dalarna AB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Openness to / Feasibility of Coopetition</strong></td>
<td>-</td>
<td>Already operates a terminal of a different forwarder. Generally open for coopetition. SAMLIC-project possible if obstacles are overcome.</td>
<td>Generally open, but feasibility questionable due to a limited market size. More relevance in rural distribution. Deeper coopetition with MaserFrakt realistic.</td>
</tr>
<tr>
<td><strong>Operational Barriers to Coopetition</strong></td>
<td>-</td>
<td>Incapability of competitors. Absence of other terminals to handle food. Unwillingness to share information. Billing issues.</td>
<td>None</td>
</tr>
<tr>
<td><strong>Technical Barriers to Coopetition</strong></td>
<td>-</td>
<td>Incompatible ERP-systems.</td>
<td>Incompatible IT-systems.</td>
</tr>
<tr>
<td><strong>Legal Barriers to Coopetition</strong></td>
<td>-</td>
<td>Cartelization</td>
<td>Cartelization</td>
</tr>
<tr>
<td><strong>Main Barrier to Coopetition</strong></td>
<td>-</td>
<td>Costs</td>
<td>Competitiveness in the market (trust)</td>
</tr>
</tbody>
</table>
The cross-case analysis of the barriers to coopetition between municipalities and freight forwarders and the coopetition between freight forwarders amongst each other are introduced in the following chapter. First, the barriers to cooperation between municipalities and freight forwarders from the freight forwarders’ point of view are analyzed, followed by the barriers relevant for the municipalities in the three case cities. The second part consists of a cross-case analysis of the barriers to coopetition in Växjö, Kalmar, and Borlänge based on the empirical findings of local freight forwarders.

The cooperation barriers identified are divided up into four categories: RFP-related barriers, information-related barriers, operational barriers, and financial barriers. While the freight forwarders face barriers from all four categories, the municipalities are exposed to RFP-specific barriers and financial barriers.

### 6.1 Freight Forwarder’s Barriers to Cooperation

The cooperation barriers identified are divided up into four categories: RFP-related barriers, information-related barriers, operational barriers, and financial barriers. While the freight forwarders face barriers from all four categories, the municipalities are exposed to RFP-specific barriers and financial barriers.

#### 6.1.1 RFP-related Freight Forwarder Barriers

The first RFP-related barrier to cooperation from the freight forwarder’s point of view is the quality of the RFP. In all three municipalities freight forwarders stated that certain data in the RFP was incorrect or missing. In Kalmar the municipality took over a RFP from a different municipality and did not adjust it to the own requirements (Dahlgren, 2017). Additionally, the weight of the goods was specified incorrectly in the RFP of both Växjö and Kalmar according to Holgersson and Eklund (2017) and Dahlgren (2017) and no delivery deadlines were provided in Kalmar (Martensson, 2017).
This problem of wrong and missing data gives the freight forwarder the wrong information about the UF system according to Boerkamps et al. (2000) and thus affects both the operations within the terminal but also within the transportation which also is confirmed by GDL. GDL further said that the missing and wrong data affected the route-planning, leading to a revision of the planned routes, which according to Lumsden (2012) increases the administrative costs of distribution. Braic (2017) and Martensson (2017) point, however, also out that the operative costs and fixed costs also are affected by the reworking of the route planning which is explained by the additional distances or trade-offs made in the route in order to maintain the service level demanded by the municipality. From a sustainability perspective, this error in the RFP lowers the forwarder’s profit margins which already are commonly small for transporters according to Dahlgren (2017) and Martensson (2017). This in turn has an impact of the economic sustainability and subsequently affects the other sustainability aspects, as pointed out by Björklund (2012), as the insufficient margins make it unviable to invest in a more environmental or social solution. An example for this is expensive biofuels which the freight forwarder then cannot afford. This barrier was mentioned by Fagerström (2017) of GiD as the company chose not to participate in the Borlänge RFP as it could not calculate its costs accurate enough. Considering cooperation literature, it can be summarized that problems in the exchange of information made it impossible for the freight forwarders to optimize their use of resources and thus might not benefit from cooperation (Cruijssen, et al., 2007). Due to its impact and the comprehensive discussion in the literature (Boerkamps, et al., 2000; Björklund, 2012) this barrier is classified as highly impactful and medium common.

The second RFP-related barrier for freight forwarders is the municipality’s prohibition of goods consolidation. In two of the three cases analyzed, Kalmar and Borlänge, the freight forwarder that won the bidding did not have permission to consolidate municipality goods with retailer goods (Borlänge) or food and non-food goods on its trucks (Kalmar). Similarly, to the previous barrier, this leads to a lower utilization of trucks and to the necessity to operate additional trucks or to drive longer distances (last mile problem) with the existing fleet. Again, lower margins, more tied-up capital, and a higher price for the service are the consequences for the winner of the bidding. The main goal of the cooperation and usage of UCC, to achieve higher vehicle utilization of goods through consolidation, is hindered and thus affects both operations and finances.
as mentioned previously. This barrier is of high impact and medium common as it occurs in two of the three cases and is backed by UCC theory.

The next barrier with RFP origin refers to the short delivery time window during which the forwarders must unload the municipality goods at the delivery points which is mentioned by Dahlgren (2017) and Fagerström (2017). In the case of Kalmar GDL needs to deliver to 30-40 delivery points per route within a short time frame and is in some cases allowed to deliver goods between 7:00 and 9:00 instead of between 7:00 and 13:00. In addition to that, GDL transports are to be delivered within half an hour of the scheduled time of arrival which is a struggle at times. In short, the RFP demanded high service levels and a short delivery time windows while focusing on low cost. This requires high operational excellence. According to Dahlgren (2017) it led GDL to renegotiate the RFP and to prioritize the service level and thus they do not have a cost focus in the route planning which affects the last mile cost (Minten, et al., 2013; Taniguchi, et al., 2003). This is problematic as the higher the cost are, the worse is the overall sustainability (Mota, et al., 2014) due to interdependence as mentioned earlier. This was mentioned as a serious problem by GDL but to a lesser extent by MaserFrakt’s Högås (2017). A possible explanation for the problems regarding the delivery time windows in Kalmar, as compared to the rather insignificant problem in Borlänge, is the different spatial organization of the receivers and of the activities in the urban freight system (Boerkamps, et al., 2000). Also, different delivery time windows in the two cities could be the root of the problem. Ultimately, the effect is similar to the wrong or missing RFP data barrier and thus causes resources to not be utilized optimally (Cruijssen, et al., 2007). These requirements are found in two of the three municipalities, making it a medium common barrier to cooperation and the impact depends on the spatial organization of units and activities. This results in a MIMC-rating in the impact-commonness-matrix.

Fourthly, the municipality’s option to add delivery points in different municipalities to the distribution agreement constitutes a barrier from GDL’s point of view because the spatial organization of units and activities potentially changes (Boerkamps, et al., 2000). In the case of Kalmar the RFP winning freight forwarder has to be able to include the new delivery point within two weeks. This insecurity disallows precise planning of the distribution trips. The addition of deliver points within one urban system or designing
an entirely new one implies changes to the routes and has the previously mentioned effects (Figure 12). Since GDL stated this option of the municipality as a barrier and the fact that it was not mentioned as a serious problem concerning optimization of resource utilization it is a barrier of low impact and commonness.

The final RFP-specific barrier for freight forwarders to distribute municipality goods is **unrealistic lead-time expectations** of the municipality which was mentioned by GDL. Just like every other customer of logistics services, the municipality wants its goods to be delivered within a short period of time. The fact that in each of the three municipalities the distributor operates from a terminal nearby the city shortens the lead time of the distribution activities (Verlinde, et al., 2012), but in one case city it has been stated that the expectations of the municipality receivers qua lead-time given the spatial organization are still not fulfillable. However, as this is limited to one of the three cases and can be solvable by communicating the trade-off between the delivery cost and the delivery service (Lumsden, 2012) making it a uncommon and a low impact barrier to cooperation.
6.1.2 Information-related Freight Forwarder Barriers

The first of the two information-related cooperation barriers for freight forwarders refers to the **cost documentation requirements**. In Borlänge the municipality requires its freight forwarder to document the exact costs caused by dispatched municipality goods. This additional measurement of the forwarder is an administratively complex task according to MaserFrakt’s Högås (2017) and was said not to be in the company’s interest. From an urban freight system perspective, the cost documentation can be discarded as lower relevance according to Alwex, as the allocation of cost during consolidation is not a major problem and solvable nevertheless. However, Alwex is also the one of the larger freight forwarders and may thus have the competencies and resources which are not available to the barrier-mentioning company. From a cooperation perspective, this barrier implies that the freight forwarder MaserFrakt puts resources in non-core activities which could have been put in other more important processes. Thus, the potential benefits of cooperation are not utilized (Cruijssen, et al., 2007). However, in this case it has an impact on the sustainability of the transport and therefore potentially on the likeliness to cooperate with the municipality as well. High cost documentation requirements indirectly hinder the freight forwarder to consolidate goods and can thus not make use of economies of scale achieved by consolidating both municipality and commercial goods (Bouncken, et al., 2015). However, as this is only demanded in one of the three case cities this barrier is considered to be uncommon.

The second barrier in this category is the **communication** between freight forwarders and the municipality. A deficiency of cooperation can be traced back to the Kalmar municipality’s communication channel, for example when the municipality does not notify the forwarders of its RFP so that they have no chance to participate in it or when the municipality does not keep its freight forwarder up to date about city projects or construction sites which have an effect on the logistics company’s distribution planning. Considering Cruijssen et al. (2007) and Minten et al. (2013) it be classified as a medium impactful barrier because the lack of communication (information exchange) prohibits the freight forwarders to optimize their operations. This lack of information leads to route changes on short notice negatively affecting the TBL. This barrier is relevant in two of three cases resulting in a medium common rating.
6.1.3 Operational Freight Forwarder Barriers

Barriers with an impact on the operational activities of freight forwarders are called operational freight forwarder barriers. The first one, fluctuating order volumes, is a problem from an urban freight system perspective as the varying demand affects the transport service costs (Boerkamps, et al., 2000). GDL’s Dahlgren (2017) stated that the varying order volumes affect the terminal and transport processes as the operations need to adapt capacity- and employment-wise. This becomes a barrier as the freight forwarder must adapt to the maximum demands which can cause assets (trucks and employees) to be used inefficiently. Thus, it influences the fixed costs which is confirmed by Yongjin et al. (2004). This barrier is observed to be relevant in Växjö and Kalmar and is thus common. The importance is however debatable. A factor that speaks for its relevance is the influence on the route planning, which however is not mentioned by the respondents. A counter-argument is the operational capacities of the freight forwarders. Berglund and Milosevic (2017) mention that if freight forwarders manage decent load factors, fluctuating order volumes will be financially viable. Also, Kleveborn (2017) from Kalmar municipality has stated her knowledge of this problem which should reduce the frequency of changes in order volumes. Thus, the barrier is deemed as medium impactful and common since it only occurs in one of the three cases and does not pose an insurmountable obstacle for the freight forwarder.

The second operational struggle, which freight forwarders are affected by, is a limited storage capacity of the receiving units. One effect of having a UCC is the reduction of trips within the city center. However, since the total goods volume does not change, the volumes which are to be unloaded have the potential of creating storage shortages at each delivery point (Browne, et al., 2005). If the storage room of a receiver is too small for the delivery, unwanted results, such as more deliveries with smaller volumes per deliver are the consequence according to Martensson (2017) in Kalmar. This results in more stops in total and greater distances to be driven which goes against environmental sustainability in the opinion of Martensson (2017). This once occurring problem is, nevertheless, medium in impact and low in commonness according to the respondents when it comes to cooperation but has an effect on the social and environmental sustainability.
The final operational barrier is the **receivers’ unpreparedness for unloading**. While it is known at approximately what time the trucks will arrive at the delivery units, the employees responsible for receiving the goods are said to often be unprepared for the delivery. As a result, the truck drivers need to wait until they can unload the goods which delays the entire distribution process. This in turn affects the delivery reliability at the next stop which also causes problems with the municipality as the forwarder is not reimbursed by the authorities for the additional costs caused by the delay. Arguably if it is known that receivers in a certain municipality tend to be responsible for the delay, potential RFP participants could be scared off. This is reasonable as the costs to maintain the service level increase as the routes have to be adapted to the potential delays (Jonsson & Mattson, 2005; Christopher, 2011), which might decrease the already low margins. However, the empirical data cannot confirm the overall impact and shows that this is only the case in one of the three case cities which is why the overall impact of this barrier is low.

### 6.1.4 Financial Freight Forwarder Barriers

The final barrier for cooperation from the freight forwarders’ point of view is, according to the empirical findings, the **price for municipality goods distribution**. It is in the interest of the forwarder to get a high price, but there are several hindrances to that. If the forwarder submits a high price to the municipality, the risk is that a different freight forwarder undermatches it which means that the first forwarder will not get the award at all. It can therefore be said that the normal market forces are at work. On the other hand, an imperfect market with limited competition allows the bidding participant to ask for a higher price as it could be observed in Växjö where Alwex was the only bidder. Here, the requirements to the RFP winner play a crucial role. If demands, such as a terminal in the city’s vicinity and the ability to handle cooled and frozen goods, exclude a large amount of freight forwarders, the forwarders which do fulfill all of the requirements can demand a higher price due to limited competition.

The empirical findings show that the price is a main barrier for cooperation between forwarders and municipalities and can therefore be considered as highly impactful. This barrier is observed in all cases of the study and is affirmed by the theoretical framework (Taniguchi, et al., 2003; Forsberg, 2014).
6.1.5 Summary of Freight Forwarder’s Barriers to Cooperation

Table 7 summarizes the barriers for cooperation between municipalities and freight forwarders from the point of view of the distribution companies and shows to which municipalities each barrier has been applicable.

<table>
<thead>
<tr>
<th>Barrier Category</th>
<th>Barrier</th>
<th>Växjö</th>
<th>Kalmar</th>
<th>Borlänge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for Proposal</td>
<td>Wrong / Missing Data</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>No Permission to Consolidate</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Short Delivery Time Window</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Municipality Option to Add Additional Municipality Receivers as Delivery Points</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unrealistic Lead Time Expectations</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>Cost Documentation Requirements</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Lack of Communication with the Municipality</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Operational</td>
<td>Fluctuating Order Volumes</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited Storage Capacity of the Receivers</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receivers Unprepared for Unloading</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>Low Price for Municipality Goods Distribution</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

The aforementioned barriers are subsequently classified based on commonness of the barrier which is based on the amount of forwarders stating the barrier, and on the impact each barrier has on the cooperation between the forwarder and the municipality. The result can be found in Figure 13.
6.2 Municipalities’ Barriers to Cooperation

The empirical data show that not only the freight forwarders face barriers to cooperation with a municipality, but municipalities also have reasons to avoid cooperation with a private logistics service provider. These barriers can be divided up into RFP-related ones and financial ones.

6.2.1 RFP-related Municipality Barriers

The first RFP-related barrier to cooperation from the point of view of municipalities is the low amount of bids coming in after publishing the RFP. In two of the three cases (Växjö and Borlänge) the municipality only received one bid from the companies which are now distributing the municipality goods (Alwex and MaserFrakt). In case of having a low number of bids, the municipality can decide to change the requirements stated in the RFP so that the amount of bids will increase in the future. While it is not known why exactly not many forwarders decided to throw their hats in the ring in these two municipalities (e.g. high municipality requirements, little competition in the transportation market) the low number of bids can be considered to be a relevant barrier. Comparing this to Boerkamps et al. (2000) the barrier implies a gap between the demands, as stated in the RFP, and the available transport services, i.e. the possibility and capacity to fulfill the demands. Despite the fact that both in Växjö and in Borlänge
the only applicant was selected for the distribution assignment, it is in the municipality’s interest to compare as many forwarder offers as possible and, if considered necessary, to abort the bidding process and change the requirements.

**Lack of fossil fuel-free trucks** is another problem which can incline the municipality to refrain from cooperating with a freight forwarder. In line with Sweden’s “Vision 2030”, the municipalities put strong emphasis on sustainability measures. Improving the social, economical, and environmental performance of the municipality is highly relevant, which is why many municipalities decide to require freight forwarders which would execute the last-mile distribution within the city centers to use fossil fuel-free trucks running on RME, HVO, biodiesel, or electricity. The empirical data show that two of the three cities researched (Växjö and Kalmar) require the RFP-qualifier to only use this kind of environmentally friendly trucks. This could be a barrier to cooperation from an urban freight system perspective. In the case of Växjö the municipality had only one participant which could be caused by a gap between the service demanded and the available transport services in Boerkamp’s et al. (2000).

From a sustainability perspective there are two drawbacks. Firstly, Borlänge’s Högås (2017) states that bio fuels are not as efficient as fossil fuel, thus affecting cost per distance driven and limiting route planning given the city characteristics and the spatial organization of activities. This cost, or economic sustainability, issue becomes apparent when considering that most UCC-projects are discontinued once the political interest fades and financing is stopped (Transport and Travel Research Ltd., 2010). This would also be an issue in Växjö which currently lacks 1.5 million SEK to break even (Braic, 2017). This could lead to the discontinuance of the UCC as freight forwarders cannot meet the demanded low price, thus going back to the previous unsustainable distribution, or need to change back to fossil fuel of which the emissions strain environmental and social sustainability through pollution. It can, nevertheless, be said that the fossil fuel-free truck barrier is highly relevant for the municipalities researched, especially when they have a high population density.

Just like the fuel requirements, the freight forwarder’s **lack of capacities to forward all municipality goods** is a deal-breaker for all municipalities analyzed. The company that wins the bidding must be in state to have the infrastructure available, i.e. the terminal and the trucks, to handle and distribute 100% of the volumes the municipality orders.
A reason why this barrier is highly important is the municipality’s wish to deal with only one company instead of two or more which simplifies the communication between the actors. In addition to that, organizing the exact division of responsibilities amongst multiple forwarders is complicated and can cause inefficiencies DHL’s Berglund and Milosevic (2017) state. For this purpose, the municipality would even be willing to pay a higher price for the storage and distribution services as multiple forwarders, each with a different specialization, could in fact increase efficiencies. These are, however, difficult to achieve and require a strong mediating and managing role of the municipality, which, as many lack the competencies and/or the willingness to do so, is refused in all cases analyzed.

Similar in importance is the third RFP-related barrier: The lack of ability and of licenses to handle all municipality goods. All municipalities which were a part of this study stated that they primarily forward food products which require a cool surrounding both during the storage and the transportation. This means that on the one hand the terminal and the trucks of the freight forwarder need to have chilled and frozen sections and on the other hand that the forwarder must have obtained food transportation licenses which are in accordance with the Swedish Foodstuffs Act (“Livsmedelslagen”). Or in other words the right kind of terminals and trucks must be present and available in the urban freight system (Boerkamps, et al., 2000). This is an unavoidable trade-off between social and financial sustainability according to DHL’s Berglund and Milosevic (2017) as the license is needed but entails increased costs (Dahlgren, 2017). As mentioned prior, this barrier is a crucial one as the majority of municipality goods in Sweden is food products which is why choosing a forwarder without the infrastructure and the licenses required is not an option for any municipality researched.

For the municipality, it is further important that to achieve the sustainability goals the RFP-qualifier has a terminal at its disposal that is located close to the city center where most of the delivery points are located. This is thus a demand on the spatial organization of activities and affects the transport service (Boerkamps, et al., 2000). From the municipality point of view without a UCC in city vicinity the routes and last mile distribution trips become longer which would lead to more trucks on the roads, and the lead time would increase as it is specified by Chwesiuka et al. (2010). This is, however,
a sustainability trade-off that must be considered from a holistic perspective. The terminal location affects the total distance driven also to other municipalities and thus a specific location might be a strain on the economic and environmental sustainability seen as a whole, and be against the interest of freight forwarders, such as DHL. Even though this criterion excludes a large amount of freight forwarders interested in the RFP, all municipalities examined stated it in their RFPs. The reason for this is the aforementioned undermining of the social, economic, and environmental goals of the municipalities when organizing the goods distribution without a UCC in city vicinity.

The next barrier for cooperation between freight forwarders and municipalities from the municipalities’ point of view is the absence of so-called “Alcolocks” in the trucks of the forwarder. This demand is in line with the municipalities’ goal of improving their sustainability performance. Alcolocks improve the social sustainability as traffic accidents are reduced and the economical sustainability as the probability of a truck failing to execute the distribution safely and in time is lowered which in turn avoids additional costs for the forwarder. It can be said that this barrier is of lower importance as it is only been observed in one of the three municipalities.

Just like the Alcolocks, the absence of rear cameras on heavy trucks is a RFP-specific barrier for municipalities which affects the equipment of the distribution vehicles. In order to increase the safety at schools where goods are unloaded from heavy trucks, rear cameras are required by one of the three municipalities examined. This is in line with the social sustainability efforts of the municipality in Kalmar. In the other two municipalities, it was not required to have these cameras which is why this is not a wide-spread demand overall. It can also be regarded as not highly significant as GDL said that it invested in such technology on its own accord. Due to this circumstance the requirement did not hinder other freight forwarders to partake in the RFP which is shown by Kalmar’s four RFP applicants.

The final RFP-related barrier refers to the expected delivery reliability of the freight forwarder. If the forwarder is not able to deliver all the municipality goods within 30 minutes of the agreed time, the municipality is inclined to avoid cooperating with that company. However, this has been observed exclusively in Kalmar. The other two cities either have a larger tolerance in that regard or do not specify the delivery reliability directives at all. Nevertheless, in the case of Kalmar this demand sets high expectations
on the transport service, which GDL as mentioned in Chapter 6.1.1 struggles with. Overall, this still seems to be a demand that is fulfillable due to the high amount of participants.

6.2.2 Financial Municipality Barriers

The first financial barrier for municipalities is the creditworthiness of the RFP applicant. If a credit check shows that the forwarder is not creditworthy, it could lead to bankruptcy if another customer of the freight forwarder is unable to pay for the services or if the forwarder is encumbered with high debt. This would cause problems to the municipality because the distributor of the goods is unable to attend to its duties. High creditworthiness can therefore be considered a proof of safety for the operations. The municipality would avoid having to issue another RFP on short notice without knowing whether a suitable logistics service provider can fill in on short notice. Despite the solid motivation for demanding a credit check, only one of three municipalities considers the absence thereof as a barrier for cooperation. The overall importance can therefore be considered low.

The second financial barrier, tax debt of the freight forwarder, is a barrier for municipalities closely related to the creditworthiness. If the forwarder is in debt to the state, the municipality is not willing to cooperate with that forwarder as it could be a sign of future bankruptcy. However, this municipality requirement is not found in the LOU, the Swedish law of public procurement (“Lag om offentlig upphandling”). This means that no municipality is required by law to decline forwarders with tax debt. Yet, the empirical data show that of the three research cities only Kalmar requires its RFP participants to be tax debt-free. Similarly to the check of creditworthiness, including the anti-tax debt requirement in the RFP can be considered as a precaution from the municipality against future bankruptcy and against the bad image of cooperating with a private company that does not pay its taxes.

Finally, the last municipality barrier which could be identified from the empirical data is the price for the storage and distribution service itself. While the forwarders aim for a high price, the municipality aims for a low one (economic sustainability). As mentioned in the financial barrier from the point of view of the freight forwarders, there are many factors which influence the final price the municipality and the winning freight forwarder agree upon. Strict requirements of the municipality and a low population
density lead to higher prices, whereas few requirements which are easily fulfillable by the applicants and a high population density result in a lower price due to additional competition in the bidding process.

The price barrier can be identified in every municipality researched and can therefore be considered as an indicator for a high relevance for municipalities in Sweden. This evidence is backed up by LOU (Konkurrensverket, 2017).

6.2.3 Summary of Municipalities’ Barriers to Cooperation

Table 8 summarizes the barriers for cooperation between municipalities and freight forwarders from the point of view of the municipalities and shows to which municipalities each barrier has been applicable.

<table>
<thead>
<tr>
<th>Barrier Category</th>
<th>Barrier</th>
<th>Växjö</th>
<th>Kalmar</th>
<th>Borlänge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for Proposal</td>
<td>No Fossil Fuel-Free Trucks</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insufficient Capacities to Forward all Municipality Goods</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Inability / Lack of Licenses to Handle all Municipality Goods</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>No Terminal in City Vicinity</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Lack of Bids</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>No Alcolocks installed in Trucks</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Rear Camera on Heavy Trucks</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Inability to Guarantee &lt;30 Minute Delivery Reliability</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Financial</td>
<td>No Creditworthiness</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Tax Debt of Freight Forwarder</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>High Price for Municipality Goods Distribution</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
6.3 Barriers to Coopetition

The empirical data show that the barriers to coopetition, a type of horizontal cooperation amongst competitors, can be divided up into four categories: Managerial, operational, technical, and legal (see Table 9 for a complete overview over the barriers and the freight forwarders for which each barrier is relevant).

6.3.1 Managerial Coopetition Barriers

Of the eleven barriers to coopetition the three RFP winners forwarding the municipalities’ goods (Alwex, GDL, and MaserFrakt) and the three freight forwarders which did not win or did not participate in the bidding but operate in the same city (DHL, Nybro Transport, and Godsservice i Dalarna) list “higher costs”, “lack of trust amongst each other”, and the “limited market size” of the respective municipality as main managerial reasons for not cooperating with one another when it comes to the distribution of municipality goods. Especially “Lack of Trust” has been named the single most relevant barrier for coopetition by three of the six forwarders analyzed. The forwarders stated that sharing sensitive business information with competitors could lead to a competitive disadvantage in the future as this information would be used against the company sharing it. The area of trust, furthermore, includes disbelieve of the forwarders that competitors could offer the same or higher levels of quality to the customer than them. The relevance of this concern is confirmed by Pathaka et al. (2014) who state that the lack of trust is a main barrier to coopetition and is consequently the reason why not more coopetition projects, especially in the freight sector, can be found.

The lack of trust disables companies and municipalities to further improve their sustainability performance in terms of economic, environmental, and social aspects. Schulz and Blecken (2010) further illustrate the unreliability of partners when choosing coopetition.

“Higher Costs” is the second most relevant managerial barrier to coopetition as it has been deemed the most impactful one by three of the six forwarders interviewed. This appears to be reasonable as each forwarder is a private entity which needs to prevail in the market and therefore needs to keep its costs under control. Higher costs can minimize the profit margin and cause financial problems for the freight forwarder in the short run and even bankruptcy in the long run. The transportation trade-off (Figure 9) by Forsberg (2014) consisting of costs, tied-up capital, and customer service is a good
example of the effects which higher costs have on the operations. Higher financial burden which are unrelated to the customer service, disallow the forwarder to invest in higher customer service levels. This impacts the economic sustainability of the firm (Forsberg, 2014). When establishing the ties between the additional costs and sustainability, it can be assumed that the additional costs are caused by additional operational activities, which in turn would have an negative impact on the environmental and social sustainability, but a positive one on the economic sustainability of the business if these additional costs and therefore additional activities are financed by the customer.

The third most frequently stated managerial barrier to coopetition is the limited market size of the respective city. Despite the fact that no forwarder considers this barrier as the most relevant one of them all, three of the six forwarders do not think that cooperating with another freight forwarder will benefit them because the goods volumes which are to be distributed to the municipality’s schools, kitchens, and retirement homes, are too small. This medium commonness is paired with an average impact. It can be said that the urban freight system of Boerkamps et al. (2000) is too small in size. One freight forwarder is capable of forwarding all the goods, which is also in the municipality’s interest. In that case it would consequently be preferable to avoid the costs and the uncertainty of success coopetition brings with it. This is in line with the sustainability goals of the companies as not executing unnecessary trips within the city does not further increase the amount of trucks on the roads and consequently do not worsen the environmental and social sustainability. In addition to that, the economic sustainability is not lowered when avoiding unnecessary activities as these activities would involve additional costs.

Besides the three most stated managerial barriers “trust”, “costs”, and “limited market size”, a low price of executing transports for a different forwarder is considered the most relevant barrier by two forwarders implicating a high impact of the barrier. Here, it is notable that these two forwarders (Alwex and GDL) are currently executing the distribution of Växjö and Kalmar. The price of transportation is consequently a bigger factor for RFP winners than for forwarders which focus more on the distribution of retailer goods. Academic literature, for example Lumsden (2012) and van Rooijen & Quak (2010), does not distinguish between the price relevance for “RFP winners” and
forwarders which did not win the bidding. The impact of “high price” on the overall economic sustainability is ambiguous. As the interests of the municipality (low price) and of the competing freight forwarders (high price) differ, the sustainability cannot be determined beyond doubt. Nevertheless, the impact of the price on the economic sustainability is given. Overall, the price is of less importance for coopetition than the aforementioned “trust”, “costs”, and “limited market size”.

Further, the “unwillingness to share information with a competitor” and “competitiveness in the market” are stated by three forwarders, two of them saying that these are the most important factors to avoid coopetition. These barriers are closely related to the aforementioned “trust” showing that the high level of competitiveness in the logistics market leads to distrust amongst the companies operating in it. This is consequently an unsound basis for coopetition and a barrier for improving the overall sustainability of the city.

6.3.2 Operational Coopetition Barriers
The second category of barriers to coopetition contains the twelve operational problems freight forwarders would face when working together with a competitor. It is noteworthy that the six freight forwarders do not identify the same operational barriers as every barrier except for two is exclusively stated by one of the forwarders interviewed. Only the difficulty to separate the transportation costs between the own goods and the competitor’s goods when transporting both kinds of goods on the same trucks and the retailers’ disapproval of consolidating the retailer’s goods with goods of the competitor, which is commonly implemented in a coopetitive relationship, are barriers with which two forwarders are concerned.

Overall, there is no agreement on the organizational barriers to the six forwarders as each forwarder is concerned with a different one. Yet, it needs to be mentioned that the barrier “changing order volumes” in case of a coopetition which is mentioned by Växjö’s DHL is considered the most impactful by the company, besides the managerial barriers “costs” and “trust”. DHL clarifies that the company has perfected its storage and distribution activities so that the volumes which the company handles create a high level of capacity utilization and process efficiency. Additional volumes which incurred in case of cooperation with a different freight forwarder would require the business to reorganize its processes which it is unwilling to do. This decision appears to be
surprising as better utilization of resources, performance and capabilities and shared risks, as stated by Bouncken et al. (2015), are in the interest of the freight forwarder.

6.3.3 Technical Coopetition Barriers
The third barrier category which can be derived from the empirical data is the technical one. Five out of the six logistics companies state that their IT-system is incompatible with its competitors’ or with its competitors’ customers. Despite the fact that it is being remarked that the forwarders to a certain extent use IT-systems which all provide similar functions, implementing a “bridge” between the two systems can be costly and takes time. The forwarders especially have an interest in integrating their biggest customers in their IT-systems to enable automated ordering which in turn speeds up processes. Granting competitors access to such customized systems would imply an in-depth alteration of the existing IT-systems even if the willingness to do so is given. This problem, however, is merely called a “hindrance” by Cruijsen et al. (2007). This statement, paired with the opinion of several forwarders naming this problem “resolvable” indicates a low impact in deed. Streamlining IT systems will cost the firms money which has an impact on the firms’ economic sustainability. The impact of incompatible IT systems as a barrier to coopetition on a city’s sustainability cannot, however, be shown through the empirical data.

It is further relevant to point out that the existence of the aforementioned barrier “incompatible IT-systems” is highly shared amongst the freight forwarders interviewed (five of the six logistics service providers confirm it), whereas the other technical obstacles to coopetition, such as “IT-security” (in case of cooperation the IT security of the forwarder would be at risk), “integration and automation of processes” (different processes of the two companies working together are difficult to integrate and to automate), and “integration of IT-systems” (a general unwillingness to invest in the integration of compatible IT-systems) are only barriers according to one firm each. “Incompatible IT-systems” can consequently be named as the most relevant technical barrier to coopetition.

6.3.4 Legal Coopetition Barriers
The final two barriers to coopetition are of legal nature. The authorities could classify the cooperation between two freight forwarders as cartelization, especially when the two companies have a market-dominating position which is why in case of a
cooperation the competition in the transportation market would not be ensured. The fear of this to happen is high amongst the forwarders in Växjö, Kalmar, and Borlänge as four of the six forwarders interviewed confirm this concern. It is noteworthy that all three forwarders which do not currently forward any municipality goods are aware of this problem whereas only one of the municipality goods forwarding companies is. As Rusko (2011) writes, the danger of creating a cartel when coooping can be a problem. Based on the empirical data, the commonality, as mentioned previously, is high. However, the impact of the barrier cannot be determined with high certainty as no company analyzed was close to having a cooperation with a forwarder that could be classified as a cartel and the high competitiveness and distrust within the transportation industry leads to the conclusion that cartelization is nothing which occurs very often.

The second legal barrier to coopetition concerns the retailers’ objection to the cooperation. Växjö’s DHL branch is part of an international company which has fixed contracts with certain retailers to grant them exclusivity. This means that the local office of the big forwarder would legally not be allowed to cooperate with a competitor which would result in transporting goods of the retailer’s competitor due to the contracts the company’s headquarter made with important customers. In short, no branch of the entire company is allowed to cooperate with a competitor and then in the process transport goods of a retailer which has an exclusive contract with the forwarder. However, this concern is only brought forward by DHL, making it not a relevant barrier in most of the cases. DHL, nevertheless, is the only multinational freight forwarder interviewed which is why this legal barrier is more impactful for this company than for the other ones.

When analyzing the managerial, operational, technical, and legal barriers to coopetition it becomes clear that ten of the eleven most important barriers (GDL, Nybro Transport, and Godsservice i Dalarna stated two most important barriers and DHL stated three) and 20 of 47 barriers in total (if one barrier is named by two different forwarders, it is counted as two) are found in the managerial category. This can be interpreted as a lack of willingness by the management which is shown by the relevance of the barriers “trust”, “unwillingness to share information”, and “competitiveness in the market”. On the other hand, the circumstances for coopetition are often not ideal which is shown by the affirmation of the barriers “limited market size” and “lack of potential partners”.
In the operational category, the analysis shows that the three cases differ strongly. 57% (8/14) of all operational barriers are found in Växjö, whereas severely fewer barriers originate from Kalmar (4/14; 29%) and Borlänge (2/14; 14%). When scrutinizing the Växjö barriers more closely, 75% (6/8) of the operational barriers are stated by DHL, compared to 25% (2/8) by Alwex. The operational barriers are consequently company-specific and have little importance to the different cities or the two different kinds of companies. The operational barriers are subjective and cannot be transferred to other companies.

The third category, technical barriers, reveals no clear patterns. Each case city has evenly distributed barriers amongst the municipality cooperators and the non-cooperators. The fact that in Växjö double the amount of technical concerns (4) are stated than in Kalmar (2) or in Borlänge (2) does not have a high explanatory power due to the small response quantity.

Similarly to the technical barriers are the legal barriers. Växjö and Borlänge have more of them (2 each) than Kalmar (1), but the limited response quantity disallows further conclusions.

The total amount of barriers named by RFP winners (25) does not differ tremendously from the amount of barriers stated by RFP losers / non-participants (22). It can therefore be established that in general, both kinds of freight forwarders have a similar amount of reasons to avoid coopetition and that not one type of forwarder sees coopetition more critical than the other.

When analyzing the breakdown of the amount of barriers per category and per type of forwarder (RFP winner or RFP loser / non-participant), it becomes clear that 48% (12/25) of the RFP winner barriers are managerial, whereas only 36% (8/22) of the non-RFP winner barriers belong to the same category. In order to be able to explain this difference, the cases need to be examined separately. The reason for this step is the fact that both in Växjö and in Borlänge the municipality good freight forwarder (Alwex in Växjö, MaserFrakt in Borlänge) and the independent forwarder (DHL in Växjö, Godsservice i Dalarna in Borlänge) each state three managerial barriers. The aforementioned difference can be explained when comparing the Kalmar-based forwarders GDL and Nybro Transport. GDL lists six managerial barriers for coopetition, whereas Nybro Transport only states two. It can consequently be put on
record that it is not the case that RFP winners generally see more managerial barriers than RFP losers / non-participants. The small sample size here distorts the image.

Analyzing the operational barriers in the process shows that 32% (8/25) of the RFP winner barriers are operational compared to 27% (6/22) of the non-RFP winners. It can consequently be said that there is no considerable difference between the forwarders cooperating with the municipality and the ones without a cooperation with the municipality. The same can be said about the technical barriers the two kinds of businesses state. 16% (4/25) (RFP winners) compared to 18% (4/22) (non-RFP winners) allows no differentiation between the two.

Finally, 4% of the RFP winner barriers compared to 18% (4/22) of the RFP loser or non-participant barriers show a clear difference. Especially companies which do not focus on the cooperation with municipalities but on the free market are concerned with the market-related legal barriers, such as cartelization and fixed contracts with customers disallowing coopetition.

To sum up, the most frequently stated barriers to coopetition are “Incompatible IT Systems”, “Cartelization”, “Limited Market Size”, “Higher Costs”, and “Trust”. The barriers which are considered to be the most important ones are “Trust” and “Higher Costs”. The majority of barriers are of managerial nature and only few are technical or legal. The operational barriers are primarily limited to Växjö and there to DHL.

6.3.5 Summary of Coopetition

A summary of all barriers to coopetition, including the corresponding freight forwarder and the theory which confirms the barrier can be found in Table 9. The X’s marked in red indicate that the respective interview respondent named the barrier as one of the most important barriers for them.

Further, the impact-commonness-matrix (Figure 14) provides insights into the most relevant barriers to coopetition and their corresponding frequency of them being named by the various forwarders.
Table 9: Barriers of Coopetition

<table>
<thead>
<tr>
<th>Barrier Category</th>
<th>Barrier</th>
<th>Växjö Respondent</th>
<th>Kalmar Respondent</th>
<th>Borlänge Respondent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>Absence of a “neutral” initiator</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Limited market size (area/volume)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Coopetition Benefits Unknown</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>X</td>
<td>X</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Cost (Sharing)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Trust (Missuse of Information)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Unwillingness to share information</td>
<td></td>
<td></td>
<td>X</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lack of Potential Partners</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Unknown Volumes of Competitors</td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Competitiveness of the Market</td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Customers’ Loss of Forwarder Choice</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operational</td>
<td>Long Distance between UCCs of the FFs</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Retailers Disapprove Consolid. with Competit. Goods</td>
<td>X</td>
<td>X</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Difficult to separate transport costs (billing issues)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Product handling Demands (food)</td>
<td></td>
<td></td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Risk of Damages due to Additional Handling</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fluctuating Order Volumes</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Increased Amount of Trips</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Incompatibility of Competitors' Trucks</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
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<tr>
<td></td>
<td>Incompatibility of Competitors’ Service Portfolio</td>
<td>X</td>
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<tr>
<td></td>
<td>Changing Order Volumes</td>
<td></td>
<td></td>
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<td></td>
<td>Incapability to Handle Food Products</td>
<td></td>
<td></td>
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<td></td>
<td>Absence of other UCCs to Handle Food</td>
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<tr>
<td>Technical</td>
<td>Integration and Automation of Processes</td>
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<tr>
<td></td>
<td>IT Security</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Integration of IT Systems</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Incompatible IT Systems</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td></td>
<td>Retailer objections due to national/global contracts</td>
<td>X</td>
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</table>
Figure 14: Impact-Commonness-Matrix of Coopetition Barriers
7 Discussion

The following chapter discusses the barriers of cooperation and their impact on sustainable distribution from the forwarders’ point of view, followed by the barriers from the municipalities’ point of view, and the barriers to coopetition.

7.1 Discussion: Freight Forwarders’ Barriers to Cooperation

This research investigates the barriers and their impact on cooperation to freight forwarder municipality cooperation as experienced by the freight forwarders’. The cooperation in question is aimed at a sustainable urban freight transport approach and thus sustainable distribution of municipality goods. To answer this question both the RFP-winning and another locally active freight forwarder have been interviewed. However, as the number of conducted interviews and amount of respondents is rather small compared to the task at hand the researchers cannot define the all barriers or their impact accurately. Despite this, the researchers can point towards mentioned barriers and their general impact, commonality, and their influence on the TBL. Admittedly, the findings are in large parts up for interpretation, which is in line with the adopted research philosophy of interpretivism. Thus, further research for a more specific answer is needed.

The findings indicate that the freight forwarders see major barriers to the cooperation with the municipality when RFP-demands and conditions hamper the freight forwarders’ ability to optimize their transportation. This is proven as both missing / wrong data, which is needed for effective planning and calculations, and prohibition to consolidate were named as impactful barriers by respondents and its impact is confirmed by the theory. These where mentioned to affect the commercial business as well. Further price was stated as an impactful barrier, which is relevant due to the freight forwarders’ low margins.

Regarding the commonality of barriers, the two highly common barriers were also mentioned among the high impactful ones (wrong/missing data and price). The other barriers, except for fluctuating order volumes, are directly linked to the RFP. This
points towards the municipalities themselves and general problems with requests for proposals. That local governments are a problem point in urban freight transportation is not unheard of.

When considering the findings the researchers contemplated the chosen and alternative methodological approaches. The chosen approach is not without flaws as the cases are not generalizable and only are viable in the cases and under the conditions which were present as also stated by Ghauri and Grønhaug (2010). Also the research would have benefitted from higher amount of respondents in order to secure the validity of the responses, by comparing them against each other, and to get a holistic understanding from a freight forwarders perspective rather than an individual. The authors believe the findings could have varied depending on the research strategy, data collection strategy, sampling method and the sample itself. For instance, the researchers have considered a quantitative research strategy. This consideration was abandoned early on as the needed sample size would be difficult to attain, due to the low amount of freight forwarders able to transport all of the municipality goods. This consideration was founded due to the research’s intent to research what barriers existed and their impact on cooperation.

### 7.2 Discussion: Municipalities’ Barriers to Cooperation

This research investigates the barriers and their impact on cooperation to a freight forwarder-municipality-cooperation as experienced by the municipalities. The cooperation in question is aimed at a sustainable urban freight transport approach and thus sustainable distribution of municipality goods. To answer this question the procurement employees of the municipalities writing the RFPs have been interviewed. When considering the findings it becomes apparent that the barriers found have their origin in the RFP and by law are high impact as all demands and conditions have to be fulfilled in order to be considered an order qualifier. Nonetheless, the long-term effect on the TBL is presented as a relevant finding. This is reasoned as the barriers long term effect causes them to be a potential future barrier to cooperation if the conditions change from the municipality side. In that case fossil fuel free tucks can be considered as a potential barrier if a stop of governmental financing causes the fuel demands to be economically unsustainable which then would lead to an end of the current cooperation and strain on environmental sustainability, as discussed in 6.2.1.
The finding itself is relevant as it shows the potential impact flaws in economical sustainability can have on the cooperation and the other sustainability aspects, which is relevant information for both the municipalities and the freight forwarders when coming to an agreement. Material related to this finding has not been found during the secondary data gathering or since and thus the authors have no research to compare the findings to.

When reflecting critically over the chosen approach to answer this part of the research question the authors risk that the questions asked during interviews are not answered truthfully. This is flaw has its origin in the interview guide where examples had a leading effect, causing respondents to give a short answer, rather than a thought provoking for more elaborate answers. This led to the authors re-asking the questions and in worst case excluding the data as bias. When considering alternative approaches the authors come to the same conclusion as in 7.1.

7.3 Discussion: Barriers to Coopetition

This study analyzed the barriers to UCC-coopetition between private freight forwarders within the area of municipality goods distribution. For this purpose, six logistics service providers in Växjö, Kalmar, and Borlänge were interviewed. Considering the small sample size, the findings of this research cannot be generalized to Sweden or to mid-sized cities in general. Nevertheless, the findings provide a basis for further research within the area of UCC-coopetition in the distribution of municipality goods as this field is scarcely analyzed.

When analyzing the barriers to coopetition, the forwarders all indicate that they are open for cooperating with a competing company operating in the same area. This statement, however, is in plain contradiction to the rather large amount of different barriers (29) identified, showing that, regardless of impact and commonality of the various barriers, the willingness to cooperate is rather low. This must be seen as a problem considering the fact that the benefits of coopetition, especially with economic, social, and environmental sustainability in mind, are widely researched and known to the freight forwarders.

In line with this finding, the high relevance of the barrier “lack of trust” is in contrast to the general openness of all of the forwarders interviewed to coopetition. The exact
relationship between the low levels of trust in the industry and the general openness to coopetition cannot be explained by this study. Consequently, researchers can analyze this paradox in the future so that a “real” picture of the willingness for coopetition in the transportation industry is drawn.

The fact that the factor “price” has solely named twice by the six freight forwarders is further the biggest surprise of the researchers as it was expected that monetary aspects are the key drivers for the businesses and that they would make the coopetition dependent on the compensation they would receive in the process. This conclusion, however, cannot be made. Instead, the circumstance that the majority of barriers is located in the managerial category implies that a change of the managers’ mindset is required to push coopetition further and to reap the benefits that are sown by coopetition.
8 Conclusion

Conclusions are drawn from the empirical findings and the study’s contribution to theory and practice. Subsequently, the research approach is reviewed critically and the limitations and suggestions for further research are provided.

8.1 Findings & Research Contribution

Barriers to cooperation and coopetition are primarily a result of the spatial organization within the cities and the logistics services that are available in these cities. This leads necessarily to different constraints for both the cooperation between municipalities and freight forwarders and the coopetition between freight forwarders in the different cities despite the fact that all of the cities analyzed follow a coordinated distribution of goods approach.

For the freight forwarders interested in distributing goods for the municipalities in Växjö, Kalmar, and Borlänge, the main barriers for cooperation are low RFP quality, a prohibition to consolidate municipality goods and retailer goods or food and non-food articles, short delivery time windows, ineffective communication from the municipality, and a low price for the storage and distribution services. All of these barriers are found amongst the forwarders active in the three cities. It can be concluded, that they all, directly or indirectly, create the forwarders (route) planning issues, additional investments in assets (for example in trucks), and ultimately increase the costs and/or minimize the profit margin. This then has a negative impact on the economical sustainability of the distribution which in turn affects the environmental sustainability.

The interests of the municipality to cooperate are often contrary to the ones of the forwarders. The research identified four main barriers to cooperation from the three municipalities’ point of view. If a RFP applicant has insufficient capacities at its disposal to forward all municipality goods, if the forwarder is unable or does not have the license to forward food products, if the business does not have a terminal in the city’s vicinity, or if the price for the distribution services are too high in the eyes of the municipality, the majority of public authorities, according to this study, are unwilling to
cooperate with a private freight forwarder. Other barriers also have an impact on the decision to cooperate, but are foremost city-specific and can therefore not be considered to be of general importance for the cooperation itself. They have, however, an impact on the sustainable distribution through this cooperation as for example the fossil-free fuel is more expensive and thus may be economically unsustainable if the political financing stops.

The analysis of the willingness to cooperate with a direct competitor reveals that all freight forwarders interviewed responded that they are generally open for coopetition, but also that they see a variety of barriers to it. Mainly incompatible IT-systems, the risk of cartelization, the limited market size for municipality goods of the respective cities, additional costs in general, and a lack of trust between the actors discourage private freight forwarder to initiate such a cooperation. Especially the latter two barriers are revealed to be highly discouraging for the companies.

The results show that the amount of barriers to UCC-cooperation and UCC-coopetition in the distribution of municipality goods are vast, which is a contradiction to the existing theory. The current state of theory specifies the advantages of cooperation and coopetition, as it has been shown in this thesis, but has shortcomings in terms of the reasons why not more forwarders cooperate with one another.

The uniqueness of this study is illustrated by the combination of the three literature streams, sustainability, urban freight distribution, and cooperation and coopetition, in a municipality context. Research with these aspects has not previously been conducted. The barriers identified from the point of view of the municipality and of the freight forwarders help the various stakeholders which consider cooperating and/or coopeting to be aware of the requirements which the other stakeholders consider important. For a mid-sized municipality this means that it can use this study’s results to estimate whether a cooperation with a freight forwarder is beneficial for it considering the RFP-related, information-related, operational, and financial barriers which incline private freight forwarders to avoid cooperation. In a sense, a municipality can know what parameters it needs to adjust in order to make cooperation more attractive for a freight forwarder.

For the freight forwarder that is interested in cooperating with a municipality, the results of this study are beneficial as they point out the consequences the municipality’s requirements to the RFP winner have on sustainable distribution. This means that the
social, environmental, and economical demands of the municipality which the RFP applicant needs to fulfill are derived from the municipality requirements.

On the coopetition level, the findings of this study show forwarders which barriers other forwarders hinder them from cooperating with a competitor. Knowing the problems can be considered as a first step of overcoming them. The fact that operational, technical, and legal barriers are less relevant than managerial ones shows that it is in large parts up to the managers to initiate coopetition. The results of the study should consequently encourage logistics service providers to seek coopetition, at least in Växjö, Kalmar, and Borlänge.

This thesis provides, according to the researchers, also social and ethical contributions. The author are of the opinion that through this thesis both researchers and practitioners can continue to develop both the concept cooperation and coopetition in the frame of public goods transportation. As this thesis identifies the barriers to cooperation and coopetition for sustainable cooperation it enables improvements as only what is known can be improved. Thereby it sets the part of the foundation for a more sustainable distribution which benefits the current and future generations.

8.2 Critical Review, Limitations & Further Research

This research is unique in relation to the barriers to sustainable cooperation and coopetition in Swedish mid-sized cities with the support of a UCC. No other study like this has been identified while scanning scientific journals and other academic material. However, the interpretation of the empirical data can be executed differently than the approach in this study due to the fact that the boundaries of the barrier categories are blurred. It can be argued that a barrier which has been assigned to a certain category can also be assigned to a different one.

The own critical review of the research uses Pimple’s (2002) framework to assess the ethical aspects of it. The three central questions “true?”, “fair?”, and “wise?” are answered to gain an ethical perspective of the study. It can be concluded, that the findings do correspond to reality as they appear logical and are based on a thorough research supported by multiple empirical and theoretical sources. Secondly, social relationships have been respected by the researchers. Deception during the interviews was avoided as the purpose of the interviews was clearly stated prior to the interviews.
and the communication with the interview partners was open and frank. Thirdly, the benefits of the research to society are, in the opinion of the researchers, given. Abolishing barriers to cooperation and co-opetition to encourage more sustainable transportation in urban areas is a respectable endeavor.

Nevertheless, this research is limited in several aspects. A total of ten interviews with municipalities and freight forwarders in three cities provides a first glance at the barriers to cooperation and co-opetition in the distribution of municipality goods, but does not allow statements which are valid for all Swedish municipalities with UCCs, for all mid-sized cities with UCCs, and for all freight forwarders which operate through a UCC. For this purpose, the scope of the research was too narrow. Nevertheless, the aforementioned contribution to theory and practice is provided.

Further research could include more than two forwarders per city as it would increase the sample size and consequently would provide more reliable empirical data. It is not recommended to include smaller cities than the ones analyzed as the findings of this thesis in medium-sized cities (“limited market size”) to a small extent show that the cities chosen are too small for co-opetition. Larger cities, both in Sweden and abroad, however, could be an interesting field of research. Questions, such as “are the results of this study applicable to larger cities in Sweden?”, “are they applicable to other countries?”, “what role does the UCC play in the barriers to cooperation and co-opetition?”, and “how would the barriers differ if the city distribution layout does not include a UCC?” are still to be answered.
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[Accessed 3 Maz 2017].


Appendix

Appendix 1: Swedish Mid-Sized Cities with UCCs

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Inhabitants Urban Area</th>
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<tr>
<td>Växjö</td>
<td>65.383</td>
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<tr>
<td>Kalmar</td>
<td>38.408</td>
</tr>
<tr>
<td>Halmstad</td>
<td>66.124</td>
</tr>
<tr>
<td>Ängelholm and Vejbystrand</td>
<td>27.500</td>
</tr>
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<td>Kristianstad</td>
<td>39.762</td>
</tr>
<tr>
<td>Jönköping</td>
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<tr>
<td>Karlstad</td>
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</tr>
<tr>
<td>Kartineholm</td>
<td>23.283</td>
</tr>
<tr>
<td>Borlänge</td>
<td>41.955</td>
</tr>
<tr>
<td>Östersund</td>
<td>49.806</td>
</tr>
<tr>
<td>Eskilstuna</td>
<td>67.359</td>
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</table>
Appendix 2: Sections 14 & 15 of Law of Caesar on Municipalities (44 B.C.)

14) “After January 1 next no one shall drive a wagon along the streets of Rome or along those streets in the suburbs where there is continuous housing after sunrise or before the tenth hour of the day, except whatever will be proper for the transportation and the importation of material for building temples of the immortal gods, or for public works, or for removing from the city rubbish from those buildings for whose demolition public contracts have been let. For these purposes permission shall be granted by this law to specified persons to drive wagons for the reasons stated.” (Savelsbergh & Van Woensel, 2016, p. 1).

15) “Whenever it is proper for the vestal virgins, the king of the sacrifices, or the flamens to ride in the city for the purpose of official sacrifices of the Roman people; whatever wagons are proper for a triumphal procession when any one triumphs; whatever wagons are proper for public games within Rome or within one mile of Rome or for the procession held at the time of the games in the Circus Maximus, it is not the intent of this law to prevent the use of such wagons during the day within the city for these occasions and at these times.” (Savelsbergh & Van Woensel, 2016, p. 2)

16) “It is not the intent of this law to prevent ox wagons or donkey wagons that have been driven into the city by night from going out empty or from carrying out dung from within the city of Rome or within one mile of the city after sunrise until the tenth hour of the day.” (Savelsbergh & Van Woensel, 2016, p. 2)
Appendix 3: Swedish Small, Medium-Sized and Large City Classification

Table 10: Swedish Small, medium-sized and large City Classification

<table>
<thead>
<tr>
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<th>Small City</th>
<th>Medium-sized City</th>
<th>Large City</th>
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<tr>
<td>Population Range</td>
<td>200 - 9,999</td>
<td>10,000 - 99,999</td>
<td>≥ 100,000</td>
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<tr>
<td>Amount of Cities</td>
<td>1,855</td>
<td>115</td>
<td>9</td>
</tr>
<tr>
<td>Share of total Cities</td>
<td>93.73%</td>
<td>5.81%</td>
<td>0.45%</td>
</tr>
<tr>
<td>Accumulated Population</td>
<td>2,409,290</td>
<td>3,040,588</td>
<td>3,122,636</td>
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<tr>
<td>Share of Total Country</td>
<td>28.10%</td>
<td>35.47%</td>
<td>36.43%</td>
</tr>
</tbody>
</table>
Appendix 4: Map of Sample Cities

Figure 15: Map of Sample Cities
Appendix 5: Interview Guides

Appendix 5.1: Interview Guide Municipalities

Introduction
What are your name and your position?

Status Quo / UCC Background
When was the UCC initiated? Who initiated and owns it today?

If you own the terminal, have you ever considered selling it to (RFP-winning FF) or if you do not own it, have you ever considered buying it?

What kind of public flows do you have (e.g. food, office suppliers) and who receives these goods (e.g. schools, city administration)?

Do you execute the distribution of the goods yourself or do you assign private freight forwarders to do it?

When did the cooperation with the RFP-winning FF start and what tasks does the FF take over (e.g. inbound logistics, storage, order picking, distribution)?

What are the annual freight volumes (in t or m³) of the municipality? And is your FF able to move this quantity?

Are there only public goods being handled in your UCC or are there private goods (for retailers in the city center or for private residents) as well?

Is it possible to distribute any kind of good (cooled, frozen, bulk, etc.) from the UCC? Or are there any limitations?

UCC-Cooperation
What are the reasons for the cooperation with a private FF? Why do you not conduct the distribution yourself?

What are the reasons for the denial of cooperation with other freight forwarders (e.g. too expensive, vehicles not accepted, other policies object to the cooperation)?

What are the factors (e.g. common goals, similar strategy, etc.) which lead to a successful cooperation with FFs? And what factors are hindrances of a successful cooperation with FFs?
If there is no mutual use of the UCC (public and private flows), have there ever been considerations or even talks with FFs to extent?

Were there ever considerations to have more than one distributor operating from the same UCC?

What requirements do FFs have to fulfill in order to be accepted for a UCC-cooperation? What legal and operative restrictions lead to a lack of cooperation with FFs?

**Current Problems**

How would you describe the cooperation between the municipality and the freight forwarder in general?

**Sustainability**

**Social**

What are the social sustainability goals of the UCC?

What are your social sustainability requirements to FFs which want to cooperate with you (e.g. noise-reduced vehicles, CO₂-emissions, etc.)?

**Economical**

What are the economical sustainability goals of the UCC?

How are the cost and revenue sharing of the UCC arranged?

**Environmental**

What are the environmental sustainability goals of the UCC?

What environmental requirements (e.g. CO₂-emissions, fuel type, etc.) must FF meet in order to be considered for a UCC-cooperation?

**SAMLIC**

Have there been considerations to have more than one distributor and then divide up the city, each FF serving one zone as it has been done in the SAMLIC-project in Linköping?

**Other Stakeholders**

What does the FF operating in the UCC think about the current distribution layout?
What do the suppliers and the inbound FFs think about the current distribution layout? Do they approve of the fact that they deliver to the UCC instead of the customer in the city center?
Appendix 5.2: Interview Guide RFP-Winning Freight Forwarders

Introduction
What are your name and your position?

Status Quo
How would you describe the relationship with the municipality?
What kinds of goods are you primarily forwarding?
Do you think that the operational costs are higher for the distribution of municipality goods than for the distribution of retailer goods?
How is your current trade-off between customer service, costs and tied-up capital?

Sustainability
How important is environmental sustainability to your company?
What steps and investments have you taken to improve the environmental sustainability?
How important is social sustainability to your company?
What steps and investments have you taken to improve the social sustainability?

Urban Freight
What last-mile delivery problems is your company especially facing in (city of operations)?
Do you encounter problems concerning lead time variance (for example queuing when loading or unloading)?
How have policies, such as time window and vehicle restrictions access affected you?

Goods Consolidation
Is it possible or do you consolidate food and non-food articles? Why? Why not?
Is it possible or do you consolidate municipality and commercial articles? Why? Why not?
Do you think that you could reduce the amount of trucks and the distance travelled by blending food and non-food goods and municipality and commercial goods?

Goods Classification
Based on what criteria do you classify your goods, e.g. good types (high volume, high value, high weight), delivery frequency, destination market (retail, courier & post, horeca, construction, waste)?
Do you only distribute non-critical items (Kraljic’s matrix), i.e. fast-moving consumer goods like milk to the municipality’s schools, or do you also distribute scarce products for the municipality?

**Coopetition**

Would coopetition, the cooperation between competing freight forwarders, resulting in larger transport volumes, in mutual goods consolidation, and the creation of synergies, be an option for you? Why? Why not?

Are you aware of the SAMLIC-project in Linköping? Could you imagine doing a similar project here in (city of operations)?

Could municipality policies influence your decision regarding coopetition?

Would you benefit from increased vehicle utilization from an operational standpoint when merging municipality and retailer goods or starting a cooperation with other freight forwarders? Would the routing become easier with larger volumes?

Would you be willing to outsource deliveries which are not profitable for you to other freight forwarders? Why / why not?

What are the technical obstacles (e.g. different ERP-systems) to a joint last mile multi actor distribution system?

What are the legal obstacles (e.g. creation of a cartel, tendering, liability of damaged goods) to a joint last mile multi actor distribution system?

What are the operational barriers (e.g. more unnecessary trips, goods features, and other NVA-activities) to a joint last mile multi actor distribution system? Do you think that the recipients could handle such a system, as for example higher volumes but fewer deliveries arrive at the customer?

How can the municipality, e.g. through (restrictive or incentivizing) policies, help to solve the last mile distribution problem?

Are there any competitors that you could consider to collaborate with concerning information sharing, routing, pooling resources, and sharing risks, considering that this might lead to lower costs?

What do you see as the most impactful barriers to a joint last mile multi actor distribution system?

**Request for Proposal**
What were the reasons for you to submit a bid for the distribution of the municipality’s goods?
Before participating in the tendering, did you make any investments (e.g. in environmentally friendly vehicles) in order to qualify for the tendering process?
What do you think about the tender, e.g. contract time, volumes, other contract details?
Do you think the municipality had demands in the RFP that were unproportional to the task?

Other

How much do your customers (retailers) know of your distribution process? Do you think the recipients could imagine cooperating (e.g. ordering, receiving)?
If the municipality had built a terminal, could you consider the idea to operate it together with competitors through the “Lag om Uphandling av Koncessioner” (Swedish Law on the Award of Concessions)? That way you would not need to invest in the terminal and if it fails you don’t have to use it after the contract expires.
Appendix 5.3: Interview Guide Non-RFP-Winning Freight Forwarders

Introduction

What are your name and your position?

Status Quo

How would you describe the relationship with the municipality? Did you participate in the bidding?
What kinds of goods are you primarily forwarding?
Do you think that the operational costs are higher for the distribution of municipality goods than for the distribution of retailer goods?
How is your current trade-off between customer service, costs and tied-up capital?

Sustainability

How important is environmental sustainability to your company?
What steps and investments have you taken to improve the environmental sustainability?
How important is social sustainability to your company?
What steps and investments have you taken to improve the social sustainability?

Urban Freight

What last-mile delivery problems is your company especially facing?
Do you encounter problems concerning lead time variance (for example queuing when loading or unloading)?
How have municipality policies, such as time window and vehicle restrictions access, affected you?

Goods Consolidation

Is it possible or do you consolidate food and non-food articles? Why? Why not?
Do you think that you could reduce the amount of trucks and the distance travelled by blending food and non-food goods?

Goods Classification

Based on what criteria do you classify your goods, e.g. good types (high volume, high value, high weight), delivery frequency, destination market (retail, courier & post, horeca, construction, waste)?
Coopetition

Would coopetition, the cooperation between competing freight forwarders, resulting in larger transport volumes, in mutual goods consolidation, and the creation of synergies, be an option for you? Why? Why not?

Are you aware of the SAMLIC-project in Linköping? Could you imagine doing a similar project here in (city of operations)?

Could municipality policies influence your decision regarding coopetition?

Would you benefit from increased vehicle utilization from an operational standpoint when merging municipality and retailer goods or starting a cooperation with other freight forwarders? Would the routing become easier with larger volumes?

Would you be willing to outsource deliveries which are not profitable for you to other freight forwarders? Why? Why not?

What are the technical obstacles (e.g. different ERP-systems) to a joint last mile multi actor distribution system?

What are the legal obstacles (e.g. creation of a cartel, tendering, liability) to a joint last mile multi actor distribution system?

What are the operational barriers (e.g. more unnecessary trips, goods features, and other NVA-activities) to a joint last mile multi actor distribution system? Do you think that the recipients could handle such a system, as for example higher volumes but fewer deliveries arrive at the customer?

How can the municipality, e.g. through (restrictive or incentivizing) policies, help to solve the last mile distribution problem?

Are there any competitors that you could consider to collaborate with concerning information sharing, routing, pooling resources, and sharing risks, considering that this might lead to lower costs?

What do you see as the most impactful barriers to a joint last mile multi actor distribution system?

Tendering

If you did not participate in the bidding, why not?

If you participated in the tendering, did you make any investments (e.g. in environmentally friendly vehicles) in order to qualify for the bidding process?
If you participated in the bidding, do you think the municipality had demands that were unproportional to the task?

Other

How much do your customers (retailers) know of your distribution process? Do you think the recipients could imagine cooperating (e.g. ordering, receiving)? If the municipality had built a terminal, could you consider the idea to operate it together with competitors through the “Lag om Upphandling av Koncessioner” (Swedish Law on the Award of Concessions)? That way you would not need to invest in the terminal and if it fails you don’t have to use it after the contract expires.
Appendix 6: Qualitative and Quantitative Methods and Techniques

![Diagram of qualitative and quantitative methods and techniques](image)

Figure 16: Qualitative and Quantitative Methods and Techniques (Ghauri & Grønhaug, 2010)