



LUND UNIVERSITY

Exploring Customer Service in Reverse Logistics Operation: A case study

SMMM20 - Master Thesis

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Abstract

In today's supply chains it often ends by the consumer but as seen with reverse logistics the consumers are the starting point on the reverse flow. Reverse logistics is the opposite route from the usual supply chain and the literature stresses the importance in designing a reverse logistics network, where reverse distribution is essential reach efficiency.

The purpose of this study aims to elaborate on how service offerings within a reverse logistics operation can create customer value and value back to the operation. It will be analysed how, and to what extent different challenges in reverse logistics can determine how value is created in such operations. Due to previous research in the field of reverse logistics has been focusing upon quantitative approaches, this study, for being able to fulfil the purpose, a qualitative approach has been used, together with a holistic single case design. The data collection consisted of using both observations and semi-structured interviews where both the case company and their customers were interviewed. The frame of reference entailed a literature review and has been summarised in a framework which the discussion has followed in a systematic approach. The discussion enlightened how service offerings can appear in a reverse logistics operation and what kind of hindrances which may appear in such environment.

Keywords: *Reverse logistics, reverse distribution, B2B environment, perceived service quality*

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Table of content

1. Introduction	1
1.1 Background	1
1.2 Research Problem.....	2
1.3 Purpose & Research question.....	3
1.4 Focus and Delimitations	4
1.5 Report disposition.....	4
2. Methodology	6
2.1 Case study research	6
2.1.1 Case study design	7
2.1.2 Case selection, its context, and unit of analysis	7
2.2 Literature review	8
2.3 Data Collection.....	9
2.3.1 Interviews	9
2.3.2 Interviewee selection	10
2.3.3 Observation	11
2.4 Data analysis.....	12
2.4.1 Open coding	12
2.5 Research quality	13
2.5.1 Validity.....	13
2.5.2 Reliability	14
2.5.3 Objectivity	14
3. Frame of reference.....	16
3.1 Defining reverse logistics	16
3.1.1 Reverse logistics system.....	18
3.1.2 Reverse distribution.....	19
3.1.3 Transport planning in reverse distribution.....	20
3.1.4 Regulations and Legalisation concerning the collection of different materials.....	21
3.2 Logistics service provider in a B2B environment	22
3.2.3 Service offerings towards customers	25
3.3 A summarisation of the frame of reference	26
4. Empirical descriptions and findings	28
4.1 Case Description.....	28
4.1.1 The reverse logistics industry	28
4.2 The characteristic of Carl F	30
4.2.1 Carl Fs service offerings.....	31

4.2.2	The procedure of the container collection	31
4.2.3	Motive for offerings services towards construction companies	33
4.3	The complexity concerning the construction customers and their construction sites.....	33
4.3.1	Construction sites building new complexes	35
4.3.2	Renovation construction sites.....	35
4.3.3	The interaction and information at construction sites	36
4.3.4	Stricter regulations for construction sites	37
5.	Result and discussion	38
5.1	Results derived from the empirical findings	38
5.1	The collaboration and interaction existing internally at the logistics service provider, Carl F. ..	39
5.1.1	Route planning decisions.....	40
5.1.2	Employees and ownership of the trucks	41
5.2	The cooperation between a service provider and their customers when it comes to offering different kind of services	43
5.2.1	The relationship between the construction company and Carl F.....	44
5.2.2	The service encounters between the truckdriver and customer	44
5.2.3	Providing customized service offering to the customers.....	45
5.3	Customer understanding in the service offerings when it comes to the collection of their materials at the construction sites.....	46
5.3.1	Potential issues which may be problematic when creating value towards the whole reverse supply chain.....	47
6.	Conclusions and suggestions.....	48
6.1	General conclusion	48
6.1	Research Contribution	49
6.2	Practical Implication.....	49
6.3	Future research and suggestions.....	50
6.4	Limitations in this study	50
7.	References	51
8.	Appendix	58

Table of Figures

Figure 1 The focus this master thesis has in the reverse supply chain.....	4
Figure 2 Research Design	7
Figure 3 From data to the idea and back to other data	13
Figure 4 Comparison of reverse logistics and green logistics.....	17
Figure 5 Reasoning on why materials are returned.....	18
Figure 6 Framework reverse distribution	19
Figure 7 Conceptual framework for measuring customer value	23
Figure 8 A system description on Carl Fs reverse distribution	29
Figure 9 The procedure of the collection of materials	32
Figure 10 Results derived from the empirical findings.....	38

Table of Tables

Table 1 The interviews conducted in the research	11
Table 2 The observation conducted in the research	12
Table 3 Different construction sites and their containers.....	34
Table 4 Elements which may influence in how and when a container is emptied.....	39

1. Introduction

This chapter introduces the study's scope with background and motivations of the thesis. It also presents the aim, the research questions, focus and delimitations. The chapter ends with the outline of this master thesis.

1.1 Background

The most used definition from Brundtland report (1987) of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". With UNs goal number 12, about "responsible consumption and production" the ambition to the ultimate circular loop is by doing more and better with less. It includes stakeholders, companies, policy makers, consumers, researchers and media among others to increase quality of life by reducing resource use from economic activities which will increase net welfare and in reducing pollution along the whole lifecycle (UN 2018). Both Chinese and European scholars have research on economic activities more as a circular loop and have raised the topic circular economy, which in recent years has reflected in added interest from companies and governments in these areas (Geissdoerfer, Savaget, Bocken & Hultink 2017). Some of the vital factors of circular economy are to keep all resources within the economy, like a circular. When a product no longer fulfils its purpose, the materials can be reused again and then create more value (Di Maio, Rem, Baldé & Polder 2017).

The most crucial activities within many sectors today is how to reuse, repair and recycle products. Therefore, companies across the world are starting to show interest in this economic model. But, there is still some lack when it comes to researching circular economy and, where future research should focus on is on assessment and indicators, especially on micro level (Elia, Gnoni & Tornese 2017). Still, the reasoning behind circular economy is to minimize, slowing down, closing energy leakage such as resource input, waste and emissions. How to improve this can be realised through long-lasting design, reuse, remanufacturing and recycling. If done correctly the environment, both current and future generation can benefit (Geissdoerfer et al. 2017).

The construction industry has a complex environment due to several issues like, the long lifespan of the buildings, a shorter lifespan with some of the materials in the building, each building has its unique character and long distances material are sometimes used (Buyle, Braet

& Audenaert 2013). Furthermore, the development of producing buildings which are more energy-efficient has been at focus for some time, and now the next step in construction industry is to focus and increase the relevance of other phases. The industrial waste can be beneficial when it comes to environmental protection, sustainable social welfare, and economic growth if there is a proper management (Lai, Yeh, Chen, Sung & Lee 2016). Many of the resources used at construction sites ought to be seen as renewable resources. Materials such as wood, concrete, steel, and glass can through a construction site, continued with a transportation to a recycling facility generate into new resources. From 1995 to 2005 the majority of research within waste and reverse logistics has been studied from a quantitative method with mathematical models, meaning there has not been any qualitative research within the area (Rubio, Chamorro & Miranda 2008).

Reverse logistics focus upon the flow going the opposite way than the forward supply chain, it is designed to retrieve products at its end-of-life state and by doing such, acquire a higher value from the products (Jayaraman & Yadong 2007). Therefore, if collaboration is implemented in a reverse logistics supply chain it can help overcoming the issues with resource utilization, filling rates, and emissions across the supply chain. But, to be able to tackle the challenges there must be a willingness from the actors who are collaborating (Abbasi & Nilsson 2016).

1.2 Research Problem

The characteristics of reverse logistics can be divided into three categories: reuse, remanufacturing and recycling, and a reasoning behind developing reverse logistics in a business has to do with environmental aspects, but also economical activities. For reaching a circular economy it is essential to deal with the minimization of reducing energy leakage, as previous mentioned. To understand how to apply a reverse logistics operation it is important to not apprehend reverse logistics as a **costly secondary operation**, nonetheless see it as a possibility to gain competitive advantages (Poist 2000). This highlights the need to increase the understanding why reverse logistics ought to be implemented, but there is still a gap on the operation on how the reverse flow should to be implemented when it comes to reverse logistics.

Moreover, reverse logistics is currently underrated when it comes to its effectiveness to the chain (Kaynak, Koçoğlu & Akgün 2014). The easiest way to overcome these barriers is to **increase openness and communication** where developing written polices, implementation of ISO certification, increase formal coordination across functions and companies within the

chain. Furthermore, in the past the focus within reverse logistics has been on technical and operational issues and it is time to move towards a **strategic view** as how the impact on reverse supply chains can create value (Schenkel, Caniels, Krikke, & van der Laan 2015). Continuously for the last seven years, researchers have had more interest on the value creation in reverse supply chains and of all the papers made in this field, 53 % of them comes from more recently, resulting in only a few in-depth analyses on the value creation in reverse logistics operation.

A reasoning behind on how value creation is captured among the different companies in a supply chain is **not well understood** when it comes to the reverse flow and needs to be research upon (Sandberg, Pal, & Hemilä 2018). There has been quite a lot of research in customer service in a business-to-consumer (B2C) environment, but not as much in business-to-business (B2B). In a buyer-seller relationship, a good service can mean loyalty and that can result in long-term relationships where engagement in cooperative actions can benefit both. In a B2B environment one important cornerstone in that context is creating and delivering customer value (Keränen & Jalkala 2013). However, most of the research upon dealing with value creation have been focused only on the forward supply chain and according to Schenkel et al. (2015) it is time for research to switch the focus on the strategic impact of reverse logistics for enabling the creation of value.

1.3 Purpose & Research question

As presented in the section above, there some challenges involving reverse logistics and needs to be acknowledge, such as not see it as a secondary operation, increase openness and communication, and finally how value creation is captured within the supply chain. Therefore, this study aims to elaborate on how service offerings within a reverse logistics operation can create customer value. It will be analysed how, and to what extent different challenges in reverse logistics can determine how value is created in such operations. Below, there is two research questions which this study tries to answer, and they are:

RQ1: How are different service offerings provided in a reverse logistics operation?

In a B2B environment one important cornerstone in that context is creating and delivering customer value. Together with having an industry within construction and its complex environment, service can assist the issues with shorter lifespan of the materials used, and the unique characteristics the construction buildings may have. Furthermore, reverse logistics research is insufficient when it comes to qualitative research, hence the need to understand strategies as service offerings within reverse logistics network.

RQ2: In what ways are there challenges in creating value in a reverse logistics environment?

To gain competitive advantages when working within reverse logistics it is essential to not see it as a secondary operation. If there is an increase understanding on why reverse logistics ought to be implemented, resources from construction site can become renewable resources, and hence enable value creation.

1.4 Focus and Delimitations

Reverse logistics focus upon the flow going the opposite way than the forward supply chain. A reverse logistics system is designed to retrieve products at its end-of-life state and by doing such, acquire a higher value from the products. Because of that, the focus in this master thesis is on service offering towards customers in the first step of the reverse supply chain, between two actors in that chain.

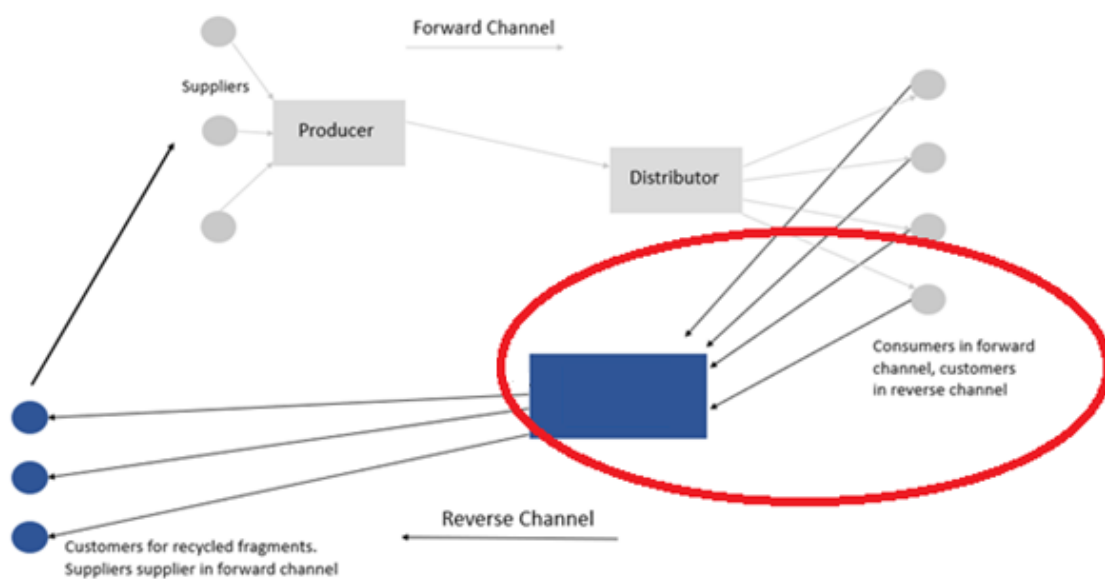


Figure 1 The focus this master thesis has in the reverse supply chain

Furthermore, in the first step of reverse logistics there are different activities to consider, and the focus in this study is upon the reverse distribution. Hence, in this master thesis the focus is upon the first step of the chain, as from the “end” in a forward supply chain where they consumers are, and where they in a reverse channel are the customers, and figure 1 visualize with the red circular where the focus in this master thesis is.

1.5 Report disposition

1. Introduction

This chapter introduces the study's scope with background and motivations of the thesis. It also presents the aim, the research questions, and the focus this master thesis has.

2. Research method

The second chapter features the methods used in this study, where a case study research was conducted, and the data collection was done by interviews and observations. It ends with a critical assessment about the research quality such as the reliability, validity and objectivity of the research.

3. Frame of reference

This chapter presents and outlines different concepts from previous research, which are reverse logistics, reverse distribution, and value between B2B. In the end there will be research presented which have at some extent researched on these topics, and lastly, a summarization of the research areas will be presented.

4. Empirical findings

The fourth chapter present the empirical findings from interview, observations and are presented. There is a case description, how the appearance of different construction sites is constructed, the procedure when a container is ought to be emptied is explained, and how the operational management of the case studies company operate when dealing with customers and containers.

5. Result and discussion

In this section the theoretical framework and the empirical findings will be presented in a collaborated sense, where attributes and potential problems will be discussed.

6. Conclusion

The final chapter answers the purpose of the master thesis and answering the RQ and summarizes the important findings in the study. Also, contribution to research, practical implications, and suggestions for future research are presented. Lastly, some limitations concerning this study is presented.

2. Methodology

The second chapter features the methods used in this study, where a case study research was conducted, and the data collection was done by interviews and observations. It ends with a critical assessment about the research quality such as the reliability, validity and objectivity of the research.

A qualitative study is suitable if you want to create a deeper understanding for a specific problem, event, or situation (Björklund & Paulsson 2014). In this master thesis, the author has chosen a qualitative study because of the purpose of the thesis. The aim is to explain how things are, rather than what they should be and ought to be and case studies can be a suitable to gather such information and that is the reasoning behind the selection of a case study in this master thesis.

2.1 Case study research

The author of this master thesis selected to do a case study research because of several reasons: The case company faces challenges operating in reserve logistics operation due to their size, and due to the complexity when dealing with materials arising from their customers. By doing a case study it directs towards understanding the characteristics and functions of the case in all its complex phenomena. A case study's unique characteristic and power is its ability to deal with many different types of empirical material, such as documents, artefacts, interviews and observations (Merriam & Nilsson 1994). Also, researching on a small family company as the case company are, it gives the research a focus on a microlevel. Why the author chose to do a case study is also because of that case studies differentiate itself from other methods like, surveys, because it does not have any special methods for the collection or analysis of the data. A case study is particularistic, which means it focus on a particular situation, event, passion or person. The case itself is important since it illustrates anything that is important to the phenomenon and what it may mean. A case study is problem-centered, small-scale, and entrepreneurial.

Furthermore, a qualitative single case study research was the suitable choice in this master thesis because of the aim of the study, and the chosen methods helped to achieved it since, as what Baxter & Jack (2008) mentioned, a case study is the most suitable when trying to answer questions like “how”, “why” and “in which way”. Case studies are bound to theories, either as

a vessel which makes theory possible, or as an enforcer in the development of theoretical knowledge. What kind of theoretical information to have in the case study is dependent on what the researcher knows about the area he or she is interested in. (Merriam et al. 1994).

2.1.1 Case study design

The author selected a single case with the design as a holistic of the reasons as Yin (2014) mentioned, a case study is appropriate when wanting to study the nature of an organization or a program. There is different kind of case studies which can be adapted and for single case studies the researcher claimed that the following is relevant: the critical case, the typical case, the unique case, the revelatory case and longitudinal case. The author selected the holistic single-unit of analysis was the most appropriate because using a company, it enables the study to describe circumstances that are occurring in the everyday situation and according to Yin (2014) is a typical case study.

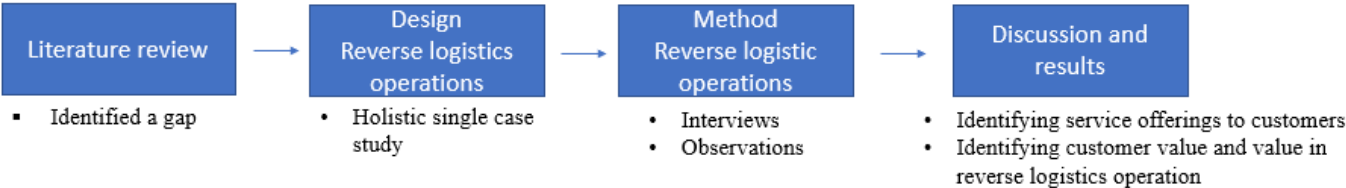


Figure 2 Research Design

As figure 2 shows, a literature review has been used to get increased knowledge and to identify a gap in the research. The following step was to select a suitable design based on the aim of the study, where it was necessary to get access to the data needed for the master thesis. The author found a holistic single case study the most appropriate because according to Yin (2014) choosing to do a single-case study with single unit of analysis is to have access to a situation which has not been accessible for scientific observation and therefore may discover new conditions. However, there is a potential weakness the researcher needs to have in mind when conducting this kind of study. A single case study design requires an accurate exposition of the case to be able to minimize the risks of misuse and misrepresentation but also to maximise the access to the required data collection.

2.1.2 Case selection, its context, and unit of analysis

For this master thesis the company Carl F was asked if they wanted to participate in a case study research, which they wanted. As the author of this thesis has been an employee at the company, for a total of four month combined over two summers, it is appropriate to enlighten the readers

of this. The author had a deductive approach where this research emanated from a theory perspective, as of the literature review was conducted before any empirical data was collected. Also, the research design with the chosen methods helped to obtain the professionalism needed in the thesis, and in the section 2.5.3 concerning objectivity the employee relationship will be further discussed on how it may or may not have affected this master thesis.

The reasoning on why Carl F would be an interesting case to study was because of they operate within reverse logistics operation and they are a family own company and where their geographical span is in Skåne. They are a combined recycling and a transportation company where their business is to retrieve waste from both companies and private persons using containers and other equipment.

Being a service provider in reverse logistics can be quite competitive, where there are several different actors and some of them are big national companies who operates throughout in Sweden, and there are also some international companies. Furthermore, with regulations and legalisation within this industry can make it difficult to provide the perceived service to the customers. Lastly, some materials involving reverse logistic operation has a low value making it more competitive for the actors involved and making it an interesting area to do a qualitative case study research upon.

2.2 Literature review

As mentioned before case studies are bound to theories and to understand the present knowledge within the research area of reverse logistics and customer service, a literature review was conducted. The author's intention was to contribute the reader an overview where the different characteristics are shown as potential and challenges, and the research gap. The author selected the method of literature reviewing because it gives the opportunity to gather much information within the time limitation (Björklund & Paulsson 2014).

When doing a literature review it is important to consider previous work which has been done in the same research area. A researcher who is ignorant of previous research and theories are at a risk for a trivial problem, like creating a copy of previous study or repeating another's mistakes. Also, if a researcher does not take the time to find out what has already been thought and written about, he or she can miss an opportunity to make an essential contribution to their research area. The author way of finding article was to read the articles which had many citations done by others, and in that sense getting a solid ground within the research area. The author also tried to find articles which were written in a present time, where the articles was not

“outdated”. A feature upon doing a literature review is to create opportunities for the researcher to contribute something to the research area and its knowledge base (Merriam & Nilsson 1994). From the literature review a system perspective has been developed where a reverse logistics network is explained, and framework of reverse distribution is described. System perspective is when all the behaviours of a system is considered in the context of its environment with interactions and relationships. A summarisation of a literature review process can be said that it interprets and compiles what research has produced within a particular area.

2.3 Data Collection

This master thesis is based on two methods, interviews and observations, and they were applied in a continuous sense and complemented one another. Also, the author selected these two approaches because of the qualitative data entails detailed descriptions of situations, events, people, interactions and observed behaviours. It was gathered from interviews where different peoples’ experiences, attitudes, thoughts and opinions as well as from observation where shadowing the employees at Carl F, together gave a sense on how services are carried out in a reverse logistic operation. These descriptions, quotes and extractions include raw data on the empirical reality, information which goes to deep and provides detailed images and a qualitative case study is mainly based on information derived from interviews, observations and documents of some sort. Merriam et al. (1994) explained that both interviews and observations are primary sources of information when doing a case study. This is the reasoning why the author of this thesis has chosen to use interviews and observations which enables the gathering of empirical data needed in this thesis. The author explains how and why these data collecting tools has been chosen below. The author got valuable information from both inside and outside of Carl F, where opinions from both employees and customers, together with a subcontractor made the data collection wider and richer.

2.3.1 Interviews

A reasoning why choosing interviews as one of the methods for this master thesis is because of it is the most central sources when conducting a case study as Yin (2014) mentioned. Furthermore, when conducting interviews, it is important to know there are different kinds of them. Why interviews were selected in this master thesis was because the author wanted to gather some sort of information on what someone knew, thought, and wanted. Interviews are usable when the researcher wants to gather data which cannot be observed directly. There are different types of interviews which can be used in a study. The structured interview is when

questions are pre-determined before and in which order they come in and this kind of interviews are mostly used when doing a survey research. In semi-structured interviews the researcher has some questions prepared before the interview as the interview is focused towards a certain area of topic which the researcher has decided before. In an unstructured interview the aim is to make the informers to speak as freely as possible. This approach is very demanding; hence the researcher has not prepared any questions in advanced which means that you rely on the interviewees to open up (Dalen 2015).

In this thesis semi-structured interviews were used with open-ended questions which covered the major topics from each interviewee on how service and value arises in reverse logistics operations. Therefore, some of the questions were predetermined, and these questions were the foundation on where the interviewees thoughts, priorities, opinions and perceived conceptions were collected. The interviews were carried out in Swedish, hence the questions predetermined is written in Swedish, and the interview questions are located in the appendix.

During the execution of the interviews they were conducted at the interviews workplace, hence to get to most comfortable situation for them. Also, the interviews were recorded to require a more accurate rendition and being only one researcher when conducting an interview, it can be hard to takes notes at the same time as you ask questions (Yin 2014). However, it is important to have approval from the participants when recording because to eliminate any harm towards the participants. In this master thesis all the participants were always asked if it was okay to record the interview, the author did not want to offend the participants in any way. After the interviews were done, the author transcribed the interviews, and all the quoting in the thesis was given approval from the interviewees.

2.3.2 Interviewee selection

Below in Table 1 shows who has been interviewed, on what date, which position at work they have and how long the interview took. The selection process was determined from a conversation between the author and the executive manager at the case company. While the author explained the aim of the study, the executive manager could from his work experience say who should be most suitable to interview, and together the selection of the different participants was made.

The choice to have all the interviewees anonymous is to not harm them by the information given from them. They were all informed that the interviews were going to be recorded only for scientific use and deleted when the transcribing was made.

Interviews				
Code name	Date	Job description	Job experience	Time
Respondent A	05-Mar	Executive Manager	20 years' experience at Carl F	60 min
Respondent B	06-Mar	Truckdriver	40 years' experience, 20 as transport planner, 20 as truckdriver at Carl F	30 min
Respondent C	07-Mar	Truckdriver	9 months experience as a truckdriver overall and at Carl F	30 min
Respondent D	08-Mar	Transport planner/Truck driver	9 years, the last year as a transport planner at Carl F	100 min
Respondent E	13-Mar	Transport planner	20 years' experience at Carl F	60 min
Respondent F	16-Mar	Subcontractor	4 years' experience as a carpenter	30 min
Respondent G	21-Mar	Foreman	20 years' experience as a Foreman	30 min
Respondent H	21-Mar	Foreman	10 years' experience as a Foreman	20 min

Table 1 The interviews conducted in the research

2.3.3 Observation

There are two types of observation approached according to Denscombe (2016) and they are:

- Systematic observation (also called structured), and its attributes are a way of observing directly of what people are doing in order to see if what is being done is accurate to what is being said.
- Participation observation and is where the observer participates in the daily lives of the people being studied, either openly in the role of researcher or concealed behind some camouflage role, and observes on what is going on, listening to what is being said and asking questions for a certain period of time.

Within participation observation there are different kinds of observation and they are full participation, and the author of this thesis selected to use participation as an observer, where the researcher's identity as a researcher is openly acknowledged, which means that you have the participators approval. This form of observation can be called as a "shadow" of the person or group being observed in their normal life. Here the researcher witnesses with his or her own eyes the culture or occurrences in a very detailed way. However, there can be a risk with observation, especially if you as a researcher is observing environments which include drug, criminalities or other dangerous surroundings. As Denscombe (2016) explained it is not only the physical violence you are exposing yourself with but also legal prosecution.

By selecting this approach, and after getting approval from the participants, the “shadowing” of their experiences how they operate in the daily operation at Carl F could be collected. Also, the author tried to have as little influence on the participants being observed as much as possible, where the drivers and surroundings did not pay much attention to the observer, which is what May (2011) mentioned, about always having reflexive mind of how a researcher is placed in the social environment and on the relations regarding the field of study.

The table 2 below is a summarisation of all the observations done in this research. The table describes which kind of observation was conducted, the date it occurred and how long time it took. To not expose the participants for any inconveniences, all of them were anonymous.

Observations				
Code name	Date	Type of Observation	Place	Time
Observation 1	6/3	Truck driving; dump truck, retrieving, emptying containers	Malmö	9 h
Observation 2	7/3	Truck driving; Truck driving; dump truck, retrieving, emptying containers	Malmö	9 h
Observation 3	13/3	Truck driving; distribution truck, collecting, exchanging garbage bins and intermediate bulk container (IBC)	Malmö	9 h

Table 2 The observation conducted in the research

2.4 Data analysis

In this single case study two methods was applied as previously mentioned, and the data was collected from the people and situations within Carl F in the form of explanation, understanding and interpretation. The focus in the master thesis was to examine the meaningful and the symbolic content from the qualitative data. The author organized the data where it was coded and grouped into similar and related categories of information. In a descriptive approach the author focused upon identifying recurrent themes and tried to discover patterns in the data, hence to code the data.

2.4.1 Open coding

One vital goal to code the data collected is to discover repetitive patterns and consistencies in the respondent’s responses which are documented in the data by transcribing the interviews. The author sorting the data by coding was done and was carried out by cautiously reading through all transcripts from the interviews and the notes from the observations. The different themes from the interviews were:

- Regulations and requirements within reverse logistics operation
- The container collecting process
- The service encounters B2B
- The internal communication between the employees

Saldaña (2009) mentioned different perspective can be viewed of coding, but all confirm that coding and analysis is not synonymous, but it is a vital feature of the analysis. The author selected to do an open coding which means that headings and a category system was used for all the data collected from the interviews. Also, categories were generated freely and as Burnard (1991) mentioned, it is a suitable approach when the goal is to develop key concepts which are detailed and systematic with themes and issues that are generated from the interviews and such.

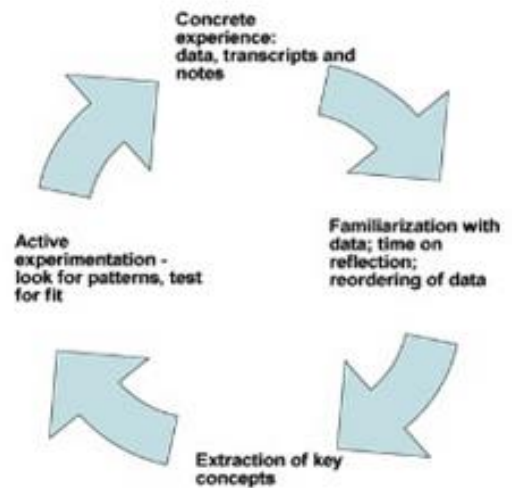


Figure 3 From data to the idea and back to other data. Source: Saldaña (2009)

By implemented this coding approach the author got to know the data much more and it made the amount or data for the analysis richer, hence to the familiarization of the data, finding key concepts and reoccurring themes all through the coding process.

2.5 Research quality

To acquire a high quality of the research it is essential to have a high validity, reliability and objectivity (Björklund & Paulsson 2014). This have been taken into consideration when writing the thesis and are explained below.

2.5.1 Validity

Validity refers to the quality in data and explanations, hence if the conviction we might have are consistent to what is true. The researcher's claims of validity mean to demonstrate that his or her data and analysis are firmly rooted to what is relevant, authentic and true. It is the readers assurance that the research is not based on inferior data and incorrect interpretations (Denscombe 2004). The author always explained for the interviewees what was being researched and why and this was to have the correct measurement as possible. Also, to reach high validity using more than one data collecting tool has been used in this master thesis. With this approach, multiple sources provides multiple measures of the same phenomenon which

strengthen what has been measured is what was supposed to be measured, and the author could control the data collection in this process. Furthermore, in descriptive or exploratory studies internal validity is not always needed to be concerned, because it can be hard to identify when doing a case study (Yin 2014).

2.5.2 Reliability

Reliability is about to what degree of the information presented as in this master thesis is reliable and representative and, it concerns if the results within a study is repeatable (Bryman 2012). Denscombe (2004) mentioned reliability is associated with an evaluation of the methods and techniques which has been used to gather the data of a study. Also, the ability to deliver results that do not vary from different occasions and is not depending on who is performing the research. The author of the master thesis has explained why and how the data collection has been done. By doing that, the reliability of the thesis increases and the achievability for someone else to do the same research in the future should be operable.

2.5.3 Objectivity

The author of this master thesis had a working relationship with the company before starting this process, hence objectivity is an important topic to bring to light. As Björklund & Paulsson (2014) mentioned, by clarification and motivation on the choices made in a study, the ones who reads it gets the opportunity to self-assess the outcome of the study and this increases the objectivity. The author has made clarifications on why different choices has been made throughout the thesis, and in this method chapter, there is always an explanation on why the methods chosen for this thesis were made. This goes in hand what Jensen & Sandström (2016) mentioned that if a researcher is fundamentally objective and impartial when conducting a study then correct judgements and interpretations will occur. Even though the author knew some of the interviewees it never affected the content because of the professionalism from both the author and the persons being interviewed and from the structured the interviews had. Even though that the author has been working as a transport planner at the case study company, there are certain circumstances on why the objectivity was not harmed.

- First, concerning the relationship between the author and the truckdrivers, it had before the observation been an occasional collaboration, due to the main work assigned to the author was to answer when customers called, not planning any trucks.

- Secondly, there has been some personnel turnover lately at Carl F, meaning that some of the employees barely knew the name of the author. For the last 2 years there has been a personnel turnover with over 50% concerning the office employees.
- Thirdly, due to the focus this master thesis has had, the previous knowledge and thoughts the author had about Carl F would not be applicable to use, due to the author had non-existing knowledge on how a construction site operated concerning the containers location, and the author had no previous knowledge existed on the technical aspect of collecting containers.
- Also, all the professional relationship between Carl F and the customers are the salesforce responsibility, not the transport planner. But of course, the author knew the company Carl F and some of the employees, but as the focus this master thesis had, the objectivity has not been harmed in such ways where the master thesis has been coloured.

3. Frame of reference

This chapter presents and outlines different concepts from previous research, which are reverse logistics, reverse distribution, and value between B2B. In the end there will be research presented which have at some extent researched on these topics, and lastly, a summarization of the research areas will be presented together with a conceptual framework on how there are connected.

3.1 Defining reverse logistics

A critical area of reverse logistics when defining what it is about, many researchers as Fleischmann, Bloemhof-Ruwaard, Dekker, van der Laan, van Nunen & Van Wassenhove (1997); Govindan, Soleimani & Kannan (2015); Agrawal, Singh & Murtaza (2015); Lambert, Riopel & Abdul-Kader (2011), all referred to Tibben-Lembke (1998, p 51) definition which is:

“the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal.”

Tibben-Lembke (1998) continued to mention that in a reverse logistics the distribution system is a set of different providers such as: people, procedures, information system, technology, and transportation providers who enables the products to go from one location to another. One of the earliest explanation about reverse logistics was Lambert & Stock (1982) which explained it as a flow that was going the wrong way on a one-way street. A reverse logistics system is to be designed to retrieve products where it would otherwise be disposed to a location upon which a no higher value could be acquired from the products.

However, Carter & Ellram (1998) has a more sustainable approach when defining reverse logistics and claims it is about the process where companies enables to develop more environmental efficiency by implementing recycling, reusing, and reducing of the quantity of materials. There are some similarities between reverse logistics and green logistics and both have attributes which concerns them, but some attributes are very separated. As seen in figure 4 the common characteristics involving both reverse logistics and green logistics are recycling, remanufacturing, reusable packaging. The reason of this is because if a company uses containers which are reusable instead of carton cardboards it improves both reverse and green

logistics. However, if a company develops a reduction in packaging procedure it enables improvements in green logistics but has nothing directly to do with reverse logistics (Rogers & Tibben-Lembke 2001).

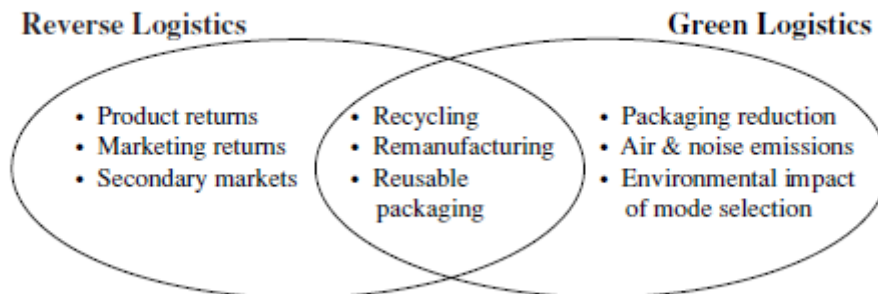


Figure 4 Comparison of reverse logistics and green logistics. Source. Rogers & Tibben-Lembke (2001)

Dekker, Bloemhof-Ruwaard, Fleischmann, Van Nunen, Van Der Laan, & Van Wassenhove (1998) claimed the materials which have had the most focus in reverse logistic operations is metal scrap and waste paper and these processes have been up and running for a long time, but more recently collecting electronic equipment has been implemented. Also, the increasing attention reverse logistics has encountered over the past year has to do with the environmental concerns from consumers (Sasikumar & Kannan 2008). Together with environmental worries, an effective reverse logistics process focuses on the flow going back from customer to some sort of disposition with the aim to maximise the value from the returned products, or to minimise the total cost of handling the reversed flow.

By giving more attention towards reverse logistics, both from researcher but also companies, they can develop strategies which benefits their economic aspects and social image (Agrawal et al. 2015). Also, more attention given the topic is related to the potential of value recovery from used products, legislations, consumer consciousness and responsibilities towards environmental, and economical aspects (Pokharel & Mutha 2009). With these increasing elements and as Lambert et al (2011) recalls it as “the rise of green concerns”, reverse logistics is an interesting, relevant area where, recycling, remanufacturing and disposal are some of the aspects considering the challenges of globalization.

3.1.1 Reverse logistics system

Reverse logistics can be divided into two main areas, where one of them involves products, and the other involves packaging. When products enter the reverse flow, it can be for various reasons, as for refurbishment, or a since a buyer returned it. When dealing with packaging flows in reverse logistics, it has to do with it being reusable and how to make it reusable. Both products and packaging can be used again, hence the flows may have to go through a variation of different processes, such as recondition, refurbish, recycle, reclaim material, reuse, salvage and landfill. What kind of activity a product may take depend on why it was returned, and according to Rogers & Tibben-Lembke (2001) how to determine on what would happen to the products are dependent on why the materials was returned. A product may be returned because of it is of the end of life or season, defected or unwanted products or marketing returns as figure 5 visualize below.

	Supply Chain Partners	End Users
Products	Stock balancing returns Marketing returns End of life/season	Defective/unwanted products Warranty returns Recalls Environmental disposal issues
Packaging	Reusable totes Multi-trip packaging Disposal requirements	Reuse Recycling Disposal restrictions

Figure 5 Reasoning on why materials are returned. Source: Rogers & Tibben-Lembke (2001)

Due to some growing of strict regulation when dealing with product disposal and requirements, reverse logistics have gotten more and more attention. The endeavour today is to create “closed-loop” which will empower higher levels of reusing and recycling of products (Christopher 2011). Hence, when developing a reverse logistics system some performance factors are important to consider and measure, such as customer satisfaction, service, responsiveness, and cost. However, there are a lot more of uncertainty containing these systems compared to traditional one and as Pokharel & Mutha (2009) mentioned the network involving reverse logistics need to be planned with the goal of collecting returned product, in expected time, in the quantities and price to reduce various risk parameters. Also, as Simchi-Levi, Simchi-Levi & Kaminsky (2007) mentioned implementing a reverse logistics system, it is necessary to implement a good information system, where flexibility is essential.

3.1.2 Reverse distribution

A clear and simple explanation of what reverse distribution consists of is as Kumar & Putnam (2008) mentioned, is the collecting of materials and processing of such. When dealing with the collection of materials in reverse logistics it is often concerned with low value products, and in many situations, investment cost to deal with the reverse distribution process is quite high due to the requirements of advanced technology equipment (Agrawal et al. 2015). Also, when dealing with low value products and having expensive investments it requires a high process volume to make it to a profitable business. When implementing a reverse distribution within reverse logistics, it is of importance to consider strategic decisions like number of facilities, capacity and size, location and what geographical area should be covered. Furthermore, information technology plays a vital role in being able to support the movements and requirements needed in the system. An information system has to be capable to work across the boundaries described above, but it also increases the complexity of the whole chain (Simchi-Levi et al. 2007).

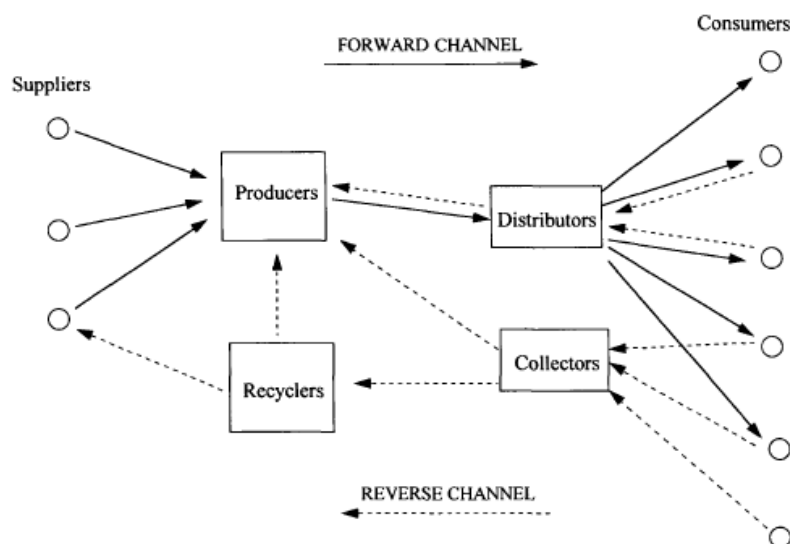


Figure 6 Framework reverse distribution. Source Fleischmann et al. (1997)

Dekker et al. (1998) mentioned that in reverse logistics one of the most essential activities is reverse distribution. The disposal products acquired to be collected and transported away to a location where additional processing like recycling can be done. The functions as collection, transportation, sorting, reprocessing needs to be determined by who of the actors in the chain are responsible for these functions. Such planning should enable the customers a set of options and at the same time motivate them to return product without any extra effort as in searching and going to a collection center (Das & Chowdhury 2012). Companies who choose to outsource reverse distribution do it because of having a low cost, low risk and low return strategy. The reasoning behind this is according to Pagell, Wu, & Murthy (2007), it does not interrupt a

company's core competences and is the easiest solution to implement because, the service company provides all the necessary tools and have the investment to deal with the waste to a low cost. Also, Simpson (2010) mentioned outsourcing the handling of used materials to a third-party is a preferred option in most countries.

3.1.3 Transport planning in reverse distribution

When it comes to decisions of reverse distribution, such as routing aspects, it may differentiate itself from forward distribution, depending on what actors are involved. If there is no connection between the forward distribution and the reverse distribution, the collection of material is likely to have the same routing problems as in traditional distribution (Dekker et al. 1998). One characteristic in planning transportation in reverse distribution is the high level of uncertainty, where factors as time, quantity and quality may differ. Furthermore, when planning different transportation routes in reverse distribution, there may be a need of inspection for the collected material and it must be taken into consideration when planning the routes of collection.

Additionally, one aspect of the complexity within reverse logistics is the different materials being collected have different characteristics, enhancing the need of different type of vehicles for planning a suitable collection and transportation routes (Das & Bhattacharyya 2015). Also, a reasoning why route planning becomes vital for a reverse distribution is because of the cost aspects from labour intensity, and the cost of investing in various of different trucks and equipment. Another consideration to take into account is the variety of the equipment needed to gain efficiency with route planning, because different container types is not suitable for all truck types. Usually, the container types are classified by type, materials, and size according to Rodrigues, Martinho, & Pires (2016) and among the different types of containers are bags, containers, barrels, compactor containers, and wheeled containers to name a few.

Continually, key features to consider when planning routes for transportation is as Oskarsson, Aronsson, & Ekdahl (2013) mentioned:

- Having a high filling rate per transportation will reduce costs for the transport provider
- Delivery dependability is created by having regular transports at a predetermined time
- Having regular transportations can result in short lead time for the customers

3.1.4 Regulations and Legalisation concerning the collection of different materials

In some industries they have taken reverse logistics into consideration and has had some success. According to Sandberg et al. (2018) regulations has forced a producer responsibility to take life-cycle approach when producing their products, meaning they must have a strategy for the reverse handling of their products. The kind of requirement emerged in the early 90s in Sweden and Germany, and it is called extended producer responsibility (EPR) (Lifset, Atasu, & Tojo 2013). The EPR regulations have been introduced in 27 EU countries, and the purpose of this legislation is to improve waste treatment, but also to increase the amount of waste being recycled. At the same time, the core focus is to give incentives to the producers for making them develop products which can be easier to handle in the end-of-life stage. To assist with the EPR regulations there is an organization called producer responsibility organisation (PRO), which manage waste and services, where they assist to finance these operations. When it comes to the collection of waste and reporting to a national government, a PRO is usually responsible and companies within recycling, logistics and waste are subcontracted by PROs to manage a day-to-day operation (Mayers & Butler 2013). Due to regulations, many retailers have started a partnership with other companies such as charity organisations to deal with the reverse flow to create value in the reuse of the products.

An industry that has dealt with regulations and established working collection programs is the steel recycling in the US. Within this industry there are logistics networks which focus on recover material to not only improve the competitive advantage, but also to reduce energy and material usage (Giannetti, Bonilla, & Almeida 2013). According to Kumar & Putnam (2008) the steel industry has a reduction in energy saving of 74%, 88% in reduction of air emissions and 76 % in water reduction. A reason why steel scrap has a well-established reverse collection program is because it is cheaper to retrieve the scrap than produce virgin ore. In the United states automobile industry there is a comparison in the recycling rate, where the total steel used when creating new cars are compared to the total amount of steel recycled from old cars.

In the construction industry there is another problem with the waste disposal as a large amount of it ends up in landfills, instead of being reused and recycled, which increases the amount of air, water and soil pollution because of the production of CO₂ and methane increases when the material in the ground decomposes. The researchers Lu & Tam (2013) implies this is a global problem as in UK more than 50 % of the waste from construction sites are used in landfilling,

in Australia they landfill around 14 million tons of construction waste, and in the US around 29% of solid waste is from construction.

3.2 Logistics service provider in a B2B environment

Within logistics research literature the focus on service offerings emerged in the 1990s and was followed by the trend to outsource those services to third-party service providers. Furthermore, different set of logistics services have been a major source for gaining competitive advantages in companies (Martikainen, Neimi, Pekkanen 2014). However, there is only a few studies done on logistics services concerning smaller business, because the focus in the research has been on large companies and their networks. In a B2B environment it is crucial that the service providers comprehend the circumstances of their customers, due to the unique setting of the customers being organisations. In a B2B environment, the service provider need to customize their services, products and price structure because every customer is unique which results in different usage of each service provided. Rauyreun & Miller (2007) continue the discussion of focusing in developing personal relationship with the business customers can lead up to the loyalty of the customer, and therefore reach a higher stage of profitability. At the same time, gaining loyalty from customers is not about having a huge number of customers, it is more vital to take care of the relationship, which in a longer sense can enable future purchases.

Eisingerich & Bell (2008) and Grönroos (2009) mentioned that an important element in developing and maintaining a high quality in business relationships is trust, which involves making and keeping promises. If a service provider understands the fundamental of trust and how it contributes to customer loyalty, the management of B2B relationship can be a success. According to Rauyreun & Miller (2007) many researchers argue that trust is one of the fundamental factors when establishing successful relationships in a B2B environment, and in a greater sense achieve customer loyalty. Russo, Confente, Gligor & Autry (2016), continued the discussion mentioning that there can be great rewards if a company manage and maintain loyal customers, hence loyal and satisfied customer are key drivers for long-term relationship. However, to reach loyalty it increases tailored solutions, and may be a challenge for companies when searching for the best formula of reaching loyal customers. To understand on how to gain trust and loyalty from business customer it is essential to understand the customer perceived quality on the services.

3.2.1 The customers total perceived service quality

To get a better understanding on how to gain competitive advantages when building customer loyalty, both researchers and service providers are eager to understand the characteristics of perceived quality and finding methods which enable improvement for such quality (Rauyreun & Miller 2007). As Grönroos (2009) mentioned there are two fundamental quality dimensions, a technical quality (what) and a functional quality (how). Continually, the researcher discovered that quality is a subjective experience, but at the same time there is more complexity involved due to it is not only the customer experience which determines if a service has been perceived as good, neutral or bad. The expected quality and the experienced quality together determines a customer's total perceived service quality and if there is a gap between a customer expected service and the experienced service, it may result in poor perceived quality. To reduce that kind of gap, the image of the company must be comprehended in a correct way because image plays a vital part in terms of companies gaining competitive advantages.

Another aspect of gaining a positive perceived service quality from customers is to understand what and how value is created for them. A company's ability to apprehend what specific customers value from the relationship between them will increase the understanding of customer value. Furthermore, this will enable the companies understanding of their customers' needs and how to act on them, even before the they know it themselves (Flint, Blocker & Boutin 2011). The value customer wants are to reach overall satisfaction, and which characterises the trade-offs between the benefits and the sacrifices, originated from the product and relationship of the provider as they try to reach the goals of the customers demand (Blocker 2011).

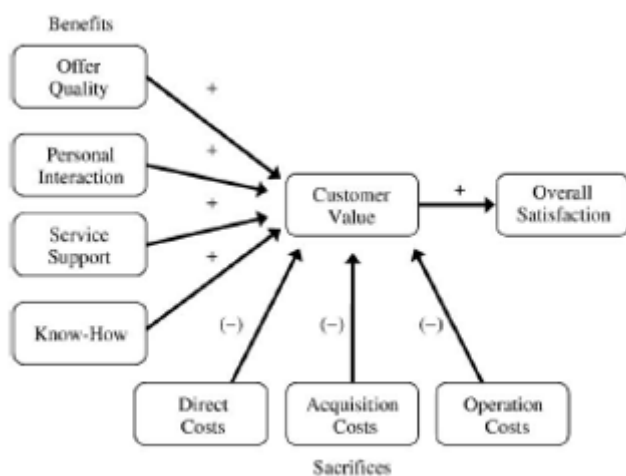


Figure 7 Conceptual framework for measuring customer value and value drivers in business service relationship. Source Blocker (2011).

The satisfaction can be explained as the impact of customers assessment of service quality, intention of purchase, and behaviour. Satisfaction or dissatisfaction is the function between customers' expectations and the performance. According to Bolton & Drew (1991), such function determined the expectations from the customers and also, determines the performance levels of customer satisfaction. Therefore, to reach a good service quality it is essential to know what the perceived service are from the customers point of view. The perceived service quality can be defined as the customers judgement of a service's comprehensive quality and advantage.

Not only winning customers loyalty is of importance, but to be able to further develop a good relationship and satisfying customer's needs, it is the quality of a service which is vital for a company who wants to reach success in an industry. Grönroos (2011) mentioned the success for a service provider is not reliant on how well the service is but, the whole aspects concerning the service as, the aspects of the timing of deliveries, how a service is maintained and how it is made operational for the customer. If a customer receives a service where there is an absence of professionalism from the employee in the service encounter, the customer gets a negative impression and customer satisfaction may be lost (Solomon, Surprenant, Czepiel, & Gutman 1985).

3.2.2 Service encounter happens in the user's atmosphere

As figure 7 visualized above, personal interaction in service encounter is essential when wanting to gain customer value and, such interaction can be between different people for example, renting a car, picking up dry cleaning, or ordering food at a restaurant (Bitner, Booms & Tetreault 1990; Solomon et al. 1985). The service quality in the service encounter is a process which is not a one-way line, but rather a consensual between the actors. The diversity of each service encounter experiences is what may separate one company to another.

Nevertheless, the employee's participation in the service encounter is of importance, because if the attitude is bad, it can affect the customers with a negative impression. A major feature of service encounter is interactions between humans and these interactions are task-oriented (Solomon et al. 1985). The main building blocks for the service encounters is focused upon relationship, where top managers when planning strategies, have to consider the whole process the customers go through to have a good experience, which will contribute to the overall customer satisfaction (Voorhees, Walkowiak, Fombelle, Gregoire, Bone, Gustafsson & Sousa

2017). If a company have a holistic view of the customer experience, they may be able to increase the power of the relationships with the most valuable customers, and that may expand the customer retention, increase overall satisfaction and encourage word-of-mouth. Continually, Voorhees et al. (2017) defined service encounter as collaboration between the service provider and customer with offering core service offerings, which include the interaction before, while and after the service encounters.

Sirianni, Bitner, Brown & Mandel (2013) researched on service encounters where they developed it, as they included brand awareness, which result in the employee's performance in the service company are aligned strategically with their brand positioning. If the service provider understands this strategic alignment, it can strengthen the company's brand when the service interaction with customers are made. However, it is also important to consider the values and norms of the service providers role. If an employee understands what is expected from her/him it is could be easier to gain the well-being factor, because the employee does not need to pretend to act happy. Continuously, the well-being factor is the significant to know as a company because it can result in success of in failure in because of the employee's role as a service provider (Ashforth 1993).

3.2.3 Service offerings towards customers

When a manufacturing company produces a product, it is made in the atmosphere of the company, but at a service company, the service is often produced in the customers atmosphere, where it is a part of the customers value creation (Grönroos 2011). What service providing companies can do to generate value is to support the value creation process by supplying resources towards the customers which they can use. It becomes crucial that companies not consider value creation as an isolated event, more as a role of assisting customer with services which helps them create value. Value innovation demands that a company enables to combine their resources with other competences and that is why the quality of the relationship between companies are essential. A key stone for reaching profitability in both companies is co-creation as Lindgreen, Hingley, Grant & Morgan (2012) mentioned. In this relationship customers can demand the suppling company not only to understand their needs, but also to understand their business The reasoning behind the claims above is: the characteristics in the B2B markets, service providers are moving from a pure product or service delivery, to a combination of products and services. Instead of having a load of different standard offerings, customer wants

to have more relational processes, where there must be a focus on customization, integrations, and a clear definition of the customers demand (Blocker, Flint, Myers, & Slater 2011).

3.3 A summarisation of the frame of reference

In this chapter different research areas have been presented and below is a brief summarisation of the most important aspect. From a logistics perspective there is a technical approach on how reverse logistics system operates but to create value, a functional approach as service perspective, where people within reverse logistics operate is vital aspect for a service provider to consider. This, together with the empirical findings will be further discussed in the discussion chapter.

- Within **Reverse logistics** there is a set of different providers such as transportation providers who enables the collection of products, moving from one location to another. Reverse logistics can also be explained as having flow which “goes the wrong” way, e.g. in a reverse flow. Reverse logistics has given more attention the last years but are still lacking compared to the amount of research within the forward flow. The idea is to create a “closed-loop” which will empower higher levels of reusing of products.
 - Within reverse logistics, **reverse distribution** is a crucial part to take into consideration when developing a reverse logistics system. Strategic decisions such as number of facilities, capacity, size, location, and geographical span are vital for implementing an efficient distribution.
 - Continually, an efficient distribution system, where **transport planning** and routing aspects are in focus can be hard to achieve due to uncertainty in demand, where time, quantity, and quality may differ. Complexity is another factor to take into consideration when planning the collection of material, where large investment in trucks and equipment together with labouring cost needs to be dealt with.
- **Regulations and Legalisation** have a considerable large part in reverse logistics, where regulations have forced producer responsibility, also called EPR, and legalisations direction is to improve the handling of waste and how to increase the amount of materials being recycled. Producer responsibility organisation, PRO, is an organization which assist the national government with collection and reporting of waste, and they subcontract such activities to companies who operate a day-to-day operation.

- **B2B Environment** it is crucial that service providers comprehend the circumstances of their customers, due to the unique setting of the customers being organisations. In a B2B environment, the service provider need to customize their services, products and price structure because every customer is unique which results in different usage of each service provided. Also, to take care of the relationship a service provider has with a customer can enable future purchases.
 - To gain long lasting relationship of the customers in a B2B environment, their **perceived service quality** need to be in focus. The expected quality and the experienced quality together determines a customer's total perceived service quality, and if there is a gap between a customer expected service quality and the experienced quality, it may result in poor perceived quality.
 - As being a service provider, the **services they offer** often takes place in the user's atmosphere. What service providing companies can do to generate value is to support the value creation process by supplying resources towards the customers which they can use. It becomes crucial that companies not consider value creation as an isolated event, more as a role of assisting customer with services which helps them create value.

4. Empirical descriptions and findings

In this chapter the empirical findings from interview, observations and are presented. There is a case description, how the appearance of different construction sites is constructed, the procedure when a container is ought to be emptied is explained, and how the operational management of the case studies company operate when dealing with customers and containers.

4.1 Case Description

The case company is a small family business named Carl F and operation within reverse logistics industry where services such as collection of different materials is their focus with the help of containers and other equipment. Carl F is a private non-publicly business where the family members of Carl F own 75 % and Sysav own 25 % of the company. Carl F have over 1200 customers, all from big international companies to a private person wanting to take part of the services offerings Carl F provide. The geographical span concerning Carl F operations is in the western part of Skåne, and the most collection of material is focused in Malmö. Carl F started their operation in Malmö 1888, over 130 years ago, and over the years the company has developed where they have gone from operating with horses to today's trucks.

4.1.1 The reverse logistics industry

The case selected in the master thesis is Carl F and their supply chain operates in what can be called as a reverse supply chain and differentiate itself from a forward supply chain. Carl Fs chain starts at the end of a forward channel where consumers are the customers of Carl F and it is there they collect different kind of materials, also called fragments, which is vital for their entire operation. Figure 9 below visualize the logistics operation in the context of a reverse flow. The collection of the different materials is vital for Carl F operation, since it is where they get the raw material, and to have a successful operation, this collection have to work as smoothly as possible. What differentiate a reverse logistics operation compared to other industries are that it required several permits for having the approval of transporting and collecting different fragments.

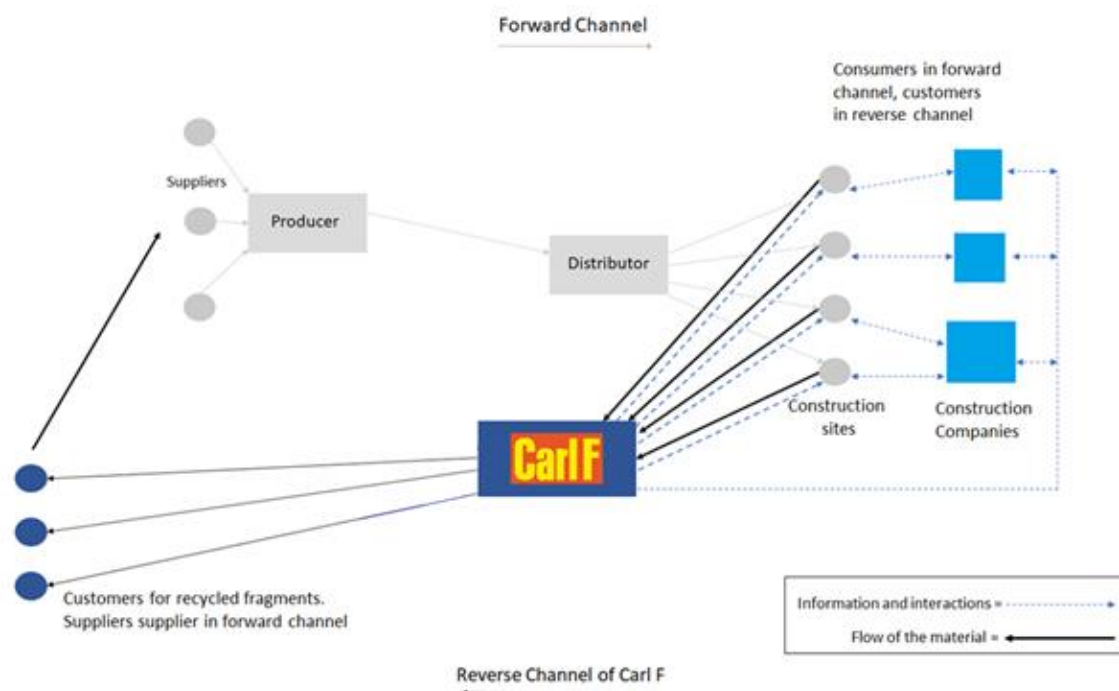


Figure 8 A system description on Carl F's reverse distribution

Carl F have the standard ISO certifications quality management ISO 9001:2015, and environmental management system ISO 14001:2015, however to be legalised in the collection for retrieving fragments in the end-of-life state, also called industrial waste, a company needs to have more certifications and permits. In Sweden it is by law, the local authorities that have the responsibility to have a sanitation agenda which consists of waste plans and regulations concerning household waste. (Avfall Sverige 2017). When it comes to industrial waste there is a producer responsibility and in Sweden such responsibility concerns: wastepaper, packaging, electronics, tires, batteries, and pharmaceuticals. It means that every company working in this kind of industry must have the correct permits to be able to pursue an operation, and it also means that companies ought to implement suitable collection system and treatments methods for the fragments mentioned above.

For the Carl F getting the permits needed they must turn to Länstyrelsen Skåne as respondent A mentioned, which is one of the national government representative and oversees the development in the county follows the national agenda. Länstyrelsen have Miljöförvaltningen in Malmö as their inspection unit, and it is them that can approve companies with the permits

needed to be able to operate within the collection of waste. Carl F have the following requirements:

- ISO 9001:2015; quality management certification
- ISO 14001:2015; environmental management certification
- Permit for transportation of waste and hazardous waste; The permit covers all professional transportation, concerning all type of material and hazardous material.
- Permit under the Swedish Environmental code to recycle, sort, store, and tranship material and to store hazardous material.
- ALLCONT 2004; Sweden's road carriers general regulations concerning transport of commercial-, industrial, and construction waste with containers (Carl F AB 2018).

Together with the correct legalisation the collection of different fragments can be collected by Carl F. To be able to cope with this kind of operation Carl F have 40 vehicles, 4000 containers, and over 1000 garbage bins, which enables the collection of almost 50 000 tons of different fragments annually, where approximately 35 000 ton comes from construction sites (respondent A).

4.2 The characteristic of Carl F

The main goal Carl F state they have the following: *“we want to satisfy our customers' needs through complete/optimal/flexible/reliable/cost-effective solution with high quality”* (Carl F AB 2017). By being a small family own company in the reverse logistics operation the competition can be fierce. In Sweden there are both large national companies, but also international companies operating in the same industry as Carl F (respondent A). What differentiate Carl F from the competitors other than being a small company is that the trucks are completely owned by Carl F, and all the truckdrivers are employed at Carl F. By having this kind of strategy is costly, where the total assets are 119 million SEK and where the ownership of the trucks, 37 % of the total assets (Carl F AB 2017). Furthermore, the total turnover 2016/2017 was 36 million SEK and the net income was 5,5 million SEK. The company have 71 employees, where six of them are women and the rest are men, and as Respondent A mentioned, the employees are:

- 14 office employees
- 6 service employees
- 39 truckdrivers and

- 12 recycling facility employees

4.2.1 Carl Fs service offerings

Carl F have around 1200 customers, which are both companies and private people. The combination of having 40 trucks divided into six different trucks groups, 4000 containers, 1000 garbage bins, and other equipment the collection of material from customers means Carl F can have a broad range of providing different services which suits the customers' needs.

To be able to provide the necessary service required by the customers Carl F have different employee groups working together internally, but also collaborating with the customers at different levels. As the four persons working with sales and customer relationships, they often visit customers and it is divided that the two more experienced sales persons have the more important customers. Respondent A mentioned it is important to have a high level of service and it is also the reason why Carl F have a lot of customers. When it comes to the sales staff it is them who many times seek up businesses, and to get a new customer is often a long process. Several customer visits are needed and if the customer is new for Carl F, it means that another competitive company is going to be replaced, and then there must be some sort of value adding, otherwise it is not of interest to change the service provider. The value adding can be either cost reasons or service reasons.

Another service Carl F can provide their customers with documentations which are required in the industry. As, respondent H explained it that using Carl F as their service provider concerning containers, it contributes to more than only retrieving the waste. When a construction is done, all documentation needs to be collected, for example on how much waste has been picked up, where it was dropped off, how it has been taken care of, and Carl F can provide the customers with all these documentations. Also, if you are a customer at Carl F you can through their webpage log-in and see all statistics on what you have thrown away so far at the different construction sites.

4.2.2 The procedure of the container collection

When a container is full, and the customer wants it to be emptied, the easiest way is to call Carl F. By doing so, the call goes straight to the four transport planners at Carl F and working as a transport planner means that you have about 60-80 phone calls per day. At Carl F there is not a reception where the calls and visitation announce themselves, hence all of that is taken care of by the transport planners. Respondent E mentioned that the biggest part of being a transport planner is to be receptionists, to pick up the phone and solve whatever needs to be solved. Respondent D mentioned the most important thing when answering the phone is to listen what

the customers wants, understand what they need and what is going to be emptied. As figure 10 shows, is a simplified walkthrough on how it works when a container is supposed to be emptied. Step one is that the construction customer calls Carl F, it can be all from a local manager to a carpenter. Respondent G mentioned that they trust their guys to make the calls when a container is full, and at other sites it can be one person in charge of making the call. When the call comes in to Carl F a transport planner puts an order and he or she also plans the trucks which are in charge of retrieving the full containers.

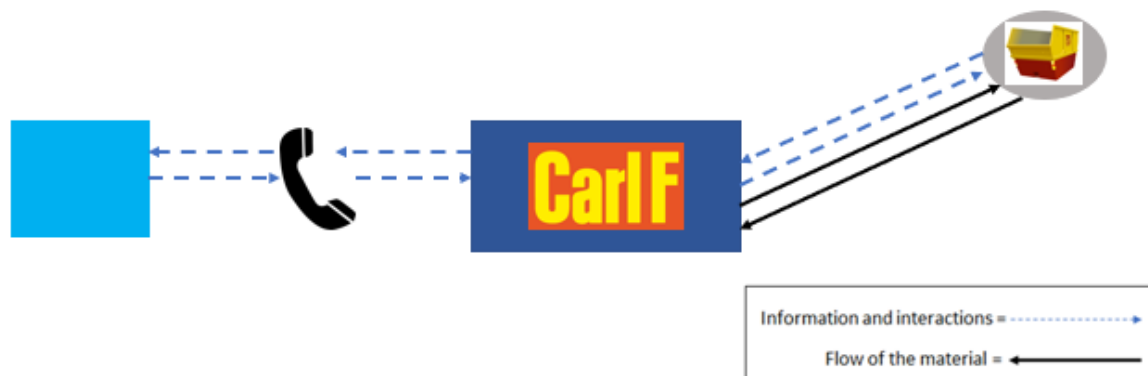


Figure 9 The procedure of the collection of materials

The planning process on how to retrieve the different containers is divided between the four transport planners, who are responsible for their group of trucks. Key factors to consider when planning the routes on the collection is as respondent D and E mentioned the following:

- The kind of customer wanting the containers to be emptied, because different customers have different attributes to consider.
- A customer can be promised a certain time and date to have a container emptied, hence of importance to know as a transport planner
- Different containers within the different groups of trucks have different sizes, which means to engage in high filling rates the transport planners must know such technical aspects.

Next step is the actual retrieving which occurs at a construction site where the container is taken by a truck, and at the construction site there is interaction between Carl Fs truckdriver and the workers at the site. As experienced at observation three, the interactions can be all from small chit-chat to wanting to have more containers emptied. To make this every day procedure as efficient as possible information and interaction both internally at Carl F but also externally is of importance as respondent D mentioned *“it should be as smoothly as possible for the customer*

and for us". The blue arrows represent the interaction and information which flows through the procedure when having a container emptied and as the figure shows, the arrows are apart in every step of the procedure.

Overall, Carl F wants to be the whole supplier for their customers when it comes to collection of materials and lifting, (truck crane lifting) and where the customer always gets the help they request respondent A explained. To be able to have this kind of service to the customer Carl F are forced to have an extreme high service level and as respondent A mentioned *"It is up to us to have a high level of service and that is also the reason why we have as many customers as we have"*.

4.2.3 Motive for offerings services towards construction companies

Among the 1200 customers, the private people group is rather small when it comes to profit and as Respondent A explained, *"In general, we work with construction and industrial customers, where construction accounts for about 60% of turnover and industry for 40%"*. Why Carl F have a large percent of their customers in construction is that they provide the customers not only with containers but also the ability to sort their waste at their recycling facility in Malmö. As Respondent A said, *"One of the reasons is the fact that we make the sorting of materials much easier than what you do at a construction site"*. Also, the construction companies differentiate themselves from the other customers in the way of having a more stressed schedule and they often have a contract deal with Carl F where a maximum time window is agreed upon when emptying a container, as for them it can be crucial to have a container emptied and the bigger customer to Carl F usually have the cost for different services included in a contract.

Additionally, construction companies are always moving around, as they are approximately at the same place for maximum two years, hence here it is more about giving a high service level than focusing on the cost of dealing with containers respondent A explained. The different construction customers come in all sizes, it can be all from one-man company to a large international company, and all shapes in between that. Every customer wants different services, and some of them wants to sort at the construction site, while some wants to throw all of the material into one container and Carl F can deal with both of these services.

4.3 The complexity concerning the construction customers and their construction sites

One of the biggest sources of the collection of different containers comes from the construction customers and their construction sites, as previous mentioned by respondent A, where it stands for around 60 % of Carl Fs turnover. However, from a construction point of view, the cost of

having a company as Carl F providing them with containers represent about 1 % of the total cost in the construction operation. But it can be quite crucial that the containers are emptied when expected hence as both respondent H and respondent G explained, there are usually restricted amount of space at construction sites. During the observation one and two, this restricted space was a potential problem where several of the construction sites had limited area of space. The construction sites which were building new complexes had the most space and it was also them that had the most containers. The space was still limited, and a lot of things had to be obtained in the same space. Space was needed where the new buildings are constructed, space is also required for the workers sheds, where they eat their lunches, and the availability to use the restrooms, and the last, there are a lot of incoming transportation and materials that needs a place to be put. At one of the construction sites they started building at the main road and their plan is to work their way through the field beyond the land preparation where no current roads exist yet. It means the further in the construction of the complexes comes, it will be harder to find space to put other things such as containers. Also, there is only one access road to the neighbourhood, concerning all of the in- and outbound transportation but also for the people living in the completed phases.

Three of the construction sites visited during the observations are summarized in table 3 below to get a sense on how many containers they have and what they have it for.

Construction site 1		
Type of container	Material/Fragment	Number of container
Compactor 22m ³	Corrugated cardboard (compresses the waste)	1
Low container 8m ³	Landfill (concrete, tiles, gravel)	1
Standard container 12m ³	Wood/Mixed/Plaster/Combustible/Metal	5
Covered T10m ³	Mixed Waste from workers sheds	1
Total of Containers		8
Construction site 2		
Type of container	Material/Fragment	Number of container
Standard container 12m ³	Metal/Plaster/Wood/Mixed	4
Closed container TVB 8m ³	—	1
Total of Containers		5
Construction site 3		
Type of container	Material/Fragment	Number of container
Standard container 12m ³	Wood/Mixed/Plaster/Combustible/Metal	5
Standard container 12m ³	Isolation	1
Standard container 12m ³	(not the same place as the other above)	3
Low container 8m ³	(not the same place as the other above)	1
Total of Containers		10

Table 3 Different construction sites and their containers

4.3.1 Construction sites building new complexes

Discovered from all the observation, several of the construction sites which were building new settlements had different approaches when it came to the placement of the containers. One site had the containers at the front of the road, but they had put long woodworks in front of the container, which is not a problem when you lift the container but when respondent C was going to position his truck to the container the wood was in the way. Also, there were several pallets which were in the way for being able to reverse the truck to the container, and respondent C had to go out and move them by hand. It resulted in a lot of going back and forth with the truck and it took some time, but the truckdriver fixed it, and the container was retrieved.

Furthermore, a lot of the different construction sites which were visited during the observations were close by, hence Malmö city is currently consolidating an old industrial area into resident areas. All the construction sites had in common when building new complexes was that they were a lot messier than a renovation or at an industrial company which were visited during observation three. At the site there were over 100 EU pallets stacked unorganised which meant more space needed for them. Also, the same construction site felt messy, with a lot of clay all over the place, cables from the electricians laying around and at this site respondent C was picking up a container with mixed materials. When arriving it was quite clear which one to pick up because it was full, almost overloaded. It was also clear that the wood container was full and as respondent C explained, he emptied that one the day before.

From all the observations it was noticed how good contact they have to the customers. respondent B said, *“it is incredibly important to have a good contact and relationship with the builders who are in my area”*. Many times, it is the builders on site who calls Carl F when a container needs to be emptied. At Respondent Gs company a carpenter can make the call to have a container emptied, no foreman or boss needs to check them, hence *“we trust our guys”* (respondent G). Also, if a builder tells a foreman at respondent G and Hs company that they need a bigger container for wood, they listen and trust the builder.

4.3.2 Renovation construction sites

When it comes to construction sites of a renovation, it can be trickier to have the space to place containers, often there are only room for one container. Respondent G mentioned when they have a renovation of an office complex at the 5th floor in a building it can be hard to deal with the waste. Carl F can help with that by using the crane trucks, where they can hold a smaller container with the crane and lift it up just outside a window and then the construction workers can through the waste into the container and the crane truck driver takes the small container and

empty in the big container he has on the truck. With this kind of work the customers can still decide if they want to throw all of the material in a mix or if they want to divide it, by sorting it. Respondent D mentioned that the crane truck driver can fill up the truck with wood, transport it away and come back to collect other fragments, therefore it is all up to the customer what suits them the best.

Also, when deciding how many containers a construction site should have depends if it is in the city or if it is outside the city because then you have overall more space. However, is it a renovation in central of Malmö respondent G construction company mainly uses a covered container due to fire hazard. As he explained *“it is usually close to a building and then we must have a covered container as a T10m3 to get approval to even be able to have a container to throw the waste into”*.

4.3.3 The interaction and information at construction sites

Both at observation one and two it was discovered that when the truckdrivers are on the way to pick up the containers they always call the local manager at the site and letting them know that Carl F is on the way. It was noticed that that the truckdriver and the manager had a good contact and that they know each other very well. At one occasion, the truckdriver talks to the customer, explains which containers he is picking up, and in what order. Furthermore, when respondent B called before arrival it resulted in a faster collection of one container and the truckdrivers at Carl F, they have specific areas that they operate in. Carl F have divided Malmö and the rest of the southwest of Skåne into different zones where the different trucks is responsible for the collection of containers. Respondent E explained that it can be both a good thing, but also a bad thing. The good thing is that they know the area and knows exactly where the containers are. The bad thing which may occur is when a truckdriver is sent to an unfamiliar area it can be trickier to find the location and find the container.

At many construction sites there are often subcontractors who works there as well, and subcontractors may not always know what is going and as respondent F mentioned, a subcontractor often come to a site which are in different stages. At some location they get information on where everything is, all from the waste containers to where the restrooms are. But sometimes a subcontractor does not get any information more than what he or she should build. Many times, it is a stressful atmosphere where many subcontractors are limited to the same space and they all are walking on top of each other. Carpenters, electricians, painters are all sharing a small space at the same time and especially in the last process when a kitchen is going up in apartments, everything should be done quickly. As respondent F explained there is

a strict time schedule, especially in the end of the working process so the materials from a kitchen goes in the nearest container if no information is handed to them. Why the information is sometimes inadequate respondent F mentioned *“it is hurry hurry hurry, and all of the surrounding questions never see daylight”*.

4.3.4 Stricter regulations for construction sites

In the last years the regulations have become even more harder and stricter concerning construction sites and the handling of materials. A reasoning of this is as Respondent G explained *it's too much that has ended up in both the wrong place and everything*”. It means when a construction company is doing a renovation and discovering asbestos there is more strict requirements on how to deal with it. But Respondent G did not mention it as a painful procedure more as *“It is to try to get in control and try to make it as efficient as possible”*. Also, Carl F have different product and services to assist with the regulation the construction sites may have, and it can be all from a sealed container labelled asbestos to big bags which can be sealed in a proper secure way. Respondent A mentioned that sometimes Carl F can get a customer at the basis of them needing someone to take care of the hazardous materials. The distribution trucks are responsible for picking up the hazardous materials and by having a closed truck, together with educated truckdriver, permits for such business, the correct carriage of dangerous goods by road (ADR) papers, and labelling the hazardous materials correctly Carl F can offer such service as well.

5. Result and discussion

In this section the theoretical framework and the empirical findings will be presented in a collaborated sense, where attributes and potential problems will be discussed.

5.1 Results derived from the empirical findings

The empirical findings, three different obstacles (the red crosses) need to take into consideration when being a service provider offering services in a reverse logistics and is as following:

1. The internal process of working in a logistics service providing organization when it comes to cooperation and delivering services towards customers
2. The cooperation between a service provider and their customers when it comes to offering different kind of services
3. Customer understanding in the service offerings when it comes to the collection of their materials at the construction sites.

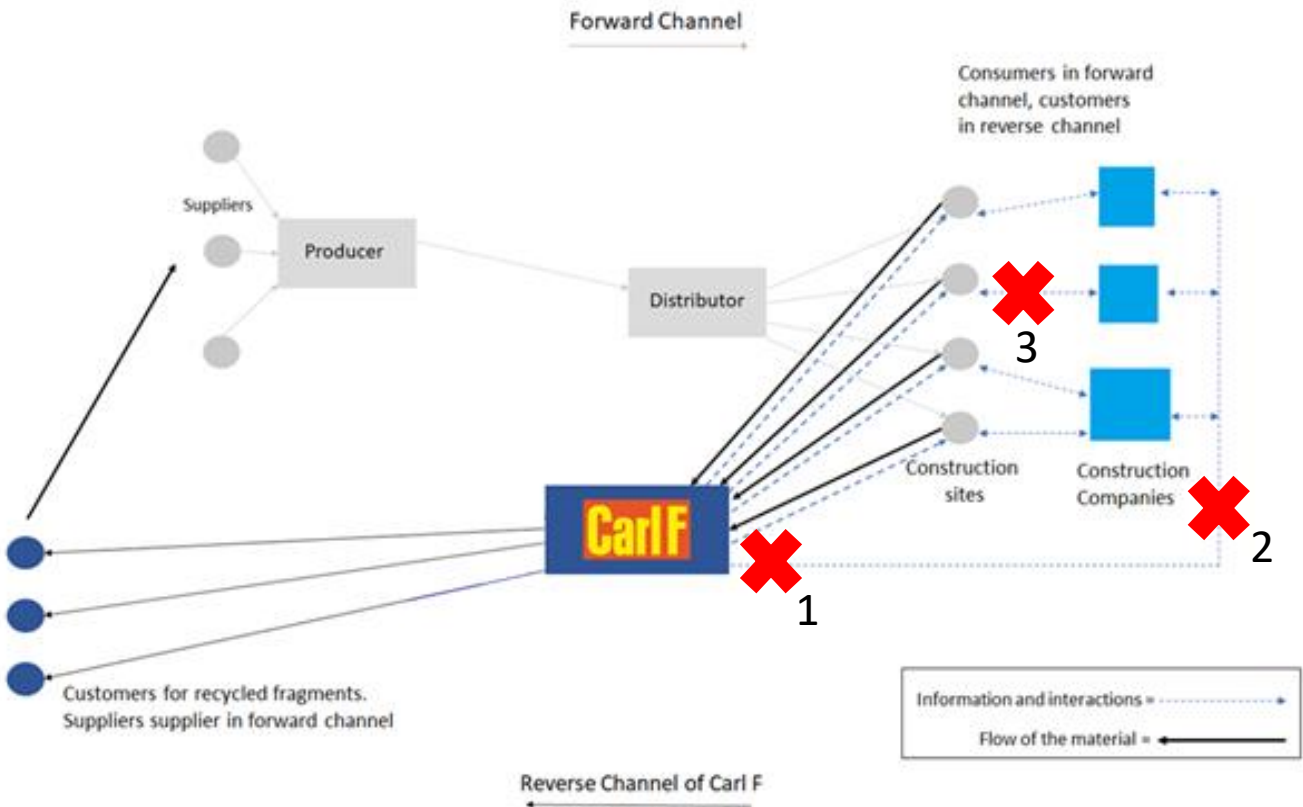


Figure 10 Results derived from the empirical findings

5.1 The collaboration and interaction existing internally at the logistics service provider, Carl F.

Carl F is a service-oriented company where the main priority is to serve their customers with containers and other equipment for them to fill with waste and collect them when needed. They are a logistics service provider operating in a reverse logistics, where their main goal is to retrieve the collection of different materials as efficient as possible. To achieve such goal, it is important that a proper reverse logistics network exist, where the reverse distribution and transport planning is crucial activities to consider. According to Rogers & Tibben-Lembke (2001) designing a reverse logistics system where retrieving different materials, it is important to understand why the materials were returned, which means that Carl F as a logistics service provider needs to know their customers and what and why they are returning materials. Table 4 visualizes crucial elements concerning the collection of containers, and the different business decisions can be at a strategic and/or at an operation level.

	Elements which may influence how and when to empty a container	Business Decisions of Carl F
Contracts	Price	Strategic
Time limitation	Have to pick up on a certain frequency	Strategic
Customer	Private or Business customer	Strategic
Planning	The planning done by the transport planners	Operational
Location	Where the containers are located	Strategic/Operational
Location place	How the containers are set up at a construction site	Strategic/Operational
Load	How loaded a container is	Operational

Table 4 Elements which may influence in how and when a container is emptied

To make the collection of containers as efficiently as possible, there must be a good collaboration between the employees within Carl F because the performance of how good services Carl F have towards the customers will enable the economical profit they can achieve. As Pokharel and Mutha (2009) mentioned performance factors such as customer satisfaction, service, responsiveness and cost is necessary to consider when developing a reverse logistics system. The collaboration between the sales force which have the strategic business decisions and the transport planners which have the operational decisions need to have a great understanding for each other's work. However, at Carl F this is not always the case. If a sales person promise a customer to get a container at a certain time and this is not further

communicated towards the transport planners the customer satisfaction may be affected in a negative way. Also, when the sales force achieves in getting a new customer which wants certain equipment's to handle their different fragments it is a positive achievement for Carl F because it means more profit towards the company, but if the communication towards the operational decisions is weak and the person in the sales force is lacking in the information towards the transport planners it can result in the customer not getting the containers that they wanted and was promised. To implement a functional reverse logistics system, it is necessary to have an information system which works between the different work groups as Simchi-Levi et al. (2007) mentioned. This was to some extent expressed by respondent A, where it was mentioned: *"if I undertake a project to be implemented, it is important that I inform the transport planner and the truckdriver on what is supposed to be done to make it as good as possible"*. A reasoning on why it is important to have all the employees informed is because it is all of them, together, who enables the service towards the customer. The different workgroups have different business decisions but, in the end all of them needs to reach the same goal, as in satisfying the customers.

5.1.1 Route planning decisions

Both respondent D and E mentioned the main elements to consider when you work as a transport planner at Carl F. Elements such as what kind of customer wanting to have a container emptied, determines on how fast the collection will be. According to Pokharel & Mutha (2009) one vital aspect to consider involving reverse logistics network is to collect the returned products in the expected time. Several of Carl F customers have in their contracts, decided at a strategic level the maximum time it ought to take from the call to the container is emptied. It means that such information needs to be communicated to the transport planner because otherwise customers may be lost.

Within the collection in reverse logistics there is a complexity due to the different characteristics of materials, and equipment where a suitable planning for the collection becomes vital (Das & Bhattacharyya 2015). Therefore, as a transport planner it is important to know the technical aspects of collecting containers, to be well prepared, know what you are talking about to make the service towards to customer as good as possible (respondent E). Also, having a high filling rate will ensure the efficiency when collecting the different containers and can enabling more collections per day, and will reduce cost for the transport provider as Oskarsson et al. (2013) explained. The filling rate aspect concerning the collection of containers may differ some compared to filling rates in a forward distribution. When planning the routes with the dump

trucks which operates with the containers most customers use, especially the construction companies, the most important goal is to never do a transport with nothing on the truck. The dump trucks can have a maximum of two containers per transport if it is the most used container of a 12m³. In this kind of operating where the collection of the materials have a quite low value as Agrawal et al. (2015) explained together with the high investment needed to cope with the collection, the filling rates of the trucks is an essential feature to enable a revenue for Carl F and the transport planners together with the truckdrivers are in charge for enabling such feature.

5.1.2 Employees and ownership of the trucks

At Carl F all the truckdrivers are employees and not individual road carriers. This means that the cost of having the truckdrivers as employees is high and a reasoning why the filling rate per transport becomes even more vital. Also, Carl F are the owner of all the trucks they operate with, resulting in a high total asset. Even though these costs are high for a small family company, Carl F believe it is beneficial in the end. Many times, as Dekker et al. (1998) described planning different distribution routes in a reverse network, there is sometimes the need of inspecting the material being collected. Having employees instead of road carriers enables Carl F with the control of having well educated truck drivers who knows how to operate in the collection of containers. Furthermore, having the ownership of the trucks result in ensuring the customer that it is always Carl Fs equipment together with the employees who comes to the customers sites and collecting their materials. Respondent A explained that it is worth the cost of having their own employees because it increases service towards the customers and gives Carl F security in knowing what driver, collected what container, at a certain time.

Nevertheless, implementing a working reverse distribution it is vital to consider strategic decisions like where the locate the operation as Agrawal et al. (2015) mentioned. Carl F has of today not their entire operation at the same place which create some issues. The garage for the trucks and the service-, and office staff is all in one location and approximately 5 km away is the recycling facility where all the equipment such as containers and garbage bins are located. It is also there all the emptying of containers takes place and the storage of them. The issues of having these different locations separated has some disadvantages such as:

- **The service staff which repair the containers are not in the same place as the storage of the containers**

As Agrawal et al. (2015) mentioned it is of importance to consider on where to put the facilities within a company. The result for Carl F for not having the service personnel and the containers needed repairs at the same place means that certain amounts of internal transportation needs to take place. This means that the truckdrivers are forced to take the broken containers to the service personnel instead of emptying customers containers which enabling profit.

- **At least once a day the truckdriver need to take the 5 km journey from the garage to the other facility. This results in having 40 trucks driving that distance every day for over 20 years.**

In reverse distribution there is the complexity for the different materials being collected, which enhance the need of different types of vehicles for having a suitable planning when it comes to transportation routes as Das & Bhattacharyya (2015) mentioned. Carl F's strategy is to be a logistics service provider where the main goal is to collect containers and other equipment from their customers. By having this "extra" 5 km distance the truckdrivers need to take each day result in less containers being emptied, which can result that the services towards the customers decreases. Furthermore, discovered from the observations the last journey from the recycling facility to the garage occurred during the rush-hour traffic, resulting in taking even longer time to come back and end the shift, which sometimes resulted in over-time payment cost for Carl F.

- **The transport planners do not get an overview of the number of containers available for the customers.**

Being a transport planner at Carl F it is important to understand the technical aspects, to be well prepared, and so on as mentioned above. To give the customers the best service possible it is sometimes tricky for the transport planner when not knowing if a certain container size is in stock because not being at the same place. This result in as discovered during the observation that the truckdrivers need to be detectives to see if there is a container in the particular size the customers requested. If not, there are a certain amount of calls needed to take place both between the truckdriver and the transport planner, but also to the employees for trying to keep a high service level. It means that the information's system is lacking in terms of providing the employees with the information needed as Simchi-Levi et al. (2007) mentioned is crucial in a reverse logistics system.

Furthermore, Rogers & Tibben-Lembke (2001) acknowledged in their research is to have an effective reverse logistics process it is to focus on the flow going back and, continuing trying to reduce the handling cost within a reversed flow. It means Carl F needs to take their facility location decisions in consideration because currently there is problems which decreases the efficiency in their reverse distribution.

5.2 The cooperation between a service provider and their customers when it comes to offering different kind of services

Operating in a B2B environment can be tricky and as in a reverse logistics there are also certain amount of regulations and legalisations to deal with. When having an operation within collection of different materials as Carl F have, there is “extended producer responsibility” (EPR) regulations to consider. When it comes to the collection of waste and reporting to a national government, a “producer responsible organisation” (PRO) is usually responsible and companies within reverse logistics as Mayers & Butler (2013) mentioned, and Carl F have Länsstyrelsen as the controlling organizations and it is them to contact when the correct legalisation are needed.

Being a logistics service provider in a B2B environment and providing different set of services have according to Martikainen et al. (2014) been a major source for gaining competitive advantages. As for Carl F it is essential that they understand their customers and know what kind of service they want and need. In a B2B environment it is not about having a lot of customers, it is more about of taking care of the relationships, which in a longer sense can enable future purchases. Furthermore, a service provider in a B2B process needs to customize their services, products, and price because of the customers unique characteristics. Carl F have around 1200 customers, but as respondent A explained, “*In general, we work with construction and industrial customers, where construction accounts for about 60% of turnover and industry for 40%*”. Carl F also have private persons as customers but there are relative small compared to the company customers. Also, the total amount of materials coming in annually at Carl F 70 % comes from the construction companies, which makes those companies quite important for Carl Fs operation. However, from a construction point of view, the cost of having a company as Carl F providing them with containers represent about 1 % of the total cost in the construction operations. It indicates that the services of collection the containers when requested is more important for what it actually cost.

5.2.1 The relationship between the construction company and Carl F

Both Eisingerich & Bell (2008) and Grönroos (2009) explained in developing and maintaining a high quality in business relationship is trust. By gaining trust it is of importance that promise are kept, which means that Carl F needs to collect the containers when the customer request it. Many of the larger construction companies have at a strategic level when signing a contract with Carl F taken the time aspect in to consideration. It means that the transport planners at Carl F have a certain time window where the containers must be collected. However, it can be quite tricky sometimes to plan the operation because within the reverse distribution there are a complexity to consider. The different equipment, together with different trucks Carl F have enables a wide range of different services which suits the customer's needs. An explanation on why different kind of services is a requirement for Carl F is as respondent D mentioned "*it should be as smoothly as possible for the customer and for us*".

When it comes to construction sites customers, they differentiate themselves from the other customers in the way of having a more stressed schedule, where the cost of the service provided by Carl F is not as important as the service retrieving the containers when requested is. If Carl F understand the need that the construction customer have, the fundamental of trust and how it contributes to customer loyalty, can be achieved. The major issues construction sites have is the limitation of space. Also, different kind of construction sites must take certain limitations into consideration. As respondent G mentioned, often when doing renovations in a city they have to use closed containers due to the fire hazard when putting a container close to a building.

For Carl F it is crucial to understand how to gain competitive advantages when building customer loyalty as Rauyreun & Miller (2007) explained. Also, a company who understand their customers' needs and how to act on them, will increase the understanding on customer value. The relationship between the truckdrivers and the local managers at the construction sites were a trust gaining element towards making the customers satisfied. As respondent B explained the relationship with the managers as a crucial aspect of his work because of achieving a high service level.

5.2.2 The service encounters between the truckdriver and customer

The different truckdrivers have a certain geographical area they operate in and the truckdriver get to know the customers within their area and this helps and increases the quality of the services due to the relationship between the manager and the truckdriver. Furthermore, when having a good relationship with the customer at a construction site it result in creating value for each other. At several occasions, the truckdrivers always called when they were on their way

to pick up a container at a construction site, which at one occasion resulted in a faster collection because of the customer was prepared and even helped bring the container (with an excavator) to an easy location for the truck to pick it up from. By always calling the customers there is a personal interaction between the truckdrivers and the local managers, where a professional relationship is growing. Together with listen to the customers as respondent D mentioned is important, Carl F gain the ability to understand what the customer value is for the construction customers and that is consistent on what Blocker et al. (2011) explained about gaining customer value. However, Carl F need to have in mind that a truckdriver can get sick, or having a vacation, which means that someone else needs to be in that area emptying the containers. It was discovered as a potential problem when at one observation the truckdriver was sent to an area he was not familiar with, resulting in an insecurity and troubling to find some containers. Respondent E explained this unfamiliar area with the truckdrivers as a potential problem. But, if the perceived service quality as Grönroos (2009) explained, is not affected from the customers point of view, it may not be a problem when looking at customer value but may be an issue when looking at the efficiency in reverse logistics operation.

5.2.3 Providing customized service offering to the customers

Carl F have a large amount of different services that can be customized to the customers need and that is crucial ability for being able to reach loyalty from the customers as Russo et al. (2016) mentioned. As seen in table 3, page 35 three different construction sites which are approximately at the same size, all building new complexes, but they did not have the same number of containers, and not the same kind of containers. But with the customized service Carl F can provide every customer with the containers they require. The relationship the truckdrivers develop with the construction customers can help to achieve the correct containers at a construction site because as the truckdriver have the experience and knowledge with containers, they know the technical aspect when delivering a service, and therefore knows what kind of container a customer needs, even before the customer itself knows it, and as Flint et al. (2011) explained increases the customer value.

Furthermore, it is important that Carl F have the understanding from every employee that in a B2B environment customization is necessary, because every customer is unique and require different services to be satisfied as Rauyreun & Miller (2007) explained. It means that the truckdrivers can be exceptional at their work concerning the service they provide towards the customers, but if there is a gap between the expected service and the experience service the total perceived service can be negative as Grönroos (2009) explained. To minimize such

occurrences Carl F, have different meeting as respondent D explained where the truck group the transport planner is responsible for have meeting together with the sales force and financial department. Being a family company there is a short way to the CEO and enables an open communication whereas responded D mentioned “*You are taken care of, short decision routes, you can enlighten problems, big or/and smaller with anyone, and you always get help*”.

5.3 Customer understanding in the service offerings when it comes to the collection of their materials at the construction sites

Even though Carl F can have suitable operation, with offering required services towards the customers, and having professional relationship with them, the overall customer value can be poor and, value towards reverse logistics operation can also result in unacceptable. The reasoning behind such claims originate in Das & Bhattacharyya (2015) research were the explained the complexity within reverse logistics as the collection of different materials have different characteristics, resulting in different types of vehicle needed and efficient transportation routes. Often when calls comes in to Carl F it is the direct customer from a construction company calling, can be all from the local manager to a carpenter. But occasionally, especially in summer times, subcontractors call Carl F to have containers emptied and sometimes it result in a longer process than usually, and potentially more problems may occur. Respondent E mentioned that sometimes a subcontractor does not know where the construction site he is working at is located, which sometimes means a detective work the transport planners, which means more time put an order than on answering the phone and planning the routes. Of course, the perceived service as Grönroos (2009) explained does not have to be affected towards this, resulting in an acceptable customer value, but the efficiency in the reverse logistics operation may be a potential problem because less time are used on planning an effective route for the trucks.

Furthermore, subcontractors may a potential problem for Carl F as a logistics service provider because of what respondent F explained with the strict time schedules they can have at a construction site. If the subcontractor get inadequate information on where to throw the materials, it can end up in the nearest one. The problem concerning Carl F with this is that at a strategic level contracts has been made between Carl F and the construction company, where aspects such as, the number of containers, what kind of containers, frequency of collection and cost for the services is established (respondent A).

5.3.1 Potential issues which may be problematic when creating value towards the whole reverse supply chain

Another problem concerning the containers at the construction sites is that at a strategic level the construction sites have decided to use a certain size for a certain type of material, but at an operation level this container need to be emptied every day, then it becomes a problem because of keeping the high service level required to that containers, and also the cost every time it is emptied. Respondent B mentioned when this happens in his area he always questioned the customers on why they have it like that, because neither Carl F or the customers gain anything. A better solution is to have a bigger container (if space are available) and have fewer collection of it. As Grönroos (2009) mentioned the connection between expected service and experience service equals in the total perceived service quality a customer can experience, and that can increase customer loyalty and customer value. How can Carl F achieve the understanding from the whole customer company who is hiring Carl F as their service provider. Being a small family company may have its limitations when having relationships with big construction companies. As respondent A mentioned, the cost of having a logistics service provider dealing with the collection of the unwanted materials from construction sites, it is approximately 1 % of the total cost for building a new complex for the construction company. Therefore, the importance that the construction builders and subcontractors throw the correct material into the current containers is not essential, as long as they are being emptied when requested. Carl F have assisted one construction site of signs in five different languages on the containers where it say what materials should go where.

Another aspect from the construction companies, why they even bothering to have different kind of containers when everything is thrown in a mix can be of the strict regulations and legalisation the industry has in general. As respondent G explained that it is getting more stricter and a reasoning behind this is that too much has gone to the wrong places. They do not see it as a potential problem, more of trying to make it as efficient as possible. However, gaining value in the reverse supply chain this is a potential issue that Carl F needs to consider to be able to provide the reverse supply chain with value and enabling a “closed-loop” thinking in all the steps in their operation. But as long as Carl F have customized services and integrations with the customers as Blocker et al. (2011) explained then a clear engagement between Carl F and the customers will occur where the customer demand will be reached, resulting the increased customer value.

6. Conclusions and suggestions

The final chapter answers the purpose of the master thesis and answering the RQ and summarizes the important findings in the study. Also, contribution to research, practical implications, and suggestions for future research are presented. Lastly, some limitations concerning this study is presented.

This study has contributed to an increased understanding about the complexity which exist in a reverse logistics operation and how a service provider operator in a B2B environment can offer service to customer and how value is generated.

6.1 General conclusion

Performance factors such as customer satisfaction, service, responsiveness and cost is necessary to consider when developing a reverse logistics system as Pokharel and Mutha (2009) mentioned and was discovered by this study to be the essential step in **offering services** towards the customers. This study discovered the aspects for a logistics service provider to customize their services, products, and price because of the customers unique characteristics. Furthermore, the most essential aspect concerning the **service offerings** was the time it took to collect the containers from the customers point of view. This study identified that when a service provider are being capable of providing a wide range of service offerings which can be customized for each of the customers' requirements, enables the ability to gain **customer value** and goes in line with Blocker (2011) claimed.

The complexity within reverse logistics such as the complexity in the different materials collected and fluctuation in demand, makes it a difficult environment to provide the correct **service offerings** at all times. However, being a logistics service provider in a B2B environment and understanding the customers it enables in what kind of services they need as this study identified. In a B2B environment it is all about of taking care of the customer relationships, which enables the total perceived service quality and in a longer sense can empower future purchases. To be able to provide the customers with endless customized service it is necessary to implement an information system as Simchi-Levi et al. (2007) mentioned. This study identified a few impediments when empowering both value towards the customer but also value concerning reverse logistics operation.

Operating in reverse logistics as a service provider can come at great cost. The service provider in this study had the strategy of owning all the trucks and having the truckdrivers as employees instead of contracting different road hauliers. The advantages they gained as a logistics service provider resulted in ensuring the customer that it is always the service providers equipment together with the employees who comes to the construction sites and collect their materials. Such strategy enables **customer value** because it gives the customers the security in knowing what driver, collected what container, at a certain time. At the same time having the ownership of all the above gives the control of the **value created** within the reverse logistics operation.

However, there are some issues which a logistics service provider need to take into consideration when implementing a reverse logistics system. The facility location problem, where the different functions within the case company's operation is separated gives them **deficient logistics system**. As Agrawal et al. (2015) declared, it is essential to have a strategy on where to put the different facilities, and as discussed previously the customer value may not be directly affected on this poor decision, however the efficiency within the reverse logistics operation is affected and decreases the possibility to **gain value** in the operation, and to extend that value throughout the whole reverse supply chain.

6.1 Research Contribution

Previous research within reverse logistics has not focused upon the service perspective on how benefits of offering services towards customers in a B2B environment. This research shows how effective the understanding of reverse logistics operation can be when considering service offering towards customers and creating value for both them and for a reverse logistics operation operating within reverse distribution. The discussion in this master thesis on why to have a service perspective considering reverse logistics could be seen as an inspiration and motivation for further research into developing a "closed-loop" supply chain, where improvement of environmental impacts can happen.

6.2 Practical Implication

This master thesis implies some aspects the case company Carl F may take into consideration in the future. The major concern which need to be dealt with for improving future purchases and increasing the efficiency in the flow of collecting containers is to place the entire operation at one location. Furthermore, having employees who can collaborate both internally and externally, where the customer has the primary focus, then the customers' need can be solved by offering customized services.

6.3 Future research and suggestions

To obtain a greater understanding of the attributes and potential obstacles in reverse logistics, more research is needed within the field. The idea to create a “closed-loop” which will empower a collaboration of the forward supply chain and reverse supply chain is interesting topic that should get more attention in the future.

Furthermore, this master thesis has focused only at the first steps within reverse logistics, where a key actor such as a logistics service provider operate. Therefore, further research ought to focus upon how value is continuing to be created further within the reverse network as in:

1. What is happening to the materials collected from the construction sites
2. How can it be used to be purified and be used again, and thereby create value and enabling some sort of closed-loop supply chain.

Future research should also focus more upon the end-of-life phase of the products as Jayaraman & Luo (2007) mentioned, and within the construction industry there might be an interest for the next logistical step in their sustainability agendas. Also, researcher can make essential inputs on the environmentally requirements in the construction industry, because the importance of reusing the material is rapidly increasing as Kaynak et al. (2014) discussed. Lastly, having more empirical studies focusing on construction sites it could enlighten problems that may exist in other industries, also exists in the construction industry, as there are a lot of inbound transportation occurring.

6.4 Limitations in this study

When conducting a single holistic case study, it has some limitations as discussed in the method chapter. However, there are other aspects that could be mentioned as well. Firstly, the reliability of the data could be increased if more interviewees from different kind of customers had participated in the study. Such enlargement would provide to a broader and deeper insight about their experiences and opinions on service offerings and customer value. Secondly, due to the complexity in reverse logistics, together with having a small family case company, one cannot say that the findings can be applied to another reverse logistics operator. Finally, additionally quantitative case studies within reverse logistics could measure how an efficient reverse distribution could be operated in a B2B environment.

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8. Appendix

Interview questions asked at the interviews

Respondent A – Executive Manager

Kan du beskriva CarlFs historia fram till idag?

Transporterna Lastbilarna

Hur ser eran lastbils pool och varför har ni valt att ha olika lastbilstyper?

På vilket sätt tror du det gynnar att ha anställda chaufförer istället för ex åkerier?

Hur viktigt är det med chaufförer som är trevliga mot sina kunder och varför?

Har ni någon form av utbildning på hur man ska interagera med kunder?

Recycling

Hur jobbar CarlF med återvinning?

Vilka investeringar har gjort för att kunna hålla på med återvinning? Varför har dessa investeringar gjorts?

Hur ser olika marknaderna ut efter ni har sorterat ut material?

Finns det regelverk o bestämmelser kring återvinning i Sverige?

Skulle du kunna beskriva om finns det något som du tror hämmar CarlF att utföra och utveckla sin verksamhet?

Kunder

Hur ser Carl Fs kundkrets ut?

Skulle du kunna beskriva era strategier hur Carl F gör för få nya och bibehålla existerande kunder?

Varför tror du att kunder väljer Carl F som sin avfallshanterare och varför behövs en avfallshanterare?

Kan du beskriva byggkunders förståelse som dem har på deras avfall som ni hanterar? Vet dem, och/eller kan följa upp vad ni hämtar hos dem?

Hur bygger Carl F upp en relation till kunder så dem blir långvariga?

Intervju Respondent D – Transport planner

Hur länge har du jobbat på Carl F och inom vad?

Kan du beskriva hur det har varit att jobba som chaufför på Carl F?

Varför valde du att gå upp till transportledningen och kan du beskriva hur gick det till?

Vad skulle du säga är viktigt när man sitter inne på transportledningen? Och varför?

Hur skulle du beskriva en vanlig dag?

Kontakten med kunderna som ringer, hur skulle du vilja beskriva den och på vilket sätt är den viktig?

Skiljer sig byggföretagen sig från andra kunder? I så fall på vilket sätt?

Hur jobbas det inne på transportledningen för att hålla en hög kvalitet på arbetet som utförs?

Intervju Respondent E – Transport planner

Hur länge har du jobbat hos Carl F och inom vad?

Vad skulle du säga är viktigt när man sitter inne på transportledningen? Och varför?

Hur skulle du beskriva en vanlig dag?

Kontakten med kunderna som ringer, hur skulle du vilja beskriva den och på vilket sätt är den viktig?

Skiljer sig byggföretagen sig från andra kunder? I så fall på vilket sätt?

Hur jobbas det inne på transportledningen för att hålla en hög kvalitet på arbetet som utförs?

Respondent F – Subcontractor

Hur är det som en underentreprenör att komma till olika byggarbetsplatser?

Hur gör du som underleverantör med avfallet som produceras när ni bygger något?

Kan du beskriva vad du anser slängs på en byggarbetsplats?

Hur är informationen när du som underleverantör kommer till en byggarbetsplats?

Finns där någonting som du anser skulle kunna förbättras, och i så fall vad?

Respondent G – Foreman

Kan du beskriva varför man som byggföretag använder sig av containers?

Vilka aspekter anser du som viktiga när ni använder er av Carl Fs containers?

Hur skulle du beskriva relationen mellan er och Carl F?

Finns det krav och regler på hur ni ska hantera avfallet som skapas när ni bygger? Och varför?

Vet ni vad det finns för olika sorters containers och andra tjänster som CarlF kan erbjuda? (multibags, kärl, miljöskåp).

Respondent H – Foreman

Kan du beskriva varför man som byggföretag använder sig av containers?

Vilka aspekter anser du som viktiga när ni använder er av Carl Fs containers?

Hur skulle du beskriva relationen mellan er och Carl F?

Finns det krav och regler på hur ni ska hantera avfallet som skapas när ni bygger? Och varför?

Vet ni vad det finns för olika sorters containers och andra tjänster som CarlF kan erbjuda?
(multibags, kärl, miljöskåp).