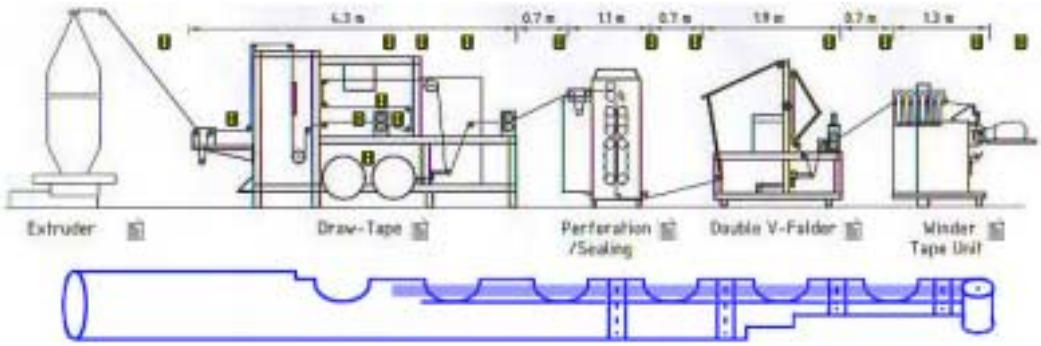
Making Money in a Dirty Business

- How FAS can use power to act in the supply chain?



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Abstract

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Problem: How can an investment product supplier far upstream in a supply chain make more money in a commodity market, seen from a power perspective?

Purpose: The purpose of this thesis is to map and investigate the power and dependence relations between different companies in a supply chain. New models will be developed to fit an investment product supplier far upstream in the supply chain. The purpose is also to give recommendations to the case company how the information from the created models can be used to make more money.

Method: To be able to answer the problem a mapping of the supply chain was necessary. Since there was no previous knowledge about the garbage bag industry interviews was carried out. To be able to analyse the amount of gathered data a model was developed influenced by the chosen theories.

Conclusions: Academic research concerning how to determine the power situation in a supply chain where an investment product supplier is involved did not exist. Therefore new models has been developed that analyses the power relations and maps out the power situation in a supply chain. In the future these models can be applied on similar cases by modifying the included parameters.

The new models show that case company FAS should focus on the big producers of garbage bag which are Trioplast, Rullpack and Miljösäck. By strengthen the brand FAS can make more money in these relations. FAS must reinforce their key competences and make the producers more aware of these. The machines line speed must be improved to attract the big producers. An attempt to establish contacts with the leading distributors

of garbage bag can also be interesting. FAS can then increase their knowledge about the demands and influence the demands on the market. The new environmental trends and the legalisation that to a great extent determines the future of this are important for FAS to observe, because first-mover advantages might be possible to attain here.

Key words: Garbage bag, power, dependence, supply chain, relations, investment product.

Preface

This master thesis has given us the opportunity to make an interesting journey into the glamorous garbage bag industry. When we started the journey we did not think of it as an emotional and exciting industry, but as the time has gone by the opposite has been discovered. We have learned that even a product that appears to be simple can be associated with strong feelings and complexity. Today our interest in the product and the industry are huge and it feels sad that the journey now is over.

This thesis would not have been possible to complete without the great support that the case company FAS Converting Machinery AB has given us during the journey. Håkan Nelson and Margareta Sjöstrand at MIAB, Mats Larsson, Peter Håkansson, Carl-Gustav Rassmusson and Zoltan Darvas among other employees at FAS have taken their time for discussions, interviews and helping us with all kinds of things. Thank you!

The way to the final version of this thesis has not always been straight, thanks to our supervisors in school Fredrik Nilsson and Ola Mattisson. Though, they have also led us back on track and definitely contributed to a better final result. They have contributed with knowledge and experience about theories and methodology that has increased the thesis's degree of difficulty. Thank you for guiding us in the right direction!

The comprehensive investigation of the Swedish garbage bag market could not have been made without all companies that have taken its time and shared vital information for the empirical research. Without this companies' friendly attitude and open mind the result would have been much less extensive. Thank you!

We also want to address a big thank you to Pia Wiklund, which helped us with translations and to administrate the investigation of the French market. The input from the French market has given us additional input and made our analysis deeper. Finally we also want to send a thank you to all the French companies that have participated in the interviews. As mentioned above our journey is now over but for you it has just begun.

Have a pleasant reading!

Johan Andersson Rikard Lindqvist Erik Svensson

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1 Introduction

In this chapter the background will be presented, then the problem we aim to study will be discussed, which will be followed by a discussion about the purpose of the thesis. The chapter will end with delimitations and a chapter guide.

1.1 Background

In the beginning of industrialisation the competitive situation looked different from what it is today. Most companies were small and their markets were geographically limited. Production was mostly built on physical workforce and raw material came from local suppliers.[1] Today the situation is different with diminishing growth opportunities due to increased competition that has lead to increased price and margins pressure. Today's situation has caused two developments. The power situation between buyer and seller has shifted from a seller's-market to a buyer's-market and because of the increased price and margin pressure many companies in the industrial sector constantly try to lower their direct material costs by looking for new opportunities. These two developments have lead to new purchasing and supply strategies that has improved the coordination of purchasing functions and increased the integration between purchasing, logistics, engineering and production planning.[2]

1.1.1 Supply chain management

Today many of the natural bounds have been erased and companies act more globally, and in interaction with their customers and suppliers. Under the nineties the expression "process orientation" in organizations became popular; it meant that companies should focus more on a horizontal structure instead of just a vertical structure to increase their effectiveness. In the twentieth century this has not been enough to achieve effectiveness since it only focused on one company at the time. Instead this approach has grown be a way of looking at the whole supply chains, to maximize the effectiveness through the chain.[3]

In literature, the concept of logistics is defined as "Planning, developing, coordinating, organizing, governing and controlling the material flow from raw material supplier to end-user." In practical meaning the concept often only refers to the study of an individual company or just the supplier or customers closest in the chain. This definition also is referred to as the definition of Supply Chain Management (SCM). It is not unusual that the concepts of logistics or logistic management are used synonymously with the newer concept of supply chain management. What the SCM concept really means compared to other logistic expressions are however not crystal clear in the literature.[4]

Compared to logistics the concept of SCM has a broader scope in practical meaning by not only focusing on the individual company but instead on the whole supply

[1] Paulsson, U., et al. (2000) p. 17
[2] van Weele, A. (1994) p. 16-18
[3] Paulsson, U., et al. (2000), p. 19
[4] Mattsson, S-A. (2002), p. 76-77

chain. The differences between the two concepts are more on a perspective level than on a fact based level. To achieve a comprehensive definition of supply chain management it is vital to extend the above mentioned definition by some dimensions[5];

"Supply chain management is about planning, developing, coordinating, organizing, governing and controlling intra- and inter organizational processes from a general approach and in consideration of the flows of material, services, information and payments in the supply chain from original raw material supplier to end user. It stands for collaboration and integration between companies and their focus on the buying end customer."

Traditionally, relations between customers and suppliers have been superficial and characterised by a short timeframe, opportunistic action and little contact between them.[6] As the supply chains gets more and more important for companies to analyse, the relations in the supply chains also increases in magnitude. To succeed in a supply chain at least a small level of cooperation is necessary between the buyer and supplier. [7] It is also important to take the aspect of power in consideration when studying a supply chain. Even though there are many academic publications about Supply chains the importance of power is often overlooked according to Andrew Cox a researcher who has studied power in supply chains. He argues that understanding and managing the power in the supply chain is critical to succeed in business. "Business success is about the effective management of power. It is not about working collaboratively or on a basis of trust."[8] So rather than just focusing on confidence and openness in the relations it is important to identify who has the power in the relations and how the competition between different actors can be handled to succeed in the tough environment of today.

1.1.2 Power in supply chains

One of Cox's main standpoints is that power is the single most important thing when it comes to development of value chains. It is the control of special resources in the supply chain that makes a company get hold of a bigger share of the value, which is then proportionate to its costs. Cox makes a difference between the value chain and the supply chain, by the value chain he means the monetary flow which goes in the opposite direction compared to the physical flow of goods in the supply chain. In Cox's Power Matrix he describes four different structures of power which can exist in a buyer-supplier relation, which are buyer dominance, supplier dominance, interdependence and independence. Compared to many others Cox focuses on every individual relation in the supply chain instead of just looking for general characteristics of the supply chain.[9]

[5] Mattsson, S-A. (2002) p. 77-78
[6] Mattsson, S-A. (2002) p. 105
[7] Mattsson, S-A. (2002) p. 103
[8] Cox, A. (1997)
[9] Cox, A., et al. (2002) p. 3

Cox defines power as[10]:

"The ability of a firm to own and control critical assets in markets and supply chains that makes it possible for the firm to create value for itself by constantly leveraging its customers, competitors and suppliers."

Other authors have also focused on the power relationship that exists between buyers and suppliers. Caniëls and Gelderman have for example extended the theory about purchasing strategies by adding the aspect of power relationship. The original framework "The purchasing matrix" was developed by Kraljics. He stated that purchasing could be categorised in different groups, depending on the profit impact and the supply risk of the material. Before Caniëls and Gelderman added the discussion of dependence, van Weele modified Kraljics matrix. van Weele presented three general purchasing strategies for how a company should act. These strategies are exploit, balance and diversify.

When studying power in supply chains many different kinds of dependences and bindings exist. It is very important for a player in the supply chain to analyse all of them to get a complete analysis of the power situation in the business. By doing this it is also possible to understand how to act to strengthen the player's position and appropriate a greater value in the supply chain according to Cox. This means by increasing the sales, without increasing the costs significantly, or increasing the margins. When the authors of this thesis use the expression "making money" which is a key word in the thesis it is the above mentioned meaning that is considered.

1.2 Problem discussion

The aim for every business is to have a profitable growth, but to succeed in this it needs to understand its customers and customers' customer and so on to become aware of what is demanded. It is one thing to understand and another to be able to affect the players down stream the supply chain, which means nearer the end customer. As Cox and Caniëls and Gelderman have stated, power plays an important role in the relations between actors in a supply chain. Earlier research has studied development of strategies for product and sale offers that will meet customer preferences but this type of research often deal with consumer products.

Researchers who have studied power have scrutinized a couple of different types of industries (for example Munson et al. have studied the automobile industry[11]) in their work but have not in particular studied the supply chain in a commodity product industry. The authors of this thesis have defined a commodity product as follows; the end product is simple in its performance, it is a product that is consumed and the consumer is mostly interested in the functionality and the price than in the originality.

A lot of research has been done about the supply chain of different goods and how to influence this in the best possible way for a company, but no research has been found where the investigation starts by looking at a company that supplies a product that has

[10] Cox, A., et al. (2002) p. 3
[11] Munson, C., et al. (1999)

not an input that contribute direct to the product. Such a product could be a machine, which is to be considered as an investment product. The chosen definition of an investment product is as follows: "…the products which are not consumed immediately, but whose purchasing value is depreciated over a period of time. In general the book value is stated on the balance sheet annually. Investment goods can be machines used in production…"[12]. Because researchers have not adapted their models and theories to suppliers that supply the investments there is a gap to fill. To be able to get a deeper understanding of this complex of problems a fitting industry has been chosen. An industry that fits the definition of a commodity product industry is the plastic garbage bag industry, where an investment of a machine is of importance for the production of the product. The garbage bag is, according to this thesis's authors, to be seen as simple and is of none or little interest for the consumer. There is no stipulated standard size for garbage bags in the Swedish market, therefore the authors have defined the garbage bag as bag/sack which is aimed for collecting garbage.

The situation of being a supplier that delivers an investment product could be illustrated as an acceleration lane as shown in Figure 1. The supplier that supplies the buyer with raw material contributes more directly to the production flow and therefore becomes more interesting from the buyer's perspective.

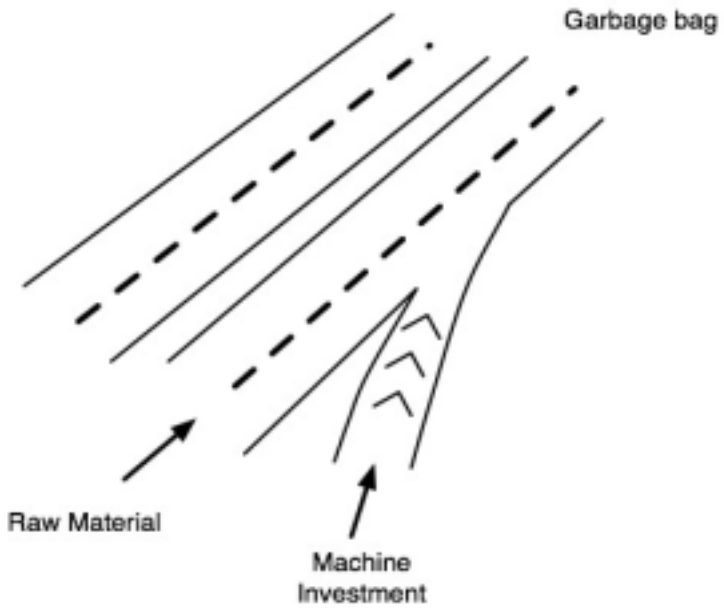

Figure 1. The acceleration lane

The thesis will answer the following questions:

[12] van Weele, A. (1994) p. 16

How can an investment product supplier far upstream in a supply chain make more money in a commodity market, seen from a power perspective?

How and who decide the demand for garbage bags in the Swedish market?

How can a small machine supplier act in the supply chain to make more money?

1.3 Purpose

The purpose of this thesis is to map and investigate the power and dependence relations between different companies in a supply chain. New models will be developed to fit an investment product supplier far upstream in the supply chain. The purpose is also to give recommendations to the case company how the information from the created models can be used to make more money.

1.4 Delimitations

This thesis will only focus on increased value in the meaning of increased sales and profits of machines and not spare parts and service. This thesis focuses on the Swedish market of garbage bags and on professional actors further down the supply chain (and not on the private consumers). A study made on the French garbage bag market will also be used.

1.5 Chapter guide

The thesis is divided into the areas that are shown in Figure 1.

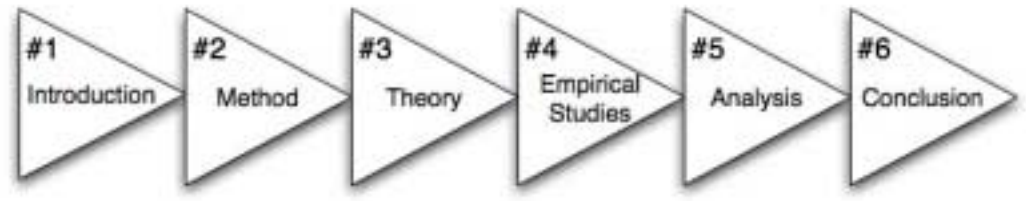

Figure 2. The disposition of the thesis

In the methodology chapter the methodological approach is discussed and the methods that has been used in the theoretical and empirical studies. Thereafter the analytical process is discussed.

The theory chapter will describe how value is appropriated in the supply chain. Then the authors explain how power influences the supply chain and how it interacts with the value chain. In the next part the development of models are presented. Last in the chapter, more theories about how to act to make more money.

After a brief introduction of the garbage bag industry, the companies that are used as an example in the analysis are presented tier-by-tier, beginning with the last tier and FAS. Finally, the chapter of the empirical studies will outline some trends from the

French market. The rest of the empirical information is presented in a separate report; *A report about the Swedish garbage bag industry*.

In the analysis chapter the authors first use the developed models to analyse the power situations within the dyads. In the second part the whole network is analysed using the identified dependences within the dyads and identified critical assets. The third part analyses how the case company FAS can increase its value appropriation.

In the conclusion, the problem of the thesis will be answered. Both the theoretical and empirical contribution will be explained. Suggestions for future studies will also be discussed.

2 Methodology

In this chapter the methodological approach is discussed and the methods that has been used in the theoretical and empirical studies. Thereafter the analytical process is discussed.

2.1 Problem approach

The problem approach is essential for the rest of the thesis. It determines the approach to the study and the method that will be used in the gathering of empirical information. Depending on the kind of study, different approaches are suitable. From the start the thesis problem was unclear but has gradually gotten clearer during the process of studying theory and gathering empirical information. To get a clearer picture of the problem an explorative approach has been used. This kind of approach is suitable when there is little or no knowledge about the phenomena.[13] The explorative approach is suitable in this thesis because there is no documented knowledge about how the garbage bag market works and who controls it.

The authors have decided to use a case study as a research strategy. A case study is a detailed and thorough study that handles one single case. A "case" is described by Bryman & Bell (2003) as a particular place for example an organization or a work place. The emphasis lies on that it is an intense study of the context and a certain situation.[14]

When a thesis has a company as a principal and the authors get financially compensated in addition to normal expenses, there is an obvious risk that the authors feels like they have to go with the principal's ideas.[15] The authors of this thesis have been compensated in addition to normal expenses and that is why this is discussed here. To diminish the risk of getting to bound with the principal and not only to follow their wishes the authors have had a regular meetings with the supervisors from the university. With their experience they have helped the authors and reminded them that the first objective is to produce an academic product and not a consultant report.

2.1.1 Problem discussion and defining the purpose

The starting point in the process of writing the master thesis involves defining the purpose and a problem discussion. It is important to come up with a good formulation of the problem, which in a next step can be broken down into more precise questions. It is also important to have a main question so the reader can see the focus of the thesis. During the work with the thesis the formulations have changed and gotten more narrowed because of new empirical findings and theory studies. It is one's obligation to always seek the truth and to have in mind that the truth is varied and hard to generalize. It is also important that the problem is related to the theory and science of the topic.[16]

[13] Jacobsen, D. (2002) p. 70-73
[14] Bryman, B., Bell, E. (2003) p. 74-75
[15] Paulsson, U. (1999) p. 22
[16] Rienecker, L., Jörgensen, S. (2002) p. 107

Another thing that is important in the process of composing a good problem formulation is to make delimitations as explicitly as possible. Explaining why the authors have chosen not to investigate certain things is the authors' way of showing this.[17] In this study, delimitations have been made in the geographical market scope, the market depth and the product scope. The first intention was to investigate four European markets and start by investigating the Swedish one. This intention changed when the authors realised that it was difficult to get in contact with the interviewees and the theory also required that one looked deeper into each relation. For that reason the geographical market scope is concentrated to the Swedish market and the depth is delimited to industrial users and hypermarkets. The investigated product, the garbage bag, had no general definition and has therefore been defined by the authors according to their interpretation.

2.2 Theoretical study

In the work of finding suitable theories the authors have used both an inductive and deductive process. The case company, FAS, gave a first picture of the industry. Thereafter the process of finding suitable theories to analyze the industry started. The university's databases were used and after having read and evaluated some articles it gradually came clearer that theory about power and relations were of interest. One of the supervisors for this thesis then recommended us to study Cox, whose work combines supply chain and power and relations. Because the purpose of the thesis is to study the power and dependence relations between different companies in a supply chain Cox's theories fits the study.

The pilot study was also carried out to confirm the choice of theory. The process with finding more relevant theory then carried on parallel with the work of mapping the players in the supply chain. It was necessary to do this work parallel because time was an issue. This was not a perfect way of working because the theory base were not set yet, which lead to broad interviews especially the questions concerning power and relations. Because of this method of working the empirical findings have in some way influenced the choices of theory to complement the theory base to strengthen the theory discussion. The search for theory ended in a theoretical frame of reference based on theory about supply chain, power, dependence and relations. This frame of reference constitutes as the theoretical base in this thesis, where relevant models and theories are used in the analysis. The theories and models were found in scientific publications and books. To be able to analyse a large amount of empirical data new models have been developed, which is influenced by both Cox's Power Matrix and Caniëls and Geldermans methods. When models and figures have been illustrated from Cox and other authors, the sources has been stated in the figure captions. If no source is given the models and figures are developed by the authors of this thesis.

The authors have chosen to give the reader a broad picture of existing theory around power and relations in the supply chain so that the reader can understand the

[17] Jacobsen, D. (2002) p. 66

development of the new model. Contradictory theory has also been used to some extent to increase the reliability of the thesis, but no particular critics have been found concerning Cox theories about power and dependence. The fact that Cox and Caniëls and Geldermans theories to a great extent agree supports the theories reliability, not least because they seldom reference to one another's work.

2.3 Empirical study

In the work of gathering information a couple of choices have been made. Because of the type of study, mainly primary qualitative data has been gathered. The most important methods that can be used to gather primary sources are observations, open individual interviews and group interviews. In this thesis, individual open interviews have been used. The empirical information is presented in the way as the interviewees answered the questions and can therefore be seen as subjective. This method was chosen because the aim was to find out how the interviewees experienced its relations with buyers and suppliers.

Since this thesis empirical information from the Swedish market is based on 30 interviews and therefore a lot of pages the authors found it better to make a separate report, named *A report about the Swedish garbage bag market*, with all the empirical information. Four interviews are presented in this thesis empirical chapter because they are used as an example in the analysis chapter. The thesis also contains input from the French market. This empirical research is also presented in a separate report named *En studie av den franska sopsäcksmarknaden*.

2.3.1 Interviews

With reference to the chosen problem interviews makes the best alternative for the case study. Interview is a good alternative when there are relatively few units to study. It also suits the study because there is only one or a few person in each firm that has the information that is interesting for the study, which also is a good reason to use interviews.[18]

In this study both face-to-face and telephone interviews were performed. The aim was to interview all of the producers face-to-face but it was hard to find time to manage. Three out of nine interviews were face-to-face while the rest were carried out by phone. The authors felt that it was important to make the first interviews face-to-face to get a better picture of how the interviewees reacted to the questions but also to see how the production of garbage bags worked. This made it easier to relate and understand the answers in the interviews made over the phone.

Since the purpose of the thesis handles power conditions within the supply chain, it might be considered sensitive for the interviewees. The authors have therefore chosen to in some degree defuse the intent by reformulating some questions, so that the supply chain is emphasised as a whole instead of concentrating on the interviewed company's relations.

[18] Jacobsen, D. (2002) p. 160-161

To get the best result from an open interview the first question should be open to get an as unrestrained answers as possible. If to exact questions are asked there is a risk that a lot of interesting information is missed and a questionnaire could be used instead.[19] Therefore the questions that have been used are open and the opening question was as follows: "What can you say about the garbage bag market". This sort of questions was used to avoid influencing the interviewee and to make him/her tell us in his/her own way as much as they wanted. Some had a lot to say and some were a bit restrained.

2.3.2 Pilot study

Not only to test the questions but also to test the study as a whole, a pilot study were carried out. The pilot study generated a couple of useful discoveries, especially about how the polythene market works as a whole but also the process of how plastic bags are made. The pilot study should not be tested on someone that is part of the selected population, because it can affect the representatively. The company that formed a part of the pilot study is not a part of the garbage bag industry; consequently it will not influence the selection of probability. The company was of interest because they use FAS machines and for some years ago they actually made garbage bags.[20]

2.3.3 Mapping the players

Since the situation in the garbage bag industry previously never have been mapped or researched, a large part of this thesis has dealt with finding the players that are involved in this industry. The starting point in the mapping was to interview and investigate how and what FAS knows about the players in the industry. In view of the fact that FAS is a producer of the machines that make the garbage bags, it was able to help us find the players active in the next tier downstream the supply chain called the third tier.

Third tier – the producers

To find suitable persons in the producing companies (third tier) the authors based their picks on mainly two conditions. The first person needed to have some insight into the production and especially the FAS machines, the second person needed to have more of a marketing position. The more technical-oriented person has been able to answer the questions that concerned the relation with FAS and the market-oriented person has been able to answer questions concerning customers and the market. This ideal situation has not been the case in more than three out of nine cases, but on the other hand all the interviewees have had a good insight into both the production and market situation.

When it came to next tier FAS was not able to help in the process of mapping the players. To find these players we asked the producers about their customers, unfortunately some of the producers were restrictive and did not want to disclose its customers. This has made the work a bit more complicated because this was essential

[19] Jacobsen, D. (2002) p. 169
[20] Bryman, B., Bell, E. (2005) p. 191

information to be able to precede the mapping. Though most of the producers shared this information and the mapping continued.

In some cases the customers were identified anyway because the next tier's wholesalers mentioned those as its suppliers. Also Internet searches were made to get an idea of what kind of players that purchase and sell garbage bags. In an early stage it became apparent that it would be difficult to map all the existing players in the industry. A first choice was made, which implied that no consumers would be included in the research and only industrial users and players that provides the consumers with garbage bag and of course the players in between. This choice was made because it would otherwise be too much to handle and it would decrease the depth of the study, which is crucial to be able to investigate the power relations.

Second tier – the distributors

Positions that were suitable to interview in the next tier were mostly salespersons and purchasers. In many cases the interviewee had both a good insight into its customers as well as its suppliers. This made it easier to get hold of the relevant and requested information. The players in this tier were more open with revealing their customers, which made the work in mapping the first tier easier.

First tier - niche distributors and end-users

The positions that were of most interest in this tier were mainly purchasers responsible for buying garbage bags. In this tier a couple of new second tier players were discovered.

The selection

All the third tier players have been mapped but in the second and first tier there is only a selection of the players in the market. Some of the first tier players buy directly from the third tier, these players are end-users and therefore classified as first tier players. All the players in the supply chain that have been discovered during the research have not been interviewed. The choices of who to interview has mainly been based upon how big garbage bag customers they are. These players were chosen because they probably have the most knowledge about the garbage bag industry. In some cases it was impossible to get in contact with the chosen players, one big player that has been impossible to interview is ICA. There has also been a focus on interviewing the big producers' customers. In the first tier the players has been chosen to represent different types of operations where some are end-users like municipalities and cleaning companies and some are distributors to consumers like Axfood.

2.4 Analytical process

One of this thesis' contributions is a developed model based on mainly Cox's and Caniel and Gelderman's theory.

The analysis is a large part of this thesis and is the part where the models are tested. All the interviewed players that have a relation have been analysed in a dyadic way, which results in an evaluation of who has the power in the relation. These results have then been analysed as a whole to find the most interesting results. Mainly the most

characteristic results have been of interest in the second step of the analysis. The dyadic analysis has of course a subjective evaluation but the parameters' explanations have helped and taken away some uncertainty concerning the subjectivity. If the models had not been used, the risk for subjective evaluations would have been much greater. The fact that the models have been used and that all the relations have been analysed one by one increases the credibility for the analysis. All the dyadic relations analyses are presented in the appendix.

3 Theory

This chapter will describe how value is appropriated in the supply network. Then the authors explain how power influences the supply chain and how it interacts with the value chain. In the next section the development of models is presented that are aimed for the purpose of the thesis. Last in the chapter, more theories about how to act to make more money are presented.

3.1 Supply Chain Management

Since the eighties competitive analysis have been about analysing threats and possibilities in different businesses, e.g. Porters analytical tools, and to stipulate a company's unique resources and competences to compare different companies' strengths and weaknesses. Concepts like sustainable competitive advantages have often been regarded as established facts, but later investigations have also pointed at the risks with this perspective, because competitive advantages tend to be temporary[21]. To understand the competitive environment of today many of the models from the eighties and nineties are not applicable or must be supplemented to work. By just analysing one single company the risk is significant that the effectiveness in the total supply chain decreases.[22] Cox et al. stipulates that Business strategy should focus not only on markets which many orthodox approaches like Porters does, but also on the supply chain.[23]

There are many definitions of Supply Chain Management. When using the definition supply chain in this thesis, the reader is recommended to associates with Mattsson's definition to understand the whole context[24]:

"*Supply chain management is about planning, developing, coordinating, organizing, governing and controlling intra- and inter organisational processes from a general approach and in consideration of the flows of material, services, information and payments in the supply chain from original raw material supplier to end user. It stands for collaboration and integration between companies and their focus on the buying end customer."*

There are mainly two reasons for choosing this definition. The first reason is the consideration of payment and value; instead of only consider the flow of material. Secondly, the relation between the companies, e.g. to which degree those collaborate is a central aspect. This thesis focuses on the inter-organisational processes between companies.

The difference between a supply chain and a supply network is that a supply network is a collection of supply chains within an industry in aim to create a product or

[21] D'Aveni, R. (1995)
[22] Paulsson U, et al. (2000) p. 22
[23] Cox, A., et al. (2002), p. 4
[24] Mattsson, S-A. (2002) p. 77-78 (Authors own translation)

service, while a supply chain consists of a number of dyadic relationships that together create a product or service. [25]

3.1.1 The interactions of supply chain and value chain

Cox et al. is not settled with just examining the supply chain as a physical flow of goods and services, rather he is interested in the exchange relationship (see Figure 3) that takes place in the supply chain and how differences in the power balance influences the values in the chain.[26]

Cox discusses how power and value affect the supply chain management. His first statement is that business is about appropriate value for the own company and not for the customer. The only way to sustain the business success is by having the ability to appropriate value from relationships with others. It could be relationships with customers, employees or suppliers. This leads to conflicts of interest in the supply chain among the vertical participants; similarly to the competition among the horizontal participants. To act strategically and operatively it is essential to understand the power structure that exists in the supply chain. Cox refers to a hierarchy of structure dominance as: [27]

"A situation in which there is a dominant player within a supply chain, who is able to own and control the key resources that appropriate value."

In other words, a dominant player that possesses the critical resources could create a structured hierarchy where the suppliers are relatively dependent and have no affect on the flow of value. The dominant player appropriates the flow of value. [28]

In each case the supply chain differs in the additional aspects of behaviour dimensions, dependence and power between actors. Therefore, to analyse and categorize the supply chain it is necessary to understand the three elements in Cox's model.[29] (See Figure 3. Supply and value chain mapping)

[25] Cox, A., et al. (2002) p. 53-54
[26] Cox, A., et al. (2002), p. 4
[27] Cox, A. (1999)
[28] Shimizu, I. (1996)
[29] Cox, A. (1999)

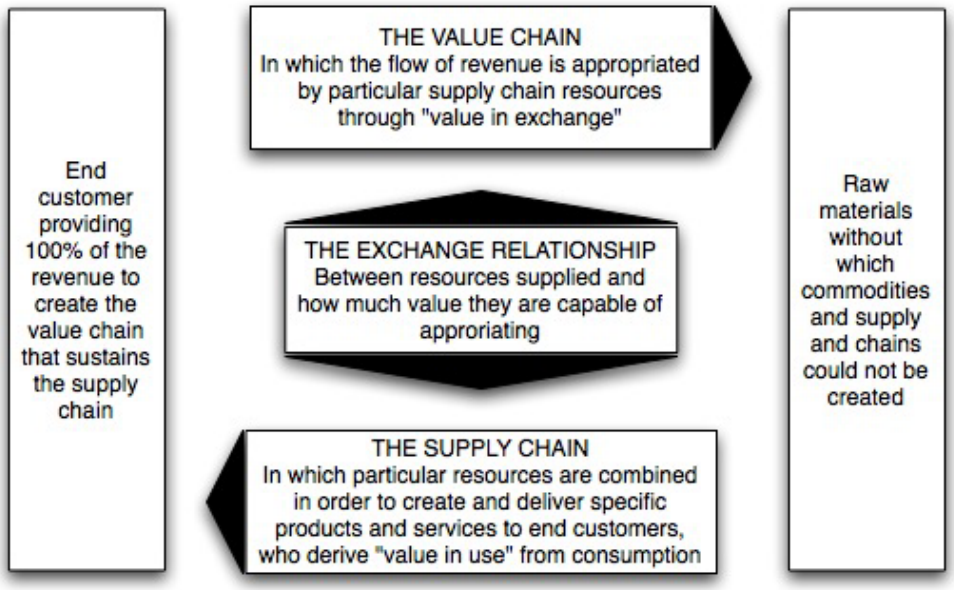

Figure 3. Supply and value chain mapping (source: Cox, A. 1999)

The first thing is the physical part of the supply chain; how resources are combined in order to create the specific product (supply chain). Next thing is to find out the exchange relationship between the resources in the supply chain and the flow of revenue in the value chain (exchange relationship). The third thing is to understand the ownership and control of the supply chain resources that command more of the flow of value than others (value chain), before the mapping can start.[30] (See Figure 3)

Cox refers to a case study that is made of the exchange relationship area and enlightens that governmental regulation dissipate appropriate value from players that own critical resources.[31]

3.1.2 Visualising the tiers

Every vertical step in the supply chain is the same as one tier and the number of tiers is determined by the number of steps in the supply chain.

[30] Cox, A. (1999)
[31] Cox, A. (1999)

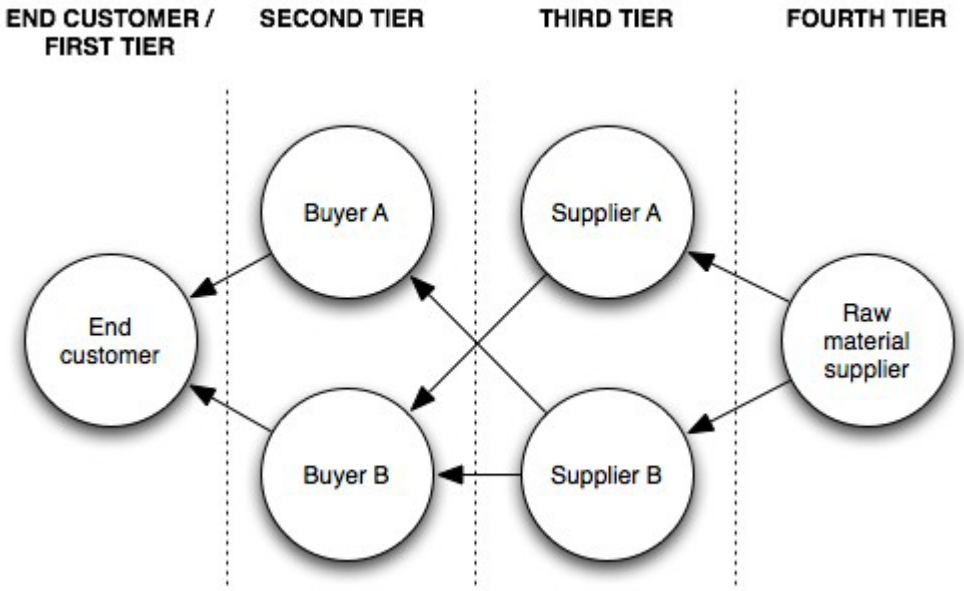

Figure 4. Illustration of tiers

3.2 How power contributes to business success

Cox et al. theories can in many ways be derived to "the resource-based" school of strategy. The resource-based view focuses on companies' internal resources and capabilities. It is based on the assumption that every company has a unique set of resources. From those resources sustainable competitive advantages can be developed if the resources are valuable, rare, hard to imitate and not substitutable.[32] Cox et al. present a way of thinking about business strategy and operational alignment that in many ways are influenced by the resource-based view but also focuses on the power aspect in the relation between companies. The authors also try to find out why some firms are sustainably successful when others are not.

Cox et al.'s theory identifies three key concepts in the discussion about business success. These are power, how rents are earned in markets and critical assets. The ideal position for a firm to be in to achieve sustainable success is one in which it has power over others. Power is defined as a firms' ability to own and control critical assets in markets and supply chains that makes it possible for the firm to create value for itself by constantly leveraging its customers, competitors and suppliers. By protection and exploitation of these sources of power, a firm can be sustainably successful. Success is characterised by the firm's capacity to earn rents.[33]

[32] Eisenhardt, K., Martin, J. (2000)
[33] Cox, A., et al. (2002), p. 3

Rents are defined as[34]:

"Earnings in excess of the firm's costs of production that are not eroded in the long run by new market entrants."

Cox et al. separate rents from the notion of profits by saying that rents exist in the long run equilibrium where the profits according to the theory of perfect competition tends to be eroded. As long as the companies can control and maintain the critical assets, the rents will be consistent.[35]

Cox has discussed the concept of critical assets and Business Success earlier. He argues that the primary aim of business strategy should be to lead the supply chain innovation to the creation of power advantages in order to earn rents. A firm that possesses critical assets can accomplish effective dominance over customers and suppliers. This is based on the idea that some of the resources within a supply chain are scarce, highly valued by many players and hard to replicate. Many of the theories and frameworks Cox et al. presents are built on this idea.[36,37]

The critical assets will give the possessive firm an opportunity to earn rents, however many of the critical assets are temporary and only give rents for a limited period of time. This is due to the fact that other firms constantly try to undermine and substitute the critical asset and in the long run also often succeed. The firms without critical assets try to reconfigure the existing formation of power by three basic mechanisms, which are product innovation, process innovation and supply chain innovation. The product and process innovation intends to satisfy existing supply functionality by offering a totally new product or process. Supply chain innovation takes this one step further by offering a new supply chain that can fulfil the same need as the old supply chain.[38]

It is important for the firms, whom possess critical assets not to idle; instead those must try to understand how the power and consequently their rents might erode over time so those can prevent it and work proactively.[39] In this work it is also important to take the history in consideration because according to Teece at al. the history affects the future. This view is often refereed to as path dependence and the basic concept is that what is chosen at a certain point of time in history can give consequences for the future. This means that certain investments or established routines in a company can constrain the behaviours and choices that are available for the company in the future.[40]

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[34] Cox, A., et al. (2002), p. 6
[35] Cox, A., et al. (2002), p. 6
[36] Cox, A. (1997)
[37] Cox, A., et al. (2002), p. 3-4
[38] Cox, A., et al. (2002) p. 8
[39] Cox, A., et al. (2002) p. 9
[40] Teece, D., et al. (1997)

The effectiveness in a supply chain depends on the relationship between the participants. Often participants try to influence other players to reach their own goals and interests. The participants in the supply chain work together and are dependent on each other, but the relationship is often asymmetrical. The player that has a great influence on the other is said to be the channel leader.[41]

Caniëls and Gelderman relate the concepts of mutual dependence and power closely. This means that if the buyer depends on the supplier, the supplier has superior power. The relative power of one company to another is a result of the net dependences between the companies. Pfeffer exemplifies this by saying if A depends on B more than B depends on A, then B has the relative power[42]. By total interdependence Caniëls and Gelderman mean that the relationship is very intense. A high degree of total interdependence is a good condition for a collaborative and long-term relationship will exist. To sum up, relative power occurs when the relationship is asymmetrically interdependent, and total power occurs when the relation is defined as totally interdependent. [43]

3.3 The developed theoretical frameworks

This thesis authors have developed four theoretical frameworks. The aim of using these frameworks is to create a picture of the power structure for each firm operating in the supply network[44]. The next step is to apply Cox's discussion above to find out which player in the industry that appropriate most of the value.

The principal of using these frameworks has been inspired by Cox's methodology, which he refers to as the power regime analysis, and is made in two steps.[45] First three tools are presented, which analyse the dependence situation between two actors (3.3.1). The next step is to apply these dependence situations to the whole supply network. To illustrate this, the fourth tool will be explained (3.3.2).

3.3.1 Power Relation Model

The aim of this section is to understand the dyadic relationship between the players in the supply network. The different forms that take place are supplier dependence, buyer dependence, interdependence and independence[46].

Caniëls and Gelderman use a practical framework to determine what the power relation looks like. First the buyer dependence is investigated. To do this, a number of parameters are listed that represent situations when the buyer is dependent on the supplier. These parameters are specific to the circumstances of Caniëls's and Gelderman's research. The next step is to rate these parameters. Caniëls and

[41] Munson, C., et al. (1999)
[42] Pfeffer, J. (1981), p. 3
[43] Caniëls, M., Gelderman, C. (2005)
[44] Cox (2002), p. 20-22
[45] Cox, A. (2004)
[46] Cox, A., et al. (2003)

Gelderman use a scale with 8 steps. From this result a score is gained. Then an analogous list is rated for the supplier dependence. Afterwards, the score is summarised for the buyer dependence respectively the supplier dependent. From these figures a degree of relative power and degree of the interdependence could be calculated. The relative power is easily obtained by subtracting the Total Supplier Score with the Total Buyer Score. If this sum is zero no players have a dominant power situation. If the sum is not zero, one of the players has a dominant power situation. How great the power difference is, depends on the score (Relative Power). To calculate the interdependence, an addition is made of the total score of supplier and the total score of the buyer. If the result of this sum is exactly half the maximum of the total supplier score or the buyer score (they are the same assumed that the number of attributes are the same), the relation is characterised by total interdependence.[47]

This thesis's development of Caniëls and Gelderman's model is first of all the discussion about independence. The relation is independent if it is characterised by neither relative power nor interdependence. An additional reasoning to Caniëls and Gelderman is to see the correlation as linear, and therefore the interdependence also could be seen to which degree it exists. Another difference to Caniëls and Gelderman's model is the scale. The Power Relation Model has a scale from 0 to 3, because it is easier to assess the parameters into one of these four. More steps would make the classifying less realistic. A fourth added value to the model is the adapting of the parameters to the new circumstances that exist in this thesis. This is also the reason why this thesis's authors have three different models for the relationship between the different tiers.

First the dyadic relationship between the fourth tier (a machine producer) and the third tier (a producer of plastic bags) will be investigated, and thereby Power Relation Model 1 will be created. In these relationships an investment is considered, which differs from the relation within the other tiers. The next step is to investigate the dyadic relationship between the third tier (a producer of plastic bag) and the second tier (the distributors), finally between the second to first tier (the distributors) and the niche distributors/end-users. These models are called Power Relation Model 2 respectively Power Relation Model 3.The difference between the relationships of these different tiers is that the latter do not involve a producer. Consequently the production aspects have no importance in these situations.

The relationship between the fourth and the third tier– Power Relation Model 1

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few		**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is relatively unique	
S3-the buyer has a large market share of the supplier's total market		**B3**-the supplier's product has great impact on the profit	

[47] Caniëls, M., Gelderman, C. (2005)

S4-the supplier's switching cost is high		**B4**-the buyer lacks relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost is high	
S6-the buyer's account is attractive to the supplier		**B6**-a social binding exists	
S7-an agreement exists		**B7**-the distance to the supplier is short and matters	
S8-the size of buyer is large		**B8**-an agreement exists	
Total Supplier Score (max 24)		Total Buyer Score (max 24)	
Relative Power Score (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 5. Power Relation Model 1

Cox discusses in his model Power Matrix different parameters that are of importance when analysing the power relation between two participants. His statements are central to the area and will therefore influence the following discussion. The Power Matrix shows the key attributes that may affect the power relation. The Power Matrix is basically constructed from the discussion of the relative scarcity of the resources that the participants are trading with each other.[48] Thereby the number of buyers and suppliers, and how unique the offering product is, becomes interesting to investigate. Caniëls and Gelderman also support this reasoning; they mean that the amount of suppliers and the amount of buyers may create dependence for the buyer and the supplier respectively.[49] Thereby *the number of suppliers (B1)* and *the number of buyers (S1)* are parameters that will be included in Power Relation Model 1.

The uniqueness of the product offering is a ground economic reasoning that Porter (especially with his difference strategies)[50] among others has written about. Suppliers can easily differentiate their products. For example, if one machine producer makes a product of premium quality, the machine producer gets a dominance position. *The uniqueness of the supplier's offering (B2)* to the buyer is also a parameter that Cox is discussing and will be investigated in the Power Relation Model 1.

[48] Cox, A. (2004)
[49] Caniëls, M., Gelderman, C. (2005)
[50] Porter, M. (1998)

According to Kraljic a player's supply strategy depends on the supply risk and the profit impact. Supply risk depends on how critical the supplier is for the buyer. Thereby Kraljic supports the reasoning about the importance of the number of suppliers and the uniqueness of the supplier's offer. Profit impact means to what extent *a supplier's product impacts the buyer's profit (B3).*[51] This parameter's influence becomes interesting to investigate in Power Relation Model 1.

Information asymmetry (S2, B4) is considered to affect the relation dominance according to the Power Matrix.[52] Both parts that make business with each other need to have information about the situation. First of all the player need to know that the buyer / supplier exists in the market. Secondly, the player improves its power situation if it has information about the participant's business, technical area, etc. For example, the machine producer needs to get information about that the customers exist and how they work, in order to gain a dominant position. The producer of bags may avoid an inferior position if it has information about other machine producers. The authors of this thesis believe that one way to avoid this is to be present at exhibitions of the industries.

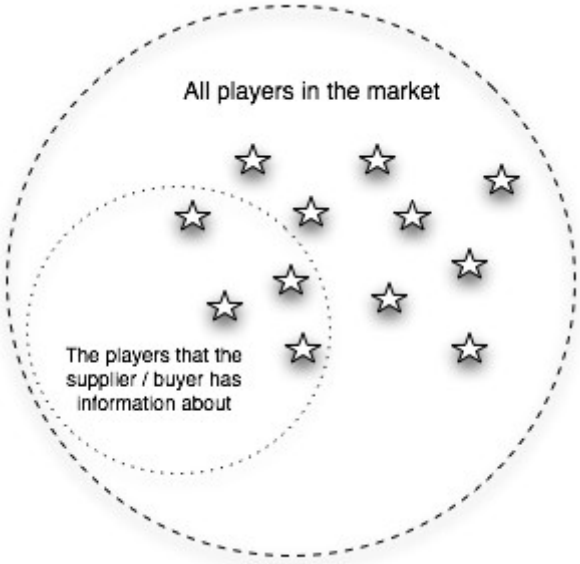


Figure 6. Information about the players on the market

As the Power Matrix says, if *a buyer represents a large share of a supplier's total market (S3)* it may lead to a dependent situation for the supplier.[53] In the case of a commodity product this seems quite realistic; a higher share of the sales gives more importance to the company. This becomes even more significant for a company that deliver investments, because of a longer time horizon; a small player does not order

[51] Kraljic, P. (1983)
[52] Cox, A., et al. (2003)
[53] Cox, A., et al. (2003)

investments as frequently as a big player. (It has more investments that will be worn out and perhaps expand its scope and thereby reorder investments.) Caniëls and Gelderman agree when they claims that the relative financial magnitude of transaction impacts supplier dependence. This circumstance does not hold for the inverted situation.[54] The inverted case has been considered, because a buyer could be dependent on a supplier if the whole production was built upon machines from one supplier. But this has nothing to do with the market share; instead it concerns the switching cost.

The switching cost (S4, B5) is an interesting parameter in the context of this thesis. Authors like Caniëls and Gelderman and Cox consider the switching cost relevant for both the buyer and supplier. They argue that both participants invest in their relationship, and also use dedicated equipment which suites the process between the participants.[55,56] Hammarquist et al. also think there exist technical bindings between the players. For the buyer this means for example that they adjust their production processes for a special kind of material from a special supplier. A supplier can for example adjust their product after the buyer's demand or production process.[57] A further aspect that could contribute to higher switching costs is knowledge. Knowledge bindings has to do with getting to know the partner company by working together during some time and get to know its strengths, weaknesses and how it looks at certain problems. The company must learn about its capabilities and how to best use it. The partners build up a mutual knowledge that can be seen as an investment of time and resources from both sides in the relationship; a knowledge binding.[58] In the parameter switching cost, the authors have chosen to include *searching cost*. The searching cost is an isolating parameter in Cox's Power Matrix [59]. But, in the context of the garbage bag industry the searching cost contributes relatively little to the power relation.

Social bindings (S5, B6) are related to personal connections that the companies have with each other. A fully covering legal contract between two parts is often difficult to formulate, therefore confidence in the relationship is a very important thing to establish because it can complement the contract. A good personal relation takes time to achieve but is a condition that has to be fulfilled to reach a mutual business relation. This binding like others can be seen as an investment for the future.[60] This parameter will be considered in the modified model for the dependence for both the supplier and buyer.

[54] Caniëls, M., Gelderman, C. (2005)
[55] Caniëls, M., Gelderman, C. (2005)
[56] Cox, A., et al. (2003)
[57] Hammarkvist, K-O., et al. (2003) p. 23
[58] Hammarkvist, K-O., et al. (2003) p. 24
[59] Cox, A., et al. (2003), p. 54-56
[60] Hammarkvist, K-O., et al. (2003) p. 24

The Buyer's account (S6) is written about in the Power Matrix[61], which could be interesting in the Power Relation Model 1. The aspect that could be interesting is when the buyer has an image or brand that can affect supplier attitude and positioning.

Logistics may be a factor that leads to buyer dependence. It is important for the buyer to receive the goods in such a way that it is compatible to the internal logistics (like the production system). To deliver the goods in the desired way, the supplier then wants compensation in money.[62] The logistics and how the goods are delivered are not important in the relation between the last tier and the third tier, but may affect the power dependence within the other tiers. One aspect that could affect the business relation is the distance between the players[63]. In some cases the closeness build up a comfort for the buyer. Those know that the service and parts could easily be obtained. The geographical situation is not especially important for the supplier though, because it does not need a comfort feeling, instead it just want to sell. Therefore *short distance and how it matters (B7)* to the specific player may create dependence for the buyer.

Legal bindings refer to different kinds of contracts e.g. long-term collaboration contracts between companies or by ownership influence. Economic bindings mean connections between companies due to financing help or similar matters. Often economic bindings are combined with some legal bindings because the legal bindings complement or work as an insurance for the economic binding. In some cases the legal bindings are the foundation, which all the other bindings are built on, e.g. this can be the case in company acquisitions.[64] When considering *agreements (S7, B8)* as a parameter in the modified model, service agreement also will be included.

There are two arguments for that *the size of the buyer* makes the supplier dependent.[65] First, if the buyer is big it may reorder more investments because more investments need to be substituted. Second, the possibility that the buyer wants to expand, and thereby buy more investments is higher if the buyer is big.

In the Power Relation Model 1, 2 and 3 the quantifying (the score) is interpreted as follow:

- Score = 0 - means that the current dyadic comparison do not agree at all with the parameter or statement.
- Score = 1 – means that the current dyadic comparison agree to a little extent with the parameter or statement.
- Score = 2 - means that the current dyadic comparison agree to a good extent with the parameter or statement.
- Score = 3 – means that the current dyadic comparison totally agree with the parameter or statement.

[61] Cox, A., et al. (2003), p. 54-56
[62] Caniëls, M., Gelderman, C. (2005)
[63] Munson, C., et al. (1999)
[64] Hammarkvist, K-O., et al. (2003) p. 24
[65] Munson, C., et al. (1999)

Theoretically the supplier dominates the relation if the relative power is greater than zero. Because the authors to this thesis evaluate the score, some significance must be calculated. This is not calculated in a statistical way, because of its evaluation form, but instead discussed here. To reach reliance, margin in the score is needed. A margin of 10 per cent is realistic. This gives 0,10*24 = 2,4, which conclude that the relative power has to be above / below + 2 / -2 to create some relative power. When comparing the different score in the analysis it is concluded that relative power exist to a large extent if the margin runs up to about 20 per cent of the relative power. This equals a score of above / below +5 / -5 for the Power Relation Model 1.

The relation is characterised by little interdependence when the interdependence score is 24 and just above. If the score is closer to the top value 48, then the relation is totally interdependent.

If independence exists in the relation, it depends on the case of relative power and interdependence. In other words, independence exists to some degree if there is no relative power and the interdependence score is below 24.

The relationship between the third and second tier – Power Relation Model 2

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few		**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer lacks relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exists		**B6**-a social binding exists	
S7-the buyer has high operational control upon the supplier		**B7**-an agreement exists	
		B8-the supplier has influence in the buyer's logistics	
Result before weighted		**B9**-the supplier's account is attractive to the buyer	
Total Supplier Score (max 27)		Total Buyer Score (max 27)	
Relative Power Score (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation		**If Interdependence Score = 54** Total interdependence exists in the relation **If interdependence Score >= 27** Interdependence exists to some extent **If interdependence Score < 27 && Relative Power Score < 3 || >-3** Independence exists to some extent	

(to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 0 &&** **Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 7. Power Relation Model 2

In the other tiers a product and not an investment is considered. The parameters mentioned above are current for the other tiers as well, unless they are commented on below. Also, added parameters are described below.

The buyer is not a producing company in this tier, it is rather described as a wholesaler. Thereby services and parts do not exist, and a comfortable *short distance* is no longer a reason that influences the relation.

Not only information asymmetry affects the power situation, but also *information control* affects the power situation in this tier. Some companies can gain power by obtaining information, and other can obtain information by using power. One information exchange that has increased its presence between players is Electronic Data Interchange (EDI). This system eliminates the paperwork by taking care of the business in an electronic way. The implementation of this has mostly been cost effective for bigger companies, because of the initial costs. According to a study by the EDI Group 1994 that Munson et al. refers to, 55 per cent firms of the respondents started using EDI because of their buyer or supplier forced them to do so.[66] This parameter will not be considered because it is covered in the logistics discussion below.

As mentioned in the discussion of the first tier, *logistics (B8)* could affect the power relation. Munson et al. also think this is an important issue; they write about inventory control and bringing order-sizes and frequencies up to discussion. One way to share information to the supplier is via vendor-managed inventory (VMI). When this partnership exists, the power shifts to the supplier's advantage, thanks to the cost and inventory information it gets. Could the manufacturer control this situation, or is the supplier the dominant player?[67] When analysing the product flow in the other tiers, this parameter becomes important for both supplier and buyer dependence.

In the other tiers, *operations control (S7)* could also be considered. In the aspect of operational control it is common with demand on the participants. For example Toyota has tough quality standards that the supplier must follow. Quality, e.g. ISO certification, is common requirements that exist. The manufacturer also put requirements on the dealers.[68]

Since it is a commodity product in this tier, *whether the buyer's account is attractive to the supplier* does not affect the dependence situation for the supplier. The suppliers just want to sell its products.

[66] Munson, C., et al. (1999)
[67] Munson, C., et al. (1999)
[68] Munson, C., et al. (1999)

The size of the buyer has not the affect as above. Because it is not about an investment in these tiers, the expansion and reordering as discussed above do not have any influence.

The scores' significance limits are the same as in the Power Relation Model 1. The max score is here 27 points instead, but the 5 per cent margin results in 0,10*27 = 2,7, which is the same when the figure is rounded. Also the limit for the relative power becomes to a large extent the same. (~0,20*27 = 5,4)

The relation is characterised by little interdependence when the interdependence score is 27 and just above. If the score is closer to the top value 54, then the relation is totally interdependent.

If independence exists in the relation, it depends on the case of relative power and interdependence. In other words, independence exists to some degree if there is no relative power and the interdependence score is below 27.

The relationship between the second and the first tier – Power Relation Model 3

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few		**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer lacks relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exists		**B6**-a social binding exists	
		B7-an agreement exists	
Result before weighted		**B8**-the supplier has influence in the buyer's logistics	
Total Supplier Score (max 24)		Total Buyer Score (max 24)	
Relative Power Score (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 8. Power Relation Model 3

Within the other tiers the supplier's account cannot affect the power situation, as the Power Matrix advocate. For example, the distributor's brand or image does not affect the power situation between the participants.

Also, the buyer's operational control is not relevant in this relationship, because no producer is involved.

The maximum of the score is the same as in Power Relation Model 1. Therefore the limits become the same in the current model.

3.3.2 Power Mapping

The value in a whole supply network will be investigated by using the dyadic dependence situations, which are found with the Power Relation Models above.

The principal is as follow. The power relation depends on the four states: buyer dependence, supplier dependence, interdependence and independence. How these states are illustrated is shown in Figure 9. If these relations are applied on the whole network (see Figure 10), the power dynamic and thereby the ability to appropriate value is shown. The player that has the ability to appropriate most of the value is presented by a black box. Cox and his Power Regime have inspired the reasoning[69].

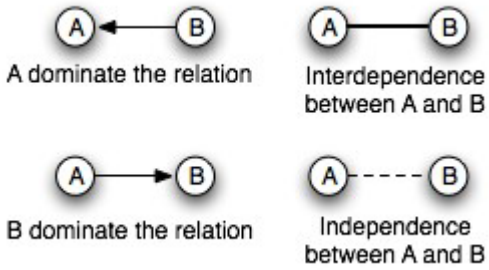


Figure 9. The four states

In other words, the key insights of this mapping are that it is the power relationship between other participants that determines whom has the ability to appropriate value.[70]

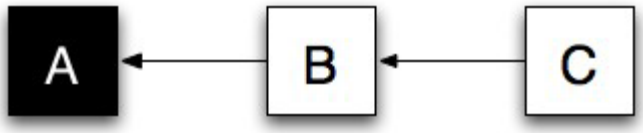


Figure 10. Power principal (source: Cox, A. 2002)

[69] Cox (2002), p. 67-70
[70] Cox (2002), p. 68-69

These principals could be applied in the whole network. The model that illustrates this is named Power Mapping and is developed by this thesis authors with inspiration of Cox's Hypothetical Power Regime. The basic assumption in the model is that every two that have a buyer-supplier connection has a power relation.[71] To be able to analyse weak and strong power dependencies there are two different levels of inferiority that exist. Also, in some cases both interdependence and a relative power advantages may exist. This is illustrated in Figure 11.

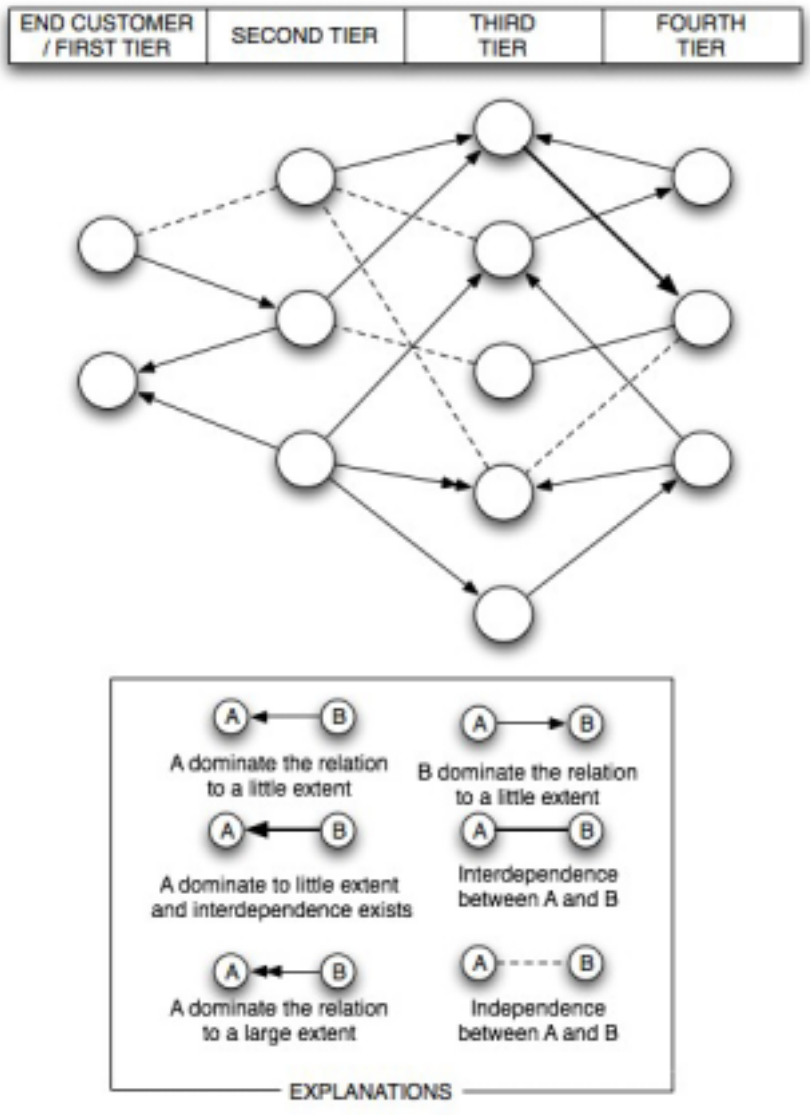


Figure 11. Power Mapping

[71] Cox (2002), p. 67-68

3.4 How to make more money

3.4.1 Strategies for improving value appropriation

According to Cox it is critical for a player to find ways to change its power situation to a more favourable one in order to increase its value appropriation in the supply chain. It is important not only to objectively decide what kind of relations that one have to the suppliers and customers, but also to find ways to use this information and move from a less desirable position to a more advantageous position. Cox gives examples of how the customers are supposed to improve their power situation towards the suppliers in his article, but because this thesis study the relation from the suppliers' point of view the strategies will be seen the other way around which Cox also agrees with. Thus how the suppliers can act to improve their power in the relations.[72]

If the supplier has a relation where the buyer dominates it should move towards supplier dominance and thereby increase its ability to appropriate more value. To do this, it should decrease the buyer's market share, try to minimise the competitors on the market, create a more unique product offer, decrease the cost and quality transparency and / or decrease other suppliers' dependence on the buyer.[73]

If the supplier has a relation where interdependence exists and wants to move towards supplier dominance it should decrease the buyer's market share, try to minimise the competitors on the market, liquidate collaborations with buyers concerning product development and product risk sharing. The supplier should also try to avoid being locked in by buyers, and instead try to lock in the buyers.[74]

If the supplier has an independent relation it should try to minimise the competitors on the market and offer more unique products. Also try to decrease the available substitutes and increase barriers to enter for new actors. It is important to be innovative and in the front line, and thereby increase buyers search costs.[75]

3.4.2 Purchasing strategy

To know how to act as a supplier in the supply chain, it facilitates to know how the buyer thinks when purchasing service / goods / investments. This is the reason for bringing the following purchasing strategies up. Depending on the company's situation and dominance situation towards the suppliers, Kraljic recommends three general purchasing strategies; exploit, balance and diversify. The aim of the use of purchasing strategies is to "…minimize supply vulnerability and to make the most of a potential buying…". [76]

[72] Cox, A. (2001)
[73] Cox, A. (2001)
[74] Cox, A. (2001)
[75] Cox, A. (2001)
[76] Kraljic, P. (1983) p. 112

Other authors have later modified Kraljic's purchasing portfolio e.g. van Weele, 2000. In addition to the strategic items Kraljic has defined, they have specified the categories bottleneck, non-critical and leverage items. The strategic items are a supply risk, because the buyer only has one supplier to choose from. The bottleneck items have little influences on the company, but could run out of supply. For the leverage items the buyer has a dominance position, because its alternative suppliers to choose from. Small cost savings give leverage results for the overall business. The last category, non-critical items are not so important for the company. In general one can say that these products require 80 per cent of the purchasing department's time, but represent only 20 per cent of the purchasing turnover. Another aspect that van Weele has added is an overall strategic recommendation for each portfolio quadrant (see Figure 12); form partnership for Strategic items, exploit purchasing power for leverage items, assure apply for bottleneck items and ensure efficient processing for non-critical items.[77]

The different strategies for each quadrant are represented below. In this study the case company FAS supplies machines that are considered to classify as bottleneck items, and in the future it may be classified as a strategic item (More about this is discussed in the analysis). Because this thesis only concerns these two categories only these strategies will be discussed in detail. The contribution of Caniëls and Gelderman about the power and interdependence is also included in the reasoning.

[77] Caniëls, M., Gelderman, C. (2005)

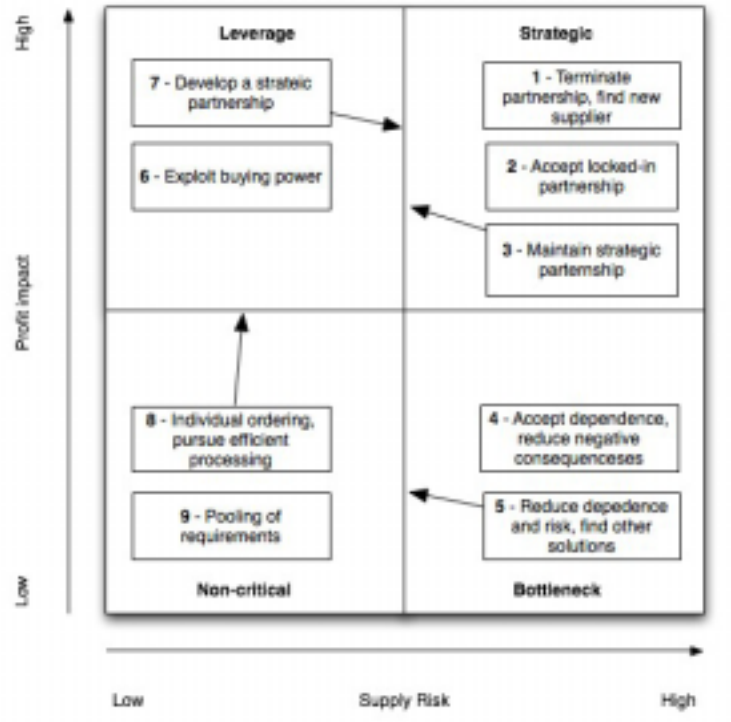


Figure 12. The modified portfolio Matrix (Source: Caniëls, Gelderman (2005))

Strategies for strategic items

This implies that the items are a supply risk, because the buyer only has one supplier to choose from. As illustrated in Figure 12 the buyer uses one of the following three strategies[78]:

1. Maintain strategic partnership
   To deal with the risk of supply a partnership could be established. To do this it requires that the relationship is intense and is characterised by mutual trust and commitment. In other words, balanced power and total interdependence should exist. The result from the empirical research made by Caniëls and Gelderman showed though that the supplier dominated the power relation.
2. Accept a locked-in partnership
   The buyer must accept a condition that may not be optimal from its perspective. This situation can for example be caused by the ownership of a patent for a certain product of the supplier. One can say that the supplier dominates the situation. Total interdependence is lower than in the partnership above, it is now at a moderate level.
3. Terminate a partnership
   The conditions for the buyer are unacceptable and therefore it will search for supplier alternatives. Supplier dominance still exist, but to a lower degree. Total interdependence is at an even lower level than in the previous case.

[78] Caniëls, M., Gelderman, C. (2005)

Strategies for bottleneck items

These items have little influence on the company, but could run out of supply. As illustrated in Figure 12 the buyer uses one of the following two strategies[79];

4. Accept dependence, reduce negative consequences
   With this strategy the company is willing to take a worse deal, e.g. additional costs, to secure the supply. A proactive work is to perform risk analysis to identify these products and treat them as more "risky". The supplier has the dominance in the relation, and the total interdependence is high.
5. Reduce dependence and risk, find other solutions
   The buyer will search for new suppliers and if necessary broaden the specifications of the product. The supplier dominance will still exist, but less than in number four.

[79] Caniëls, M., Gelderman, C. (2005)

4 Empirical studies

After an introduction oft the garbage bag industry the companies that is used in the following analysis are presented tier-by-tier, beginning with the last tier, FAS. Finally, this chapter will outline some input from the French market and a future environmental issue.

4.1 Garbage bag industry

There are many actors to take into consideration in the mapping of the Swedish garbage bag industry. Depending on the end customer there are different numbers of tiers. To make the mapping simpler the number of tiers is based on what is most frequent occurring. In the last tier there are the suppliers to the producers of garbage bags; there are three last tier suppliers that can be considered to be more important than others. These are the suppliers of polythene granules, the extruder machine suppliers and the converting machine suppliers. As stated in the first chapter this study takes it's starting point in a producer of converting machines and hence does not consider the other two suppliers.

The third tier suppliers in the supply chain are the producers of garbage bags, which are of very different sizes and also have different ways of looking at their garbage bag production. The second tier suppliers are quite many but they are not competing with each other because they niche themselves towards different businesses. The difference in size is also great depending on which type of customers they have. The first tier actors can be very different from each other, some of them are the consumers of the product like cleaning services, another category is supermarkets and a third one is second wholesalers. As mentioned in the methodology only four of the 30 investigated players (seen in Figure 13) will be presented in this chapter. The interested reader can find all the 30 investigated players in the industry report called *A report about the Swedish garbage bag industry*. The same goes for the industry report concerning the French market.

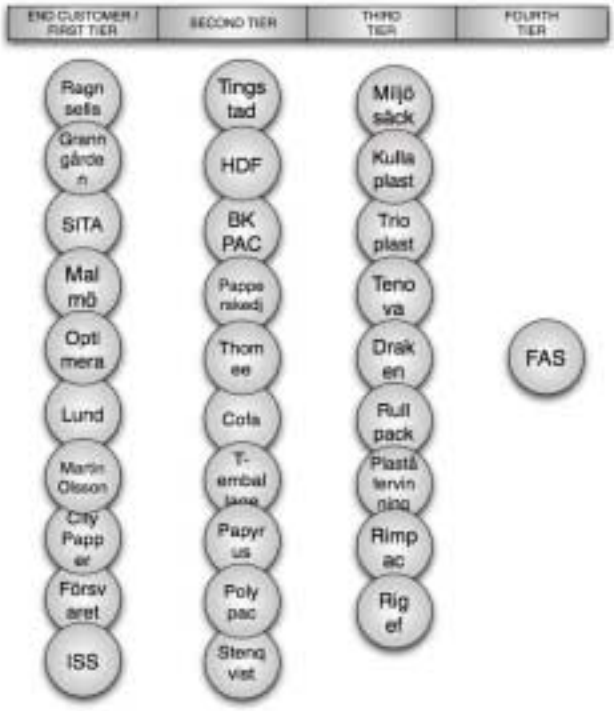


Figure 13. The investigated players

4.2 Last tier – Machine producer

This thesis deals with the Swedish market where only one machine producer exists, which is the case company FAS (see Figure 14). As discussed earlier the fact that FAS acts all over the world makes the investigation more complex. The competitors to FAS will not be presented, but the authors have looked up the players and are taken its existence in consideration during the thesis.

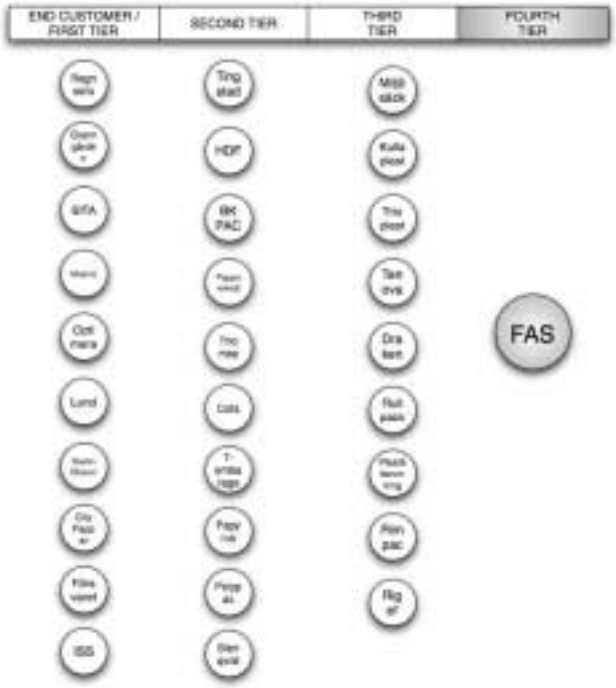


Figure 14. The player in the last tier

4.2.1 FAS Converting Machinery[80]

The information about FAS is based on interviews with Peter Håkansson, Sales Manager and Zoltan Darvas, Technical Manager.

FAS Converting Machinery AB (FAS) was established 1978 in Ystad, Sweden. FAS's business idea is to sell machines developed by themselves that converts plastic film directly from an extruder to plastic bags on roll. During the eighties FAS increased its market share steadily and today FAS is a multinational company that exports products to a large number of countries and has a subsidiary company named PECO INC. in the USA. FAS is mainly owned by the venture capital company Malmöhus Invest AB and some of the members of the board of directors, but there is no majority owner. FAS's vision is to be the "first choice" when it comes to cost effective production of industry related products on roll. FAS shall develop, market, produce and sell machinery and accessories for a cost effective production of industry related products.

From FAS point of view

FAS considers itself as a small company that knows its things, according to Darvas, Technical Manager at FAS. FAS has a high ambition level with a will to improve, but

[80] Interview with Peter Håkansson and Zoltan Darvas 2007-13-03

the industry is conservative with limited willingness for new innovations. Darvas further thinks that FAS tries to listen to its customers.

One weakness FAS has is the internal relation between sales and development department. Håkansson thinks FAS's developing-time for new products is too long, but he does not know if the competitors are any quicker. Though, he thinks that the competitors are better at design. The fact that FAS has not changed the design for four years is a sign that it could be improved. Håkansson claims that the design is attractive to the customer. Darvas agrees regarding the developing time, but thinks that, what is most important is to deliver the right product at the right time. He thinks the best way would be to take in better and broader input to ensure the customers' requirements and demands. Where Darvas could see a need of improvements at FAS, but also to shorten the developing time for the projects. Darvas thinks it may be tough to connect the customer to the project, but it would be great if it was managed. However, a closer contact with the customer would be preferable.

Another weakness is FAS's inability to enter new markets. The new cheaper product group, Euroline, has helped FAS to enter a few new markets, but more could be done, according to Håkansson. It may be costly to enter, but there is money in the new markets, Håkansson continues.

Competition

FAS's two main competitors are Roll-o-Matic from Denmark and Coemter from Spain. Both of these players are better than FAS of producing with double lines. Coemter's niche has also been to produce with thin material, but its ability to produce thicker material has also been improved lately. Coemter is only offering machines for off-line production which means that the extruded plastic film first is put on a roll before it is processed in the converting machine. The opposite is in-line production where the extruded plastic film goes directly into the converting procedure. One weakness that Coemter possess is the service; only one service engineer can speak English. Roll-o-Matic is also best at off-line production, but is able to produce in-line. Regarding service, Roll-o-Matic is prominently better than Coemter.

Overall, FAS does not have more technological knowledge than the competitors, but in some areas FAS is better. What distinguishes FAS from its competitors is mainly that its machines are aimed for in-line production. Nowadays FAS also offers machines for off-line production, but in-line is FAS's niche. Håkansson even thinks that some of its customers have survived thanks to the in-line skills of its machines. FAS has reliable and stable machines and offer good and loyal service. Darvas even thinks that FAS has been too loyal sometimes to its customers.

The pricing of machines is similar between FAS and its competitors. The price for service and parts is difficult to compare, according to Håkansson and Darvas. Historically FAS has had a less successful service strategy, the focus has been set on the development and building of machinery, with little income in the aftermarket as a

result. For the last three years, FAS has tried to change this, and have had success in doing this but there are much more to do.

Moreover, what also makes FAS stand out from its competitors is the colour of the machines. Darvas believes that it can affect the production people in the unconscious. The combination of design and colour makes one recognise FAS's machines. Darvas also claims that the brand is important to the customer, which he experienced from his former employer Tetra Pak.

FAS's Customers

The trend has changed according to Håkansson, today there do not exist as many entrepreneurs as for 15-20 years ago. Instead of trying new innovations and products, the players in the markets are producing quite much the same products. Håkansson thinks he has a decent overview about what the customers' cost structure look like. He thinks the profit margin differs among the customers.

Håkansson means that FAS has grown together with many customers, which has been important, because of the difficulty to get new customers. Customers that have expanded have reordered many machines from FAS. Darvas adds that habit is an important factor when the customer choose machine supplier. If the customer is satisfied with a supplier the customer will continue to purchase from it. (See Table 1)

Total machine units sold in Sweden	
Draken AB	X
Miljösäck	X
Plaståtervinning i Arvika AB	X
Rigef Plastemballage AB	X
Rimpac Emballage AB	X
Rullpack AB	X
Tenova	X
Trioplast	X
Sold to others	X
Total	263

Table 1. Machines sold to customers

Another aspect that the buyer considers is the number of machine suppliers, according to Håkansson. The more different machine suppliers you have the more different knowledge, service and parts you need. To make the customer choose a new machine supplier the advantages must overcome the switching costs. These thoughts are especially characterised in the French market.

Darvas thinks that another aspect important for the buyer to consider when purchasing a new machine is the knowledge about the production and raw material. FAS is quite aware of that its machines shall be able to produce in all kinds of

materials. If FAS were to eliminate some material alternatives, it would lead to a situation of losing customers, Darvas argues.

A sales process can last from a couple of weeks to several years, and when the customer has signed, they want the machines delivered right away. Darvas believes this is a problem. When developing machines the connection between the customer, sales and engineering should be closer than today. Though, the connection between the sales and engineering has become better the last five years. Today FAS has reduced projects with a length of ten years, and instead focused on shorter projects. The input to the development from the market is not enough, and more channels are needed to get relevant information from the markets.

The first contact is often taken at an industry exhibition. The largest exhibition in the plastic industry takes place in Düsseldorf, and occurs every third year. Other exhibitions are Plastpol in Poland, Equiplast in Spain, Plast in Italy and NPE in America. The total cost for an exhibition of Düsseldorf size, is about one million SEK, and gives an average cost of meeting a customer of 2000 SEK. This could be related to the cost for visiting one customer at his location, which is about 4000 SEK.

The dependence situation

Historically there are a couple of customers that have ordered larger quantities of machines some years. These are Quick Pack Hatefo in Germany, Nippon Film in Japan and Rullpack in Sweden. Many of these types of customers have grown together with FAS. Darvas claims that the dependence on certain customers has decreased, because FAS sells fewer machines to each customer nowadays. In general, the industry players have been more aware of their profit margins, in that perspective FAS has become stricter by declining unprofitable business.[81]

In the Swedish market FAS does not have any service agreement or other legislation bindings to its customers according to Håkansson. Instead he talks about the social bindings that he thinks are very important. In the Swedish market, FAS has a frequent contact with Rullpack and Tenova. With Miljösäck and Rigef the contact is good but not as frequent. The companies which FAS has less contact with are Trioplast, Draken, Rimpack and Plaståtervinning i Arvika. Håkansson continuously tries to improve those contacts, especially those which can be of great importance in the future.[82]

The information asymmetry between the participants is something that could affect the relations. Håkansson claims that he has valuable information about Miljösäcks and Tenovas businesses and thinks they are interesting because of their more environmental niche. In the industry there is one player that is more secret than others and that is Rullpack. The former owner would not allow anyone to enter his plant. Håkansson says therefore that he has very little information about Rullpack's

[81] Interview with Peter Håkansson, 2007-04-12
[82] Interview with Håkansson, 2007-04-12

business. Except for Miljösäck and Tenova, Håkansson says that he has little information about their businesses.[83]

Sales and marketing

A sales argument that Håkansson brings up is adapted to the situation. For example, the argument that it will be possible to release some staff in the production if using FAS's machines does not work at a Spanish family company. In general, Håkansson uses successful companies, such as HP-Plast, as an example of efficient production. These successful companies are very important for FAS to keep, according to Håkansson.

When Håkansson is advocating for producing in-line, the arguments are less material wastage, and fewer stops in the production. It is quite easy to argue for in-line production, Håkansson thinks. The quality control of the process is easier to do with in-line production, because a failure will be noticed immediately. On average, ten per cent wastage is created at off-line production, instead of five per cent at in-line. Although, Håkansson admits that it is possible to be profitable when producing off-line. For example, many producers in Germany are doing so and are making profits.

Strategies

FAS focuses on garbage bag producers because most customers make them. Another argument is that garbage bags are the most profitable product according to a survey. FAS has also started to focus on new markets where the customers are smaller and more entrepreneurial, like companies in the Baltic States. FAS's market its machines for off-line production for example in the Baltic States, because the labour is cheaper there and thereby the economical barriers become less important. The machine group Euroline has been developed for these kind of markets. FAS hopes that these initial relations with the small companies will become long-term, and also change the focus to in-line production and change to the more expensive machines.

FAS does not have a differentiated price strategy, the pricing is the same in all markets. The reason is that transparency exists nowadays. This was different in the past. The pricing mostly depends on how much competitors charge. Then it is related to the profitability measured as the contribution margin and the last thing to consider is the capacity.

FAS has made initial attempts to co-operate with competitors, but has got a negative response. Håkansson and Darvas speculate that the market may not be ready. Vertical co-operations in the supply chain have almost never occurred either. A co-operation with a producer of extruders, Ibañez, has been made at two plastic exhibitions and co-operations are also of interest for FAS in the future.

FAS considers the environmental aspects a lot and Darvas says that the biodegradable bags may very well take over in the future. He sees good opportunities for FAS within this area because its machines manage the new materials without any adjustments.

[83] Interview with Håkansson, 2007-04-12

4.3 Third tier – Producers

All the producers in the Swedish market are represented in the third tier, but only Trioplast is presented in detail. Notice that Kullaplast is not a customer to FAS. (See Figure 13)

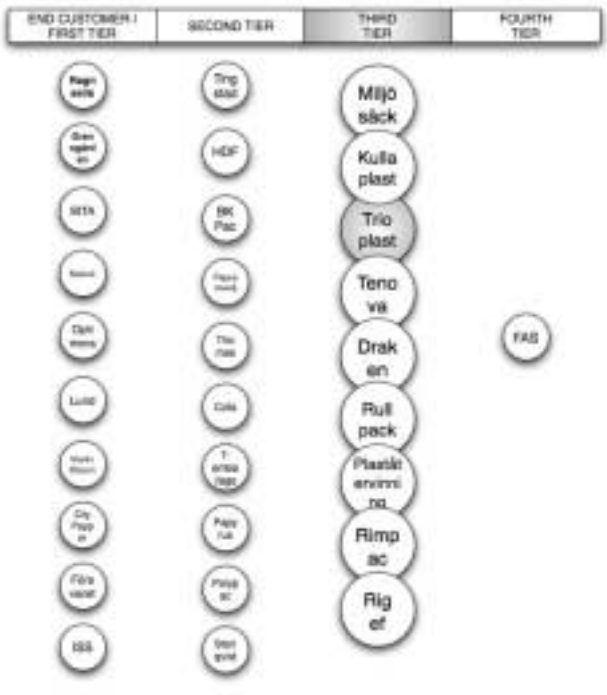


Figure 15. The players in the third tier

4.3.1 Trioplast[84]

The information about Trioplast is based on interviews with Jonny Abrahamson Technical Manager, Niklas Bergström Product Manager and Mats Petersson Market Manager

Products

Besides the production site in Smålandsstenar where Jonny Abrahamsson is situated, Trioplast also has business in Denmark, Norway, France, Germany, United Kingdom and Finland. Apart from producing garbage bags Trioplast produces plastic films for different purposes, which is its biggest business. The original reason why Trioplast

[84] Interview with Jonny Abrahamsson, Technical Manager, Niklas Bergström, Product Manager and Mats Petersson, Market Manager, Trioplast 2007-02-27 and 2007-03-30

started producing garbage bags was because it wanted to decrease costs for plastic spillage from the plastic film. Nowadays Trioplast also buys new material for production of garbage bags. It produces thousands of ton garbage bags per year.

When Trioplast develops a new product it is driven by profit rather then customers demands and needs. It needs to produce thinner bags to compete with the import from Asia. When it produces co-extruded (an extrusion form with different layers of material) bags they use recycled material in the middle.

Customers

Trioplast has approximately 20 large customers that stand for 90 per cent of its garbage bag turnover. The other ten per cent consists of many small customers. Trioplast concentrates on larger customers because they want to produce in long series and large quantities. The large customers are mostly wholesalers for example Cofa, Papperskedjan, Papyrus, Alfort and Kronholm.

The relations to their customers are considered very close and stable. The prices to their customers are changed monthly. Trioplast have the same price for standard articles regardless of the size of the customer. But for big customers bonuses and discounts are offered which is connected to the volume that the customers buy. For non-standard articles the prices are different depending on the size of the company. Abrahamsson says that it has to turndown some smaller customers because it has not the possibility to content them because they only order small quantities.

The customer does usually not have any new wishes when it comes to the products.
Trioplast does not have any contact with actors further down in the supply chain. Trioplast delivers their garbage bags mainly to the Swedish market but also parts of the Norwegian and Danish market. Traditionally the users of garbage bags are private persons, cleaning companies or other companies.

Suppliers

The converting machines today come mainly from CMD, Hudson-Sharp and FAS. Abrahamsson means that FAS machines are much slower compared to the other brands. He also says that FAS has very expensive spare parts and often disturbances with the machines. The electronic technique is similar between the different brands of machines. Trioplast intends that FAS has fallen behind the last 10 years compared to its competitors.

Trioplast often buy new machines but very seldom a whole production-line. Often their purchases are based on long experience and carefully planned designs of new production-lines. Trioplast values dependable machines high and tries to find components from already existing suppliers so service and reparations can be performed in-house. When Trioplast buy a new machine this can be a process from one week to six month with calculations and sometimes an approval from the board of directors.

Abrahamsson believes in more virgin material in the future and less recycled because the bags will be so cheap that it is not worth recycling, particular when the material is dirty. Instead it will be more profitable to burn the polythene as a substitute for oil.

All the steps in the production process are critical for Trioplast, but of course the raw material supply is very important for the production. Trioplast in Smålandsstenar produces 90 000 ton polythene per year out of which thousands of tons becomes garbage bags.

Abrahamsson does not look bright on FAS's future; he says that its progress has stopped and that its machines lack the speed that will be necessary in the future. Abrahamsson thinks he has a very good understanding about the potential suppliers that exists and if Trioplast should buy a new converting machine today it would address CMD or Hudson-Sharp because of their machine speed, reliability and their size, which will give them good future perspectives. He gives an example that FAS can only perform 6-8 roll changes per minute compared to the others that can perform 20 roll changes per minute, which makes FAS unattractive.

Trioplast attends the Düsseldorf exhibition, but the garbage bag converting machines are not the primary reason to why it attends.

Economy

Trioplast groups turnover is approximately 3,5 billion SEK and the site in Smålandsstenar has a turnover on 1,3 billion SEK, where garbage bags stand for 80 million SEK.

It is hard calculating the margins on garbage bags for Trioplast because they mostly make bags from internal spillage that is recycled. The recycle process is expensive and requires much energy. The most profitable for Trioplast would be if no spillage was generated but that is practically impossible and therefore garbage bags are produced. In the whole supply chain Trioplast argues that the producers of garbage bags have the lowest margins and then the margins increases as the product comes closer to the end-user.

In the future Trioplast believes that the margins will continue to decrease because the plastic waste is more expensive and harder to get hold of. The competition from Asia will also make the margins go down. Already today Trioplast is trading some of their bags from Asia and this trend will increase and consolidate the garbage bag industry in Sweden.

Over the last ten years the costs for electricity and raw material has risen heavily and Trioplast have not been able to increase the selling price to its customers in the same pace. For example the price for new raw material has risen from 4,50 SEK per kilo to 12 SEK per kilo. The margins for garbage bags are just above the average margins for its other products.

Regarding the import from Asia Abrahamsson knows that it is possible to buy garbage bags that are cheaper than the raw material price in Europe. For a couple of years ago Chinese companies started to buy recycled raw material from Europe and since then the price for recycled raw material have steadily risen. Before this development occurred the companies usually were paid to handle the plastic waste instead of as today have to pay for it.

Future

Energy prices will play a bigger role in the future, polythene has a high energy value approximately 1:2 against oil plus that it is a lot cleaner to burn. But Trioplast does not think that the biodegradable bags will play a big role in the future because it claims that the polythene is a material that is good enough for the environment.

4.4 Second tier – Distributors

The distributors that are classified as the second tier are those that buy garbage bags directly from the producers. The number of players at the second tier is much more than the number of producers (third tier). Papperskedjan is the only player that is presented in detail. (See Figure 16)

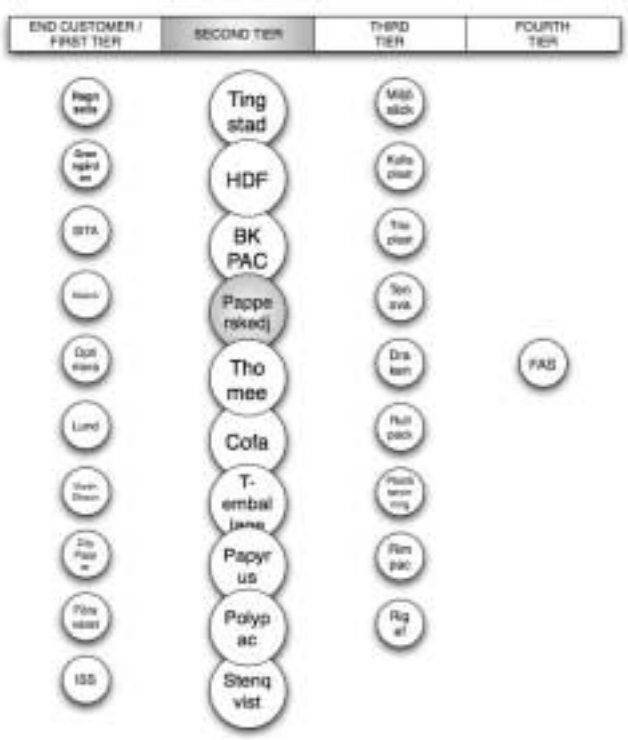


Figure 16. The players in the second tier

4.4.1 Papperskedjan[85]

The information about Papperskedjan is based on an interview with Carina Ekström, Product Manager garbage bags.

Product

Papperskedjan is a paper and plastic wholesaler with a turnover of 710 millions SEK 2006 whereof 28 million comes from garbage bag. It has a big assortment with both a basic product range and special types of bags with different colours, sizes and prints.

Customers

Papperskedjan has many customers both big and small. A lot of garbage bags are sold to Samhall. The contact with the customers often concerns the overall solution rather than just garbage bag. The customer does not have many wishes concerning the garbage bag; the only thing they sometimes ask for is more environmental friendly bags. But Carina thinks it is surprisingly few that ask for this as well. Most customers are end-users.

Suppliers

The central suppliers for Papperskedjan are Trioplast and Miljösäck, it does not import. The contacts work well and sometimes Papperskedjan influences their suppliers concerning products, but mostly it buys from the standard assortment. Trioplast is service minded but requires buying fairly big volumes.

Economy

Ekström thinks Papperskedjan's margins are poor, especially due to the fact that there is a massive import which decreases the margins. Papperskedjan has a certain power to pressure its suppliers, but it is tough to pressure its big customers. However, their small customers are not so price sensitive so it can take higher prices when selling to them. Ekström believes that the producers have the best margins on garbage bag in the supply chain.

Future

Ekström believes the prices on garbage bag will increase because of higher raw material prices. The environmental aspect is something that she believes will decrease in interest but legislation could change this. She also thinks that the producers constantly work to get the bags more environmental friendly.

4.5 First tier – Niche Distributors and End-Users

In this tier the players are either a second distributor to the first distributor or an end-user. The only player presented in detail in the thesis is Malmö municipality. (See Figure 17)

[85] Interview with Carina Ekström, Product Manager garbage bags, Papperskedjan 2007-03-05

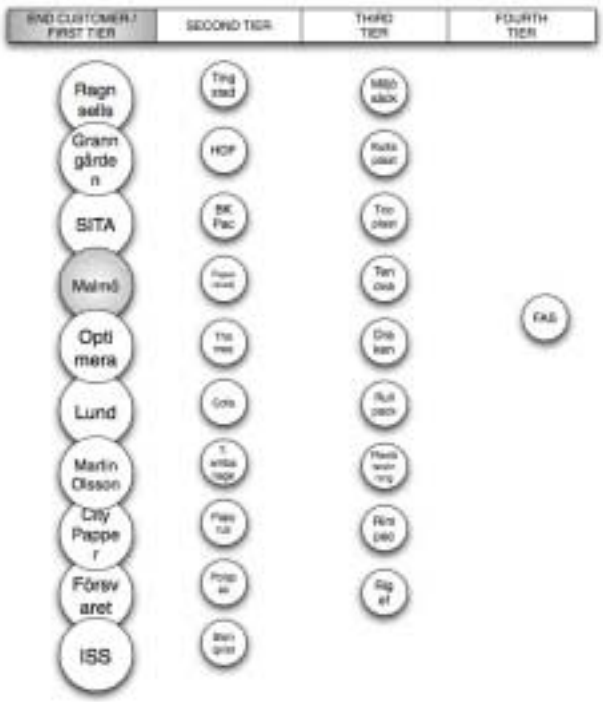


Figure 17. The players in the first tier

4.5.1 Malmö municipality[86]

The information about Malmö municipality is based on an interview with Anders Tapper purchaser at the procurement unit in Malmö municipality.

The procurement unit in Malmö municipality buys garbage bags together with other paper and plastic articles. The garbage bag is not a big article, Malmö municipality buys for approximately 50 000 SEK yearly.

Suppliers

For the moment Malmö municipality has a contract with Papperskedjan who recently was acquisitioned by Procurator. Prices are set by the contract, which run for two years with an option for two more years. Anders Tapper purchaser at the procurement unit says that it has no chance to bargain about the prices; he says that it is the wholesales responsibility to see to that the prices it pays are reasonable. Tapper also says that he has little knowledge of what the prices are further up the supply chain. There is not much contact between the supplier and them and Tapper does not know for sure if he is getting cheated or not. When it comes to margins Tapper believes that it is its wholesales that have the best margins.

[86] Interview with Anders Tapper purchaser at Procurement unit in Malmö municipality, 2007-03-20

Future

Tapper says that he finds it difficult to see that garbage bags in the future would be made by any other material, he doe not think that paper bags will increase they are both more expensive and of worse quality he says. Tapper says regarding the environmental requirements that he needs to follow he would rather buy bio bags.

4.6 Trends from France and the biodegradable issue

A smaller research has also been carried out in France because according to FAS, France is in front of Sweden when it comes to new trends on the garbage bag market. One of the biggest players in Europe, Sphere, has recently bought a plant that produces biodegradable raw material that will replace polythene. The CEO of Sphere is currently lobbying in the European Union to get biodegradable material prescribed by law. If Sphere works its will and gets this new material legislated this definitely influence the Swedish producers to. According to the French distributors Asian producers can already make biodegradable bags. As the distributors see it this is a big threat to the European producers and it will maybe drive them out of competition by import. Especially the French producers because they are too expensive as they are inefficient.[87]

In the Swedish market biodegradable materials already is of great immediate interest. In an interview with Mikael Roos, deputy work manager at Lunds Renhållningsverk he states that it will probably be more biodegradable garbage bags in the future both in paper and in polythene because of a new regulation which stipulates that at least 35% of the food waist from households, restaurants, institutional kitchens and other similar are supposed to be biodegradable 2010. This means that also 35% of the garbage bags for food waist must be biodegradable so that the full garbage bags can go direct to mouldering and be recycled to natural gas.[88]

[87] Information taken from ”En studie av den franska sopsäcksmarknaden”

[88] Interview Mikael Roos, Deputy work manager, Lunds Renhållningsverk, 2007-03-17

5 Analysis

In this chapter the authors first use the developed models to analyse the power situations within the dyads. In the second part the whole network is analysed using the identified dependences within the dyads and identified critical assets. The third part analyses how the case company FAS can increase its value appropriation.

5.1 Analysing the dyads

All identified dyads that exist between the investigated companies from the empirical research have been analysed. The purpose has been to find out how the power situation looks within the two players, one relation at a time. To get an understanding of how the relations have been analysed, three examples are presented below. The rest of the relations are presented in the appendix but without the motivations.

5.1.1 The relationship between FAS and a producer

The Power Relation Model 1, described in the theory, is used to analyse the relations between the fourth and the third tier. All parameters except four will be analysed for each dyad. The four are *the number of buyers is few*, *the supplier has little relevant information about the buyers*, *the supplier's product has great impact on the profit* and *the supplier's switching cost is high*. The reason for not analysing these parameters in every dyad is because these are general, in other words the same no matter whom the buyer is. Instead they are discussed and analysed below the model.

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-2	**B1**-the number of suppliers is few.	
S2-the supplier lacks relevant information about the buyers	G-1	**B2**-the supplier's offering is unique.	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit.	G-1
S4-supplier's switching cost is high	G-0	**B4**-the buyer lacks relevant information about the suppliers.	
S5-a social binding exists.		**B5**-the buyer's switching cost is high	
S6-the buyer's account is attractive to the supplier		**B6**-a social binding exists.	
S7-an agreement exist		**B7**-the distance to the supplier is short and matters	
S8-the size of buyer is large		**B8**-an agreement exist	
Total Supplier Score (max 24)		Total Buyer Score (max 24)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 18. The Power Relation Model 1 with the generalised parameters.

The Swedish market is the third largest market for FAS based on the number of machines sold and it is FAS's home market. This market also holds some of its important customers. On the other hand FAS operates on an international market where most of its sales take place. When considering the number of buyers it is important to keep in mind the global view and therefore there are quite few buyers available for FAS on the Swedish market. *The number of buyers is few* is therefore ranked as 2.

FAS has generally a good insight in the market. It has good information about which buyers that exist. Information about different buyers' businesses and processes could be better though. It has become clear that more information about the buyers could be collected if the sales resources were increased. Because of this *the supplier has little relevant information about the buyers* is ranked as 1.

The supplier's product has great impact on the profit is also considered as general because the cost structure is similar for all the producers. As the empirical research

has shown an investment in a converting machine is rated as the third most critical cost (after the cost of raw material and cost of extrusion machines). The performance also affects this decision, especially the speed, production reliability and quality in the wielding. Machines are therefore critical for the production success. From this reason, this parameter is ranked as 1.

FAS's *switching cost* is very low, because it does not serve each customer with a customized solution. In the past this occurred more, but it has changed today. Instead, FAS is producing machines with a great flexibility that should cover many different customers' requirements. The rating of FAS's switching cost is therefore ranked as 0.

One general comment needs to be stated regarding the parameter; *the distance to the supplier is short and matters*. Because this investigation concerns the Swedish market and FAS is situated in Sweden the distance is considered to be short to all customers. The question then is only how much it matter to FAS. If it is important the customers will be more dependent on FAS and it will have an advantage compared to its competitors situated abroad.

FAS vs Trioplast

The first illustrated example shows the relation between FAS and a garbage bag producer. The chosen example is between FAS and Trioplast since it is one of the more important relations in the network. This will be ascertained later in the analysis.

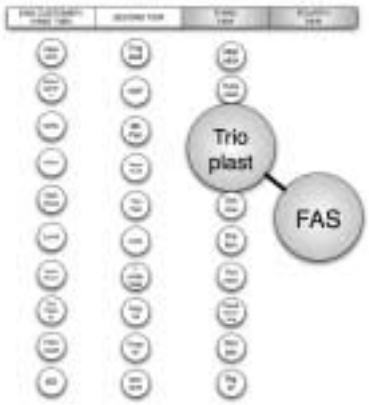


Figure 19. FAS vs Trioplast

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-2	**B1**-the number of suppliers is few.	1
S2-the supplier lacks relevant information about the buyers	G-1	**B2**-the supplier's offering is relatively unique.	1
S3-the buyer has a large market share of the supplier's total market.	0	**B3**-the supplier's product has great impact on the profit.	G-1
S4-the supplier's switching cost is high	G-0	**B4**-the buyer has little relevant information about the suppliers.	0
S5-a social binding exists.	0	**B5**-the buyer's switching cost is high	1
S6-the buyer's account is attractive to the supplier	2	**B6**-a social binding exists.	0
S7-an agreement exist	0	**B7**-the distance to the supplier is short and matters	1
S8-the size of buyer is large	3	**B8**-an agreement exist	0
Total Supplier Score (max 24)	8	Total Buyer Score (max 24)	5
Relative Power (=Tot score supplier – buyer)	+3	Interdependence Score (=Tot score supplier + buyer)	13
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 20. The Power Relation Model applied on the relation FAS and Trioplast

Motivations:

- **B1, B4** - Trioplast is a big actor with a good understanding of the global market and knows very well which suppliers of converting machines that is available. Thereby B4 is rated as 0. Even though Trioplast's requirements on the suppliers are high there are still many suppliers to choose from which make Trioplast dependent on FAS to a small extent and thus B1 ranked as 1.
- **B2** - For Trioplast, FAS's offering is not unique, since Trioplast knows many machine suppliers that can perform the same thing as FAS's machines can or even better. As a result Trioplast is only dependent to a small extent and ranked as 1.
- **S3** - Trioplast is a small customer to FAS, of the machines that has been sold totally in the history on the Swedish market only a few are sold to Trioplast, so its impact on FAS total market is insignificant and ranked as 0.
- **S5, B6** - A social binding does not exist in the relation; Trioplast is not willing to invest in the relation because FAS is not included in Trioplast's future plans. Even though FAS is interested in improving its contact with

Trioplast, FAS confirms that the relation is infrequent at the moment and this parameter is therefore ranked as 0.

- **B5** - Trioplast posses much technical experience concerning the machines that makes them very independent from the machine suppliers. When Trioplast chooses its supplier it is primary based on an already existing in-house design of a product line. The decision depends on how well the machine is designed for Trioplast's description of its needs. Therefore, even if it prefers few suppliers of machines it does not cost Trioplast that much to change to a new supplier because of their technical experience. This parameter is therefore ranked as 1.
- **S6** - Trioplast is one of the bigger producers of garbage bag on the Swedish market and consider itself market leaders in the Swedish market. This fact has also been confirmed by other producers and distributors, which often mention Trioplast as the biggest player. Trioplast is also active on other markets around Europe which make it a big potential customer and a customer that possess much information about trends and news about other markets. This reasoning results in that it is very attractive for FAS to supply Trioplast with machines. FAS has the possibility to sell many machines because of Trioplast's size and get a good reputation for supplying a producer which is positioned as a market leader. For that reason it is ranked as 2.
- **S7, B8** - No agreements in writing exist between them and are ranked as 0.
- **B7** - As mentioned above, the contact with the machine suppliers is not so frequent because of their own technical competence and therefore the distance to the suppliers is not that important for Trioplast. But even though the distance tends to decrease in importance thanks to the better international logistics, spare parts can still be sent faster if the distance is shorter and the contact is easier to cope with. Hence, this parameter is ranked as 1.
- **S8** - Trioplast is a big garbage bag producer in Sweden and has also large production plants abroad therefore the parameter is ranked as 3.

The dyad analyse shows that FAS is more dependent on Trioplast and no interdependence exists.

5.1.2 The relationship between a producer and a distributor

In the next dyad The Power Relation Model 2 is used to analyse the relations between the third and the second tier. Every parameter except for two will be described and analysed for each dyad. The two excluded parameters are; *the number of buyers is few*, and *the buyer has high operational control upon the supplier*, these parameters are considered as general and will be discussed below.

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer lacks relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exist		**B6**-a social binding exists	
S7-the buyer has high operational control upon the supplier	G-0	**B7**-an agreement exist	
		B8-supplier has great influence in the buyer's logistics	
Result before weighted		**B9**-supplier's account is attractive to the buyer	
Total Supplier Score (max 27)		Total Buyer Score(max 27)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 54** Total interdependence exists in the relation **If interdependence Score >= 27** Interdependence exists to some extent **If interdependence Score < 27 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 21. The Power Relation Model 2 with the generalised parameters.

From the empirical research it has been shown that the numbers of buyer are many. This is the case for both small and big players. Therefore the parameter *the number of buyers is few* is ranked as 0.

In the Swedish market today the distributors do not have any particular operational requirements or control on the producer and therefore the parameter *buyer has high operational control upon the supplier* is ranked as 0.

Trioplast vs Papperskedjan

The second illustrated example shows the relation between a garbage bag producer and a distributor. Because the supply chain of Trioplast can be of interest to follow the relation between Trioplast and Papperskedjan has been chosen to exemplify the relation between the two tiers.

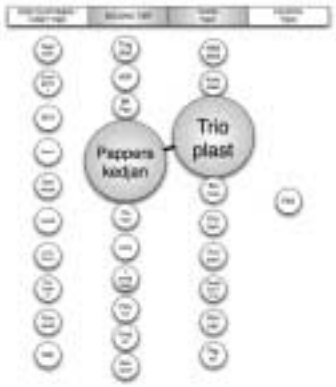


Figure 22. Trioplast vs Papperskedjan

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	0
S2-the supplier lacks relevant information about the buyers	1	**B2**-the supplier's offering is unique	1
S3-the buyer has a large market share of the supplier's total market.	1	**B3**-the supplier's product has great impact on the profit	0
S4-supplier's switching cost for changing buyer is high	2	**B4**-the buyer lacks relevant information about the suppliers	1
S5-a social binding exists	2	**B5**-the buyer's switching cost for changing supplier is high	1
S6-an agreement exist	1	**B6**-a social binding exists	2
S7-the buyer has high operational control upon the supplier	G-0	**B7**-an agreement exist	1
		B8-the supplier has great influence in the buyer's logistics	0
Result before weighted	7	**B9**-supplier's account is attractive to the buyer	0
Total Supplier Score (max 27)	9	Total Buyer Score (max 27)	6
Relative Power (=Tot score supplier – buyer)	+3	Interdependence Score (=Tot score supplier + buyer)	15
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 54** Total interdependence exists in the relation **If interdependence Score >= 27** Interdependence exists to some extent **If interdependence Score < 27 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 23. The Power Relation Model applied on the relation Trioplast and Papperskedjan

Motivations:

- **S2 -** It is hard to say how much relevant information Trioplast has about its buyers but it seems to have relatively good information about its big customers and is therefore ranked as 1.
- **S3 -** Papperskedjan is one of Trioplast's big customers, but the number of big customers are relatively many, and therefore could Papperskedjan's share of Trioplast's sales not be considered as large and is ranked as 1.
- **S4 -** Because Trioplast mostly work with large customers there would be a gap to fill if Papperskedjan started using another supplier so the switching cost is significant and ranked as 2.
- **S5, B6 -** There is a social binding between Trioplast and Papperkedjan. Trioplast claims that it has stable and close relations with its suppliers. It does not point out any customer relation, but in the interview with Papperskedjan Ekström says that Trioplast is very service minded, which can be considered

as a social binding of good extent. Therefore both Trioplast and Papperskedjan have some social binding to each other and is ranked as 2.

- **S6, B7** - There is no information that indicates that there are any agreements more than that the prices are set every month. Therefore Trioplast and Papperskedjan are dependent on each other to a little extent and ranked as 1.
- **B1** - Since Papperskedjan uses two of the larger producers of garbage bags and know that there is a possibility to import it considers itself to have many suppliers to choose from. This parameter is therefore ranked as 0.
- **B2** - It does not seem like Papperskedjan thinks that Trioplast's offering is unique because it mostly buys standard products and therefore it is only dependent to a little extent and ranked as 1.
- **B3** - Ekström says that Papperskedjans margins are poor when it comes to garbage bags and the garbage bag only constitutes for four per cent of Papperskedjan's total turnover. Consequently, the purchasing of Trioplast's garbage bags does not impact Papperskedjan's profit, as a result it is ranked as 0.
- **B4** - It is hard to tell if Papperskedjan has relevant information about the suppliers but Ekström says that it is able to negotiate low prices towards Trioplast. The overall impression is that Papperskedjan has good information and is therefore dependent on Trioplast to a little extent and ranked as 1.
- **B5** - Because Papperskedjan mostly buys standard products there are other suppliers that can fill the gap if it looses Trioplast as a supplier and is only dependent on Trioplast to a little extent and ranked as 1.
- **B8** - It does not seem like Trioplast has an insight into Papperskedjans logistics and therefore Papperskedjan is not at all dependent and ranked as 0.
- **B9** – Trioplast's account does not seem to be attractive to Papperskedjan and is therefore ranked as 0.

The dyad analyse shows that Trioplast depend to some extent on Papperskedjan and no interdependence exists.

5.1.3 The relation between a distributor and a niche distributor/end-user

The Power Relation Model 3 is used to analyse the relations between the second and first tier. The parameter *the buyer has high operational control upon the supplier* is not relevant in this relationship, because it is only important when there is a producing actor involved. The parameter that was general in the previous relationship, the number of buyers is few, is also general in this case and is discussed below.

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer has little relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exist		**B6**-a social binding exists	
		B7-an agreement exist	
Result before weighted		**B8**-the supplier has great influence in the buyer's logistics	
Total Supplier Score (max 24)		Total Buyer Score(max 24)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 &&** **Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 &&** **Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 24. The Power Relation Model 3 with the generalised parameters.

The number of buyers is few parameters are ranked as 0 because the number of customers is many for the distributors. The distributor does not think that one end-customer is more important because of its brand or image, the distributors just want to sell as much as possible.

Papperkedjan vs Malmö municipality

To follow Papperskedjan's supply chain, the relation between Papperskedjan and Malmö municipality will illustrate the last relation.

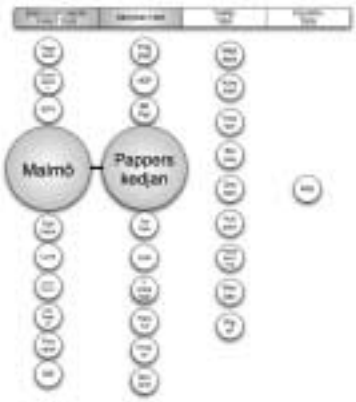


Figure 25. Papperskedjan vs Malmö municipality

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	3
S2-the supplier lacks relevant information about the buyers	1	**B2**-the supplier's offering is unique	2
S3-the buyer has a large market share of the supplier's total market.	1	**B3**-the supplier's product has great impact on the profit	0
S4-the supplier's switching cost for changing buyer is high	1	**B4**-the buyer lacks relevant information about the suppliers	3
S5-a social binding exists	0	**B5**-the buyer's switching cost for changing supplier is high	2
S6-an agreement exist	2	**B6**-a social binding exists	0
		B7-an agreement exist	2
Result before weighted	5	**B8**-the supplier has great influence in the buyer's logistics	2
Total Supplier Score (max 18)	7	Total Buyer Score (max 24)	14
Relative Power (=Tot score supplier – buyer)	-7	Interdependence? (=Tot score supplier + buyer)	21
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

Figure 26. The Power Relation Model applied on the relation Papperskedjan and Malmö municipality.

Motivations:

64 (107)

- **S2** - It seems like Papperskedjan has rather good information about its customers because it often sells a package of products to those and is ranked as 1.
- **S3** - Garbage bags are bought together with paper products like paper-towels and toilet paper but because Papperskedjan has many big customers, Malmö has a relatively small market share. The parameter is ranked as 1.
- **S4** - The argument above can also be used when discussing the switching cost for Papperskedjan and is therefore ranked as 1.
- **S5, B6** - There is no social binding between Papperskedjan and Malmö and according to Malmö there is not much contact at all. The parameter is therefore ranked as 0.
- **S6, B7** - There is definitely a contract between them, because all procurement in the public sector needs to be handled through a contract. The contract between the participants runs for two years. As a result both parts are dependent on each other to a good extent and is ranked as 2.
- **B1** - After interviewing a couple of public organisations it seems like there are not so many suppliers that can compete with Papyrus, Papperskedjan and Procurator. In addition to this Papperskedjan has been acquired by Procurator, so the competition is even more insufficient. Consequently Malmö is totally dependent and is ranked as 3.
- **B2** - The offering that Papperskedjan sells to Malmö could be considered as relatively unique, because of the competition discussion above and the overall solution that Papperskedjan is offering. As a result Malmö is dependent to a good extent and is ranked as 2.
- **B3** – Because Malmö's procurement from Papperskedjan is a small amount of total procurement, Papperskedjan has a very low impact on Malmö's profit. Thererfore this parameter is ranked as 0.
- **B4** - Malmö has little knowledge about prices on garbage bags and says that it is the suppliers' responsibility to see that the prices are right. This means that Malmö municipality is totally dependent and is ranked as 3.
- **B5** - Because municipalities have to use a public procurement process there is some cost connected to set up a specification, which results in switching cost if changing supplier. Therefore Malmö is dependent to a good extent and ranked as 2.
- **B8** - Papperskedjan has some insight into Malmö's needs because of the specification and contract that is used. Therefore Malmö is dependent to a good extent and ranked as 2.

The dyad analyse shows that Malmö is depend on Papperskedjan and no interdependence exists.

5.2 Analysing the whole network

The Power Relation Model results are analysed and the whole network is illustrated in Figure 27. The power situations within each dyad is shown in Appendix A. Then the critical assets and Cox theories of Business success are analysed.

5.2.1 The mapping of the Swedish garbage bag industry

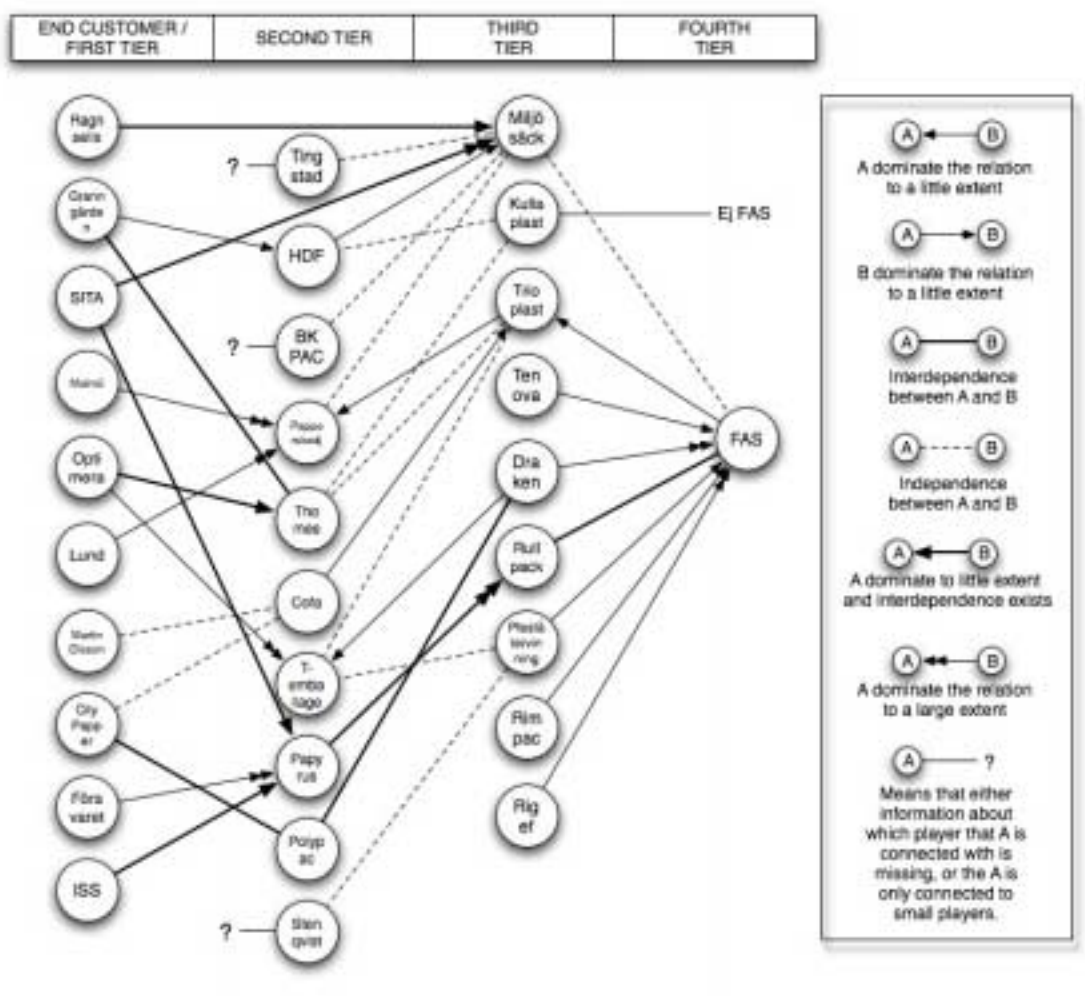


Figure 27. The Mapping of the Swedish garbage bag industry

The relation between FAS and the producers

Most of the relations between FAS and the producers are characterised by dependence to some extent and only one relation is considered as independent. The relations are not considered as very interdependent; only one relation could be classified as interdependent. The lack of interdependence in the relations can be explained by a number of reasons. First, it is important to remember that for many producers the garbage bag production is a very small part of the total business, which makes the converting machine suppliers less prioritised by the producers. FAS is also located in a rather unique position in the supply chain (see **Figure 1** in the Introduction) from raw material to end-user and the converting machine is not considered very important for the producers. Both raw material and extruding machines are much more important for the production. Another thing that contributes

to the lack of interdependence in the relations is the type of product that FAS offers. The producers buy new machines very seldom and therefore a close relation is not prioritised by the producers. Consequently the contact becomes limited.

Although there is no relation with significant interdependence it is possible to distinguish different degrees of interdependence in the relations. The relation that is most characterised by interdependence is the one between FAS and Rullpack where the result shows interdependence to some extent. This relation has grown over the years and by mutual understanding and collaboration the companies have developed successfully. This is reflected below in the result concerning the power situation, because none of the actors dominates the relation. The reason why interdependence exists also depends on the facts that Rullpack is FAS's absolutely largest customer in terms of machines sold in the Swedish market, and that FAS is Rullpack's main supplier of converting machines.

The information issue is a very interesting phenomenon in this relation because Rullpack is a big and successful producer of garbage bags with a good reputation. Therefore it would be valuable for FAS if it could look at the production and show it to other potential customers. Because Rullpack is restrictive with sharing information about the production and does not let FAS into the production site, FAS cannot take as much advantage of the relationship. If this would not be the case the parameter about the importance of the buyer's account would raise and consequently the dependence would increase for FAS. Also Rullpack's dependence would increase because FAS would then be able to design machines that attract Rullpack to a greater extent. Thereby, both actors could benefit from increased interdependence.

Concerning the power situation in the relations it is clear that the small producers of garbage bags are more dependent to FAS than the bigger producers. The dependence degree increases when the amount of garbage bag production decreases. FAS's relations to the small producers of garbage bag are neither very interdependent. Rigef, Draken and Tenova produce the least amount of garbage bag and are also the producers that are most dependent to FAS. Though, the reasons why they are dependent differ nevertheless. Rigef's and Draken's dependence are based on the fact that they have a small production of garbage bags. Its' information about available suppliers are not as widespread as for the big producers of garbage bags and those are satisfied with the FAS machines, which they bought several years ago. This is a good example of were *path dependence* exists, because the producers are familiar with the machines and the production is adjusted to fit the machine, which makes it harder to change now. At the same time FAS sees limited potential because of the producers' product focus which decreases the possibility that the producers buys new machines in the foreseeable future.

Tenova is on the other hand not dependent on FAS because of a long history the players have together. Instead, the good relation that exists today with much exchange of ideas and support. Tenova, which focuses on biodegradable bags, has also experienced great economic growth during the recent years and is believed to

continue grow considering the environmental hype of today. It is remarkable that FAS's score is not higher in this dyad concerning Tenova's probable good outlook for the future. Even though the machines does not need to be totally redesigned when using biodegradable materials it is likely to believe that the machines needs some new features to work perfectly. If the biodegradable materials get its' breakthrough FAS has a good chance to develop these features faster than its competitors if it has a good collaboration with Tenova. The reason for FAS's low score could either be that the model is insufficient regarding a future perspective or because FAS has not prioritised this producer.

Rimpac's turnover in garbage bag is approximately 750 tons, which make Rimpac bigger than the supplier mentioned above. The dependence to FAS is not so significant either. Another player that is dependent on FAS to the same extent is Plaståtervinning. Though, Plaståtervinning has a larger production of garbage bags than Rimpac. The degree of interdependence is not high in these relations because the business and social contacts are not so frequent. Instead, the historical aspect is of great importance for the power situation in the relations. FAS's machines have been represented at these companies for a long time and made lasting impressions. It is interesting to acknowledge that the relative power in the analysis has been similar despite that the companies' plans for the future are quite different; Rimpac does not express any interest in expanding the garbage bag production in the future, whereas Plaståtervinning has been very expansive the last couple of years and are more interested in growing. Once again the model can be questioned for not taking the future into enough consideration.

Besides, Rullpack, Trioplast and Miljösäck are big producers of garbage bags but its' relationship to FAS differ. In the analysis of Miljösäck, the relative power is below the limit for a significant result, which leads to that none of the players dominate the situation. Instead, the parties are independent from each other. Miljösäck has several suppliers of converting machines and has also good information about which suppliers that are available. This makes Miljösäck less dependent on FAS. The social contact with FAS is good but not very tight. Because of Miljösäck's rather big size in the Swedish market it might be appropriate for FAS to work on the social contact to increase the chance of getting transactions with them in the future.

Trioplast is the only producer that FAS does not have the relative power over. This is because of Trioplast's size, which makes the potential amount of bought machines big for FAS. Trioplast also has a huge knowledge about machine technique and available suppliers that make it more independent from its machine suppliers compared to the competitors. Trioplast think itself as market leader in Sweden. It also has production sites in foreign countries, which make it an even more attractive customer for FAS. It does not exist interdependence in this relation that can be considered as unfortunate for FAS, but according to Trioplast this depends on how the relation has developed over the last ten years. Trioplast does neither think that FAS has improved in the same pace as FAS's competitors and nor has FAS been willing to cooperate enough with Trioplast. This perception is something that FAS must erase in order to establish a good relation in the future.

Kullaplast is not a customer to FAS today but produces some amount of garbage bags; its production is fairly equal to Draken's production size. Kullaplast could be a potential customer to FAS in the future but right now the garbage bag production is not something that the company expresses that they want to expand, despite the huge need on the market which Kullaplast has detected.

A last reflection concerning these relations is that all producers except the big garbage bag producers are dependent to FAS. FAS's relation with Miljösäck is independent; the relation with Rullpack is interdependent and the relation with Trioplast is dependent.

The relation between the producers and the distributors

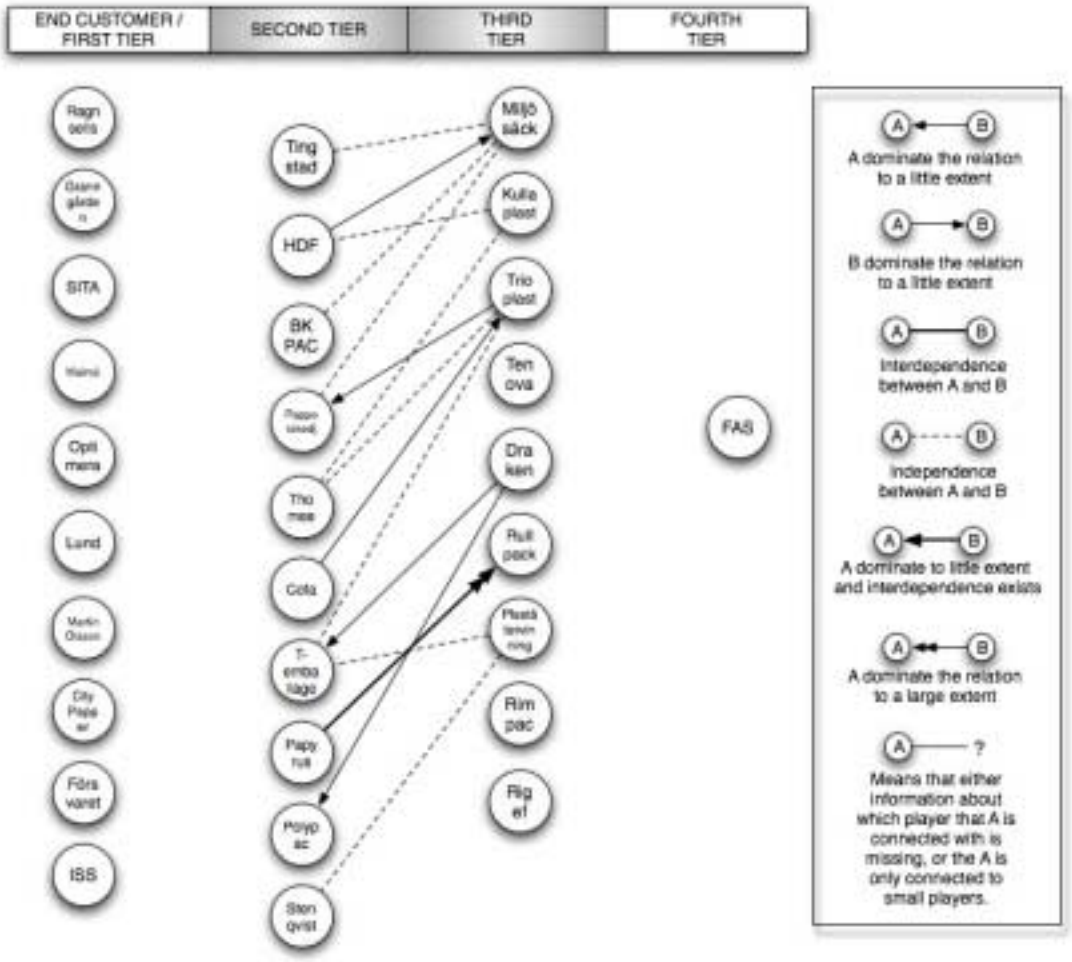


Figure 28. The relation between the producers and the distributors.

In this the relation the complexity enhances because many distributors buy from several producers and some big end-users skip the distribution tier and buy directly

from the producers but these two divergent relations will be discussed in the next part of the analyse. One interesting observation that has been made in the relation between the producers and the distributors is that the independent relations dominates, 9 out of 15 relations are independent. The other seven relations are characterised by either dependence and/or interdependence.

The big amount of independent relations can be explained by the properties of the garbage bag, it is considered a very simple product with very few new demands and changes of design. The distributors take very little notice to the products and focus mostly on good price and decent quality. This makes a close contact with the producers less important and more standardised for the distributors. Many of the producers do not engage so much in the relations because the garbage bag has low priority compared to its' other products. Also because the innovation degree on the design of the garbage bags are so small the producers are more eager to have a good relation with the raw material suppliers to develop thinner bags but with the same strength as today. If the market more often demanded design changes, the producers would be forced to have a deeper contact with its' distributors to absorb the new consumer demands.

The producers that have interdependent or dependent relations with its distributors are Draken, Miljösäck, Trioplast and Rullpack. Draken is a small player with a business concept that focuses on tailor made solutions for its customers. This is also something that is evident when analysing the relations to its' customers. Interdependence exists in both the examined relations and Draken seems to have found a suitable niche as a complement supplier of garbage bag with smaller volumes and by fulfilling special demands. It has also been shown that Draken rather invest in its present customers instead of getting new customers.

Polypac and T-Emballage buys a big part of Draken's garbage bag assortment and also many other products, which makes them important customers to Draken. The analyse shows that Draken is dependent on T-Emballage whereas neither part dominates the relation between Draken and Polypac. The biggest reason for this difference in the relations is that Draken has high switching cost for changing buyers which makes it dependent to T-Emballage while T-Emballage has several suppliers of garbage bags and thus not are as dependent on Draken. The degree of interdependence is also more significant in the relation with Polypac, which is natural because, Polypac like Draken, emphasises deep and long-ranged relations.

Unfortunately the other small producers of garbage bag were not interested in revealing its' customers, which makes it hard to say if they have similar relations to their customers. The interview reveals that Rigef also works with customised garbage bags in small volumes but did not focus on the deeper long-range relations. Rimpac tries to have a good connection with its customers but the relations are not long-ranged and it did not work much with tailor made solutions either. Tenova did not have any particularly big customers concerning garbage bags, which make it less interesting.

Miljösäck has both independent relations and relations where it dominates the relation. The relations with Tingstad Papper and Papperskedjan are independent. These actors are big customers to Miljösäck but have both good information about available suppliers and the garbage bag is only a small fraction of its' assortment. Another thing that supports the independence in these relations is the fact that the distributors have more than one supplier to choose from; Tingstad Papper for example even has suppliers abroad.

The independence in the relation with BK PAC can be explained by the fact that it is a small customer to Miljösäck and not worth giving too much attention. HDF does not have an interdependence relation with Miljösäck because it only buys small quantities from Miljösäck and because the product only is seen as a complement and HDF does not take much interest in the relation. HDF is nevertheless slightly dependent to Miljösäck since it lacks knowledge about other suppliers and because of the fact that Miljösäck is associated with environmental care.

Trioplasts has two relations that are independent, the relations with Thomee and T-Emballage. Thomee is a very small customer to Trioplast and Thomee buys most of the garbage bags from another supplier. Because none of the participants are particularly interested in the relation, no deeper social binding exists and the degree of interdependence is low. T-Emballage is one of Trioplast's bigger customers and the degree of interdependence is consequently higher in this relation even though it is far from an interdependent relation. T-Emballage is not dependent on Trioplast because it has several suppliers and also has good information about the available suppliers.

In the relation with Papperskedjan Trioplast is slightly dependent because it is a fairly important customer to Trioplast that does not consider Trioplasts offer particularly unique. The relation is not very interdependent; none of the actors are involved to a high degree in the relation because many similar relations exist for both actors.

The relation with Cofa is tight and is close to be characterised as an interdependence relation. This is because both parts are important to each other; Cofa buys a lot of garbage bags from Trioplast. The reason to why Trioplast dominates the relation depends to a great extent on the fact that Cofa does not feel that there are any good alternatives to Trioplast as a supplier and that the relation has a long history which is important to Cofa.

The last big producer of garbage bags is Rullpack, which has a unique connection to its distributor. Since Rullpack only has one really big distributor, Papyrus, the relation between them is significantly interdependent. Rullpacks bag quality is quite unique which is widely known in the market, many refer to the bags as the Rolls Royce of garbage bags. Therefore Rullpack dominates the relation with Papyrus. To end this relation would be bad not only for Papyrus but also for Rullpack because Papyrus has a huge clientele which would be hard and take time for Rullpack to build up on its own.

Plaståtervinning is like Miljösäck unique compared to other producers because it handles the whole production process from plastic waste to a complete garbage bag. This fact is not very important for the distributor relations which have been analysed and therefore the relations are characterised by independence. Plaståtervinning does not have that many big customers either and does not want to have a very close contact with its customers. Also the distributors Stenqvist and T-Emballage express that garbage bag is not that important and that there are many suppliers to order from. T-Emballage also has many suppliers to choose from which make them less dependent to Plaståtervinning.

Kullaplast is HDF's and Thomee's main supplier of garbage bags and this is also shown in the analysis where these relations have a higher degree of interdependence even though it still is classified as independent relations. The distributors think there are few good suppliers of garbage bags to choose from with the same good quality that Kullaplast can offer. Despite delivery problems the distributors have no plans on terminating the relation. Probably the price that Kullaplast offers is very reasonable because according to Kullaplast it does not make any profit on the garbage bags. Thomee has recently acquired HDF which might influence the relation to Kullaplast but because the relations are independent and neither Kullaplast nor the distributors take any deeper interest in the relations the independent situation will likely continue.

A finishing reflection concerning these relations is that of the dependent relations the big producers of garbage bag dominates most of these relations with the distributors.

The relation between distributors and niche distributors/end-users

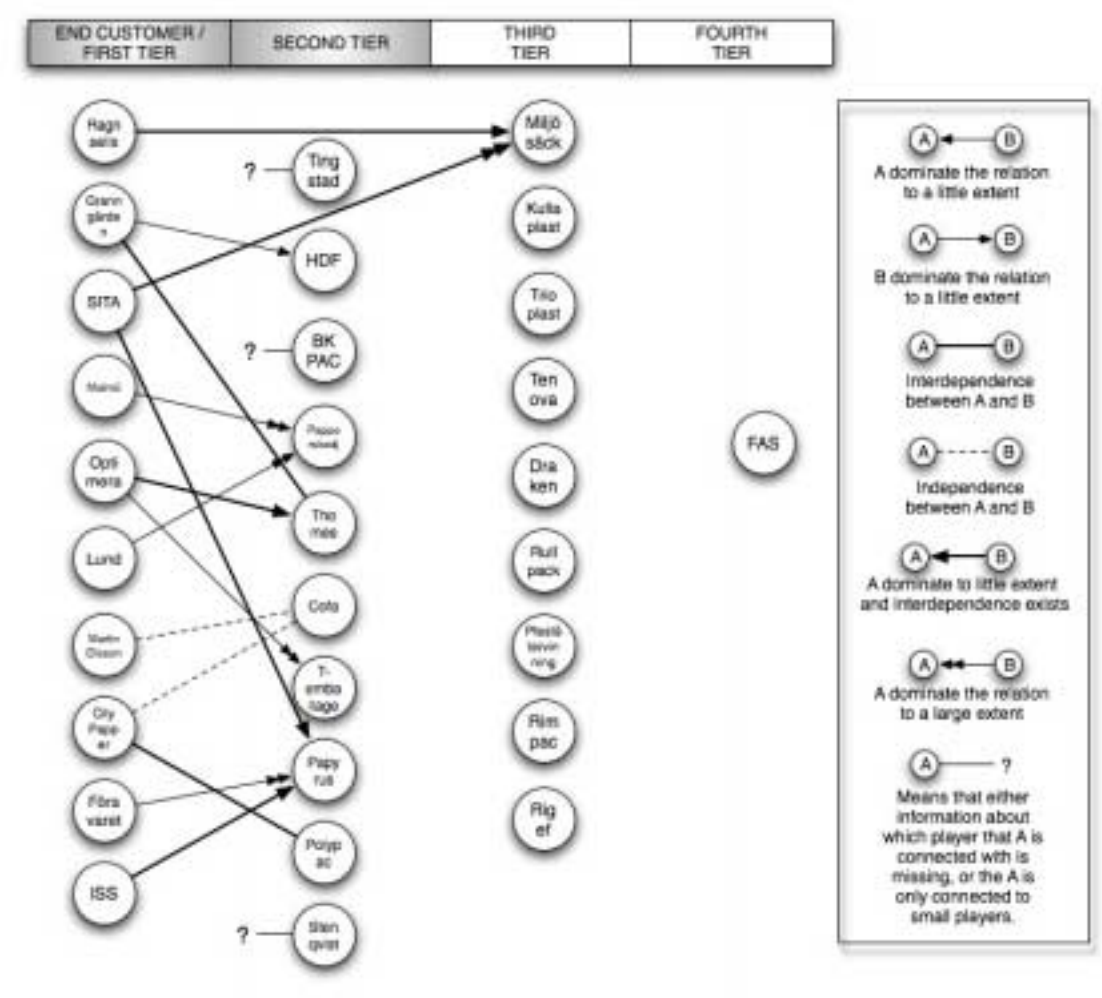


Figure 29. The relation between distributors and niche distributors/end-users.

The relations between the distributors and the end-users are more characterised by interdependence compared to the other parts of the relation analyse. The distributors' dominance is very significant in these relations; in 10 out of 14 relations the distributors are dominant. In these relations the distributors sell to end-users, niche distributors and chains of builders' merchants. End-users are Ragnsells, Sita, Malmö municipality; Lunds municipality, Försvarets materialverk and the cleaning company ISS. Note that Ragnsells and Sita also buys directly from the producers. The chains of builders' merchants are Granngården and Optimera. The remaining companies are distributors with a special niche.

Two independent relations exists which is in Cofa's relations with Martin Olsson and Citypapper. The independence situation in these relations depends mainly on the fact that both Martin Olsson and Citypapper are small customers to Cofa and use other

suppliers as well; naturally the social contacts between those are undeveloped. One of Citypapper's other suppliers are Polypac which it has a very close relation to. It is built on a very deep personal relation and Citypapper also contributes a great deal to Polypacs turnover. The relation can consequently be described as very interdependent where none of the players dominate the relation.

Granngården, which today has many different suppliers, has a good relation to Thomee where interdependence can be acknowledged, but none of the parties dominates the relation. The interdependence situation exists because the two parties do much business with each other and has a good social connection. HDF is also a supplier to Granngården where HDF dominates the relation to a little extent, because Granngården does not have any centrally organised purchasing department for garbage bags. The interdependence is not as evident between Granngården and HDF because of fewer transactions within the participants compared to the relation between Granngården and Thomee. Earlier HDF was one of Thomees biggest competitors but recently Thomee has acquired HDF, this can in the future lead to a more dominant position for ThomeeHDF in it's relations because of it's size.

Optimera has also a relation to Thomee which is dominated by the distributor and where interdependence exists. Optimera does not see as many supplier alternatives as Granngården did and think it is important with a long and close relation to the supplier. Optimeras relation to T-Emballage is also dominated by the distributor because Optimera does not posses very much information about the supplier. But unlike the other relations this one is not considered interdependent because T-Emballage's engagement is lower in the relation.

The municipalities Lund and Malmö are using Papperskedjan as a supplier and in both cases the municipalities are dependent to Papperskedjan. The relations to the distributors are not much interdependent because the procurements are regulated by law and must be preceded by a public procurement process and therefore the social contacts are quite passing between the parties. The distributors dominate the relations because it is of great importance for the municipalities to have distributors with a broad assortment and which can handle big volumes. This makes the number of distributors few to choose from for the municipalities. Papperskedjan and Papyrus are primary distributors in question. The municipalities' information about the products is not very extensive either.

The two end-users ISS and Försvarets materialverk are both dependent on Papyrus. Even though these companies purchase a considerable amount of garbage bags from Papyrus it still constitutes for a tiny bit of Papyrus total sale that gives the distributor a dominant position. The special kind of bags that Papyrus offers are also considered quite unique for the end-users, which make them more dependent. Försvarets materialverk's bigger dependence can derive from its small supplier knowledge and the market of garbage bags compared to ISS. Both relations are characterised by interdependence mostly because the contact is tight and good between the parties. Papyrus also has a relation to Sita where it dominates the relation because of Papyrus unique offer and Sita's lack of information. The relation is tight between the actors, which also is reconsidered in the analysis of the relation.

The waste management companies Sita and Ragnsells buys garbage bags directly from Miljösäck and are big customers to Miljösäck. This also reflects the analysis of the relations, which shows that interdependence exists in both relations. The contacts are good and prioritised by both parties and they have good insights in one another's business processes, not least because Sita and Ragnsells sometimes supplies Miljösäck with plastic waste. Miljösäck dominates the relations because the waste management companies have high demands on the production process. Ragn-Sells for example say that Miljösäck is one of few producers that can fulfil its demands and the garbage bag is an important product for it not least in a strategic way.

A finishing reflection concerning these relations is that of the dependent relations the distributors dominates the relations with the end-users and niche distributors.

5.2.2 Critical assets and appropriate value

The power is discussed in the theory as the ability to own and control the critical assets in the market and the supply chain. The critical assets have been mentioned in a general way above (size of player, distribution channels, differentiation, etc), but it will be discussed more specifically in this section. Afterwards, the power in the supply network will be handled. According to the theory, the players that have the power are the players that have the capacity to earn sustainable rents.

Many characteristics exist for the different players, but not so many attributes are critical assets. The critical assets are defined in the theory, as the resources within a supply chain that are *scarce, highly valued by many players* and *hard to replicate*.

The different critical assets in the investigation are shown in Figure 30. The empirical research has shown that FAS's brand is an important asset. In the Swedish market some of the players think that FAS is unique because of good technical knowledge and machines that have high quality and long lifetime. This opinion has been very strong among the producers historically but lately one of the big producers has expressed their doubts about FAS as a potential supplier for the future. The critics mean that FAS does not live up to its historical reputation today and that FAS's development has come to a standstill. Still, the FAS brand is experienced as *scarce* for many players in the Swedish market, even when taking the competing international brands in consideration. These players mean that FAS *creates value* for its production thanks to the machines associations to characteristics mentioned above. To build up a brand for machines takes time, especially in the garbage industry where the information transparency is relatively low, therefore the FAS brand is *hard to replicate*. Even if the strength of the brand has eroded lately it can still be considered a critical asset.

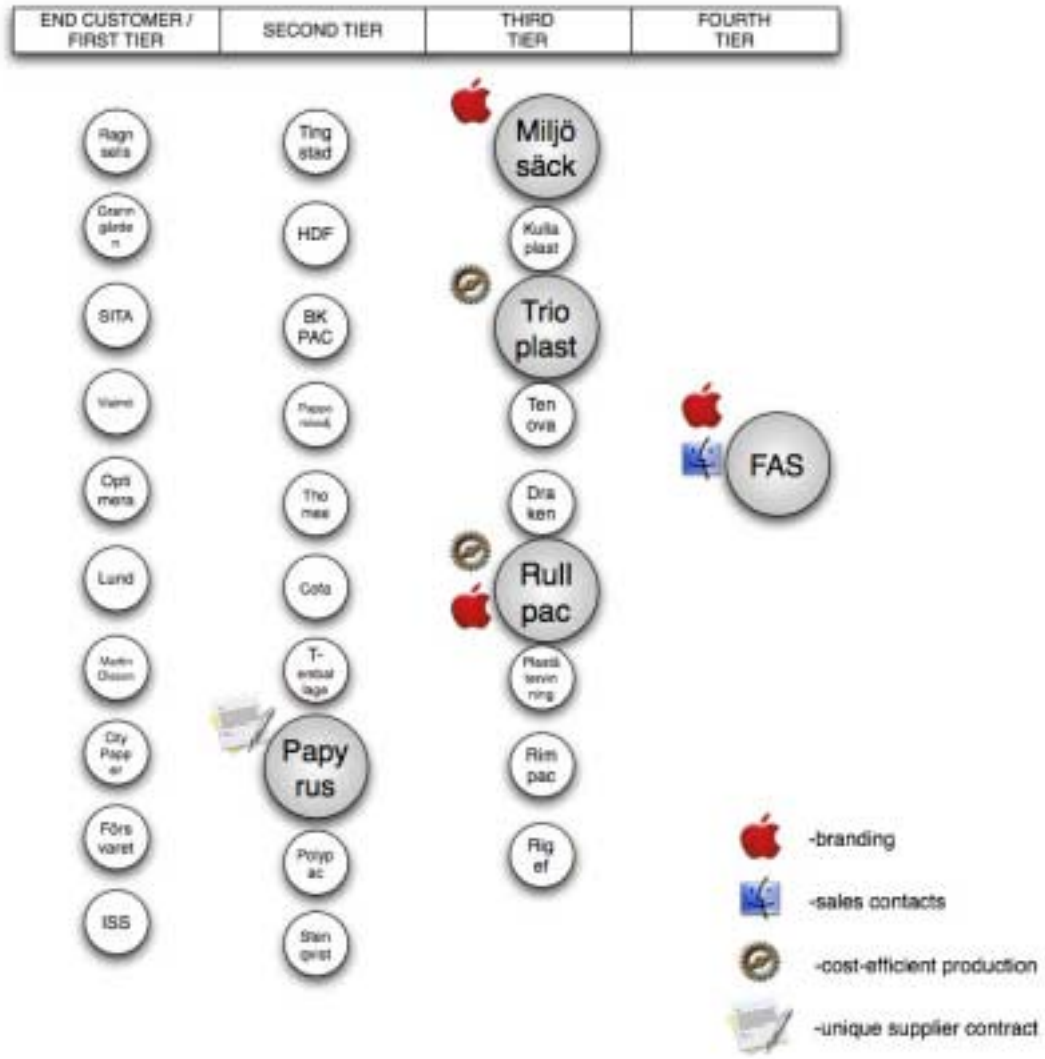


Figure 30. The players' critical assets in the garbage bag industry

The sales connections that FAS has could also be considered as a critical resource, because of its width and depth. FAS's sales connections reach many of the global garbage bag producers, a large majority of the Swedish market and the relations are in some cases very close. To achieve comprehensive sales connections like FAS has takes a long time, especially in a business where a new machine is bought very seldom. The sales contact could therefore be considered as *hard to replicate*. Compared to FAS's geographically closest competitor, Roll-o-Matic, FAS sales connections are much better according to the interviewed producers; it could be considered as *scarce*. Of course, the sales contact is vital for the sales, and thereby *valuable*.

In the next tier both Miljösäck's and Rullpack's brands are considered to be critical assets, but for different reasons. Many distributors choose Miljösäck because it is able

to strengthen its environmental profile towards their customers. This makes Miljösäck's brand *valuable* for the customer. The asset is also *scarce* in the industry with such aggressive environmental differentiation. The time its take to build up a similar environmental brand make the asset as *hard to replicate*. Rullpack instead, has a quality of the bag that is associated with its brand. Different colours inside and outside of the garbage bag (most often blue and white) is by users most often associated with high quality and the people with knowledge about the garbage bag business knows that this type of bag comes from Rullpack. The quality touch of the brand makes the asset *valuable*. Also the quality differs from the market, and become therefore *scarce*. The production that Rullpack has built up is complex and *hard to replicate*.

Production efficiency is a critical asset that has been identified at both Rullpack and Trioplast. Both players produce large volumes of garbage bags and its' production processes are very efficient, which make it *hard to replicate*. Trioplast designs all its production lines in-house and posse's high technical knowledge compared to other producers. Rullpack on the other hand does not let any outsider into their production site, but according to Peter Håkansson at FAS and other interviewed people in the business its production is extremely efficient. These two are the only players at the Swedish market with this kind of efficiency and therefore the production could be considered as *scarce* asset. It could also be considered as *valuable* for other players.

Among the distributors it is hard to find any critical assets. An asset that has been identified as *valuable* is the ability to offer the customers a complete selection as possible, a broad assortment. However, many distributors can do this today, and therefore this asset cannot be considered as *scarce*. But one critical asset that Papyrus has is the contract with the dominating producer Rullpack. It is *valuable* because it enables Papyrus to offer its customer a great deal, garbage bag with an exceptional quality. It is also *scare* and *hard to replicate* because Papyrus possesses the only contract with Rullpack

According to Munson et al. the relation between players are often asymmetric and the player that can influence the other players in a supply chain is considered to be the channel leader. The channel leaders in the supply network can according to the dyad analyse be identified and this shows that the most significant channel leaders are the producers Miljösäck and Rullpack, and the distributors Papperskedjan and T-Emballage. As showed in Figure 31, these players dominate the relations and thereby have power advantages. Less significant channel leaders with some power are the machine supplier FAS and the garbage bag producer Trioplast.

According to Cox the companies that possess an advantageous position have also the capacity to earn sustainable rents.

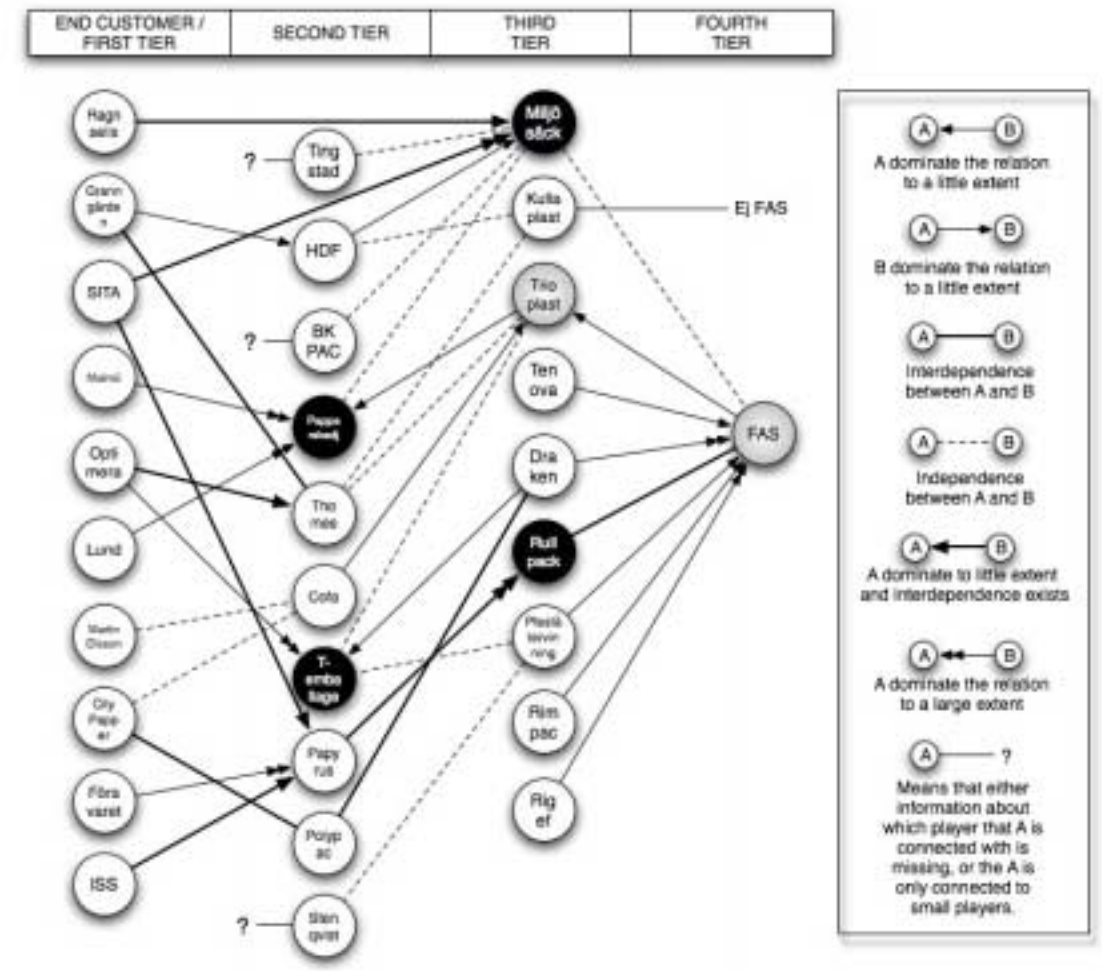


Figure 31. The Mapping of Channel Leaders

This is not the same as saying that the players do earn sustainable rents. As could be interpreted from the empirical research the tiers closest to the customers have the best ability to appropriate value in the supply network. Therefore, when comparing the located channel leaders with the empirical studies, the players that earn money differ. The reasons for this could be several. First of all Cox's reasoning that all players with power wishes to appropriate value from other participants in the supply network might not be true. Instead, the companies focus on creating value together with its closest participants (e.g. supplier, buyer, and customer) via long-term relations.

A second reason that could explain the difference in the situation is that the appropriateness thinking could not be applied in practice, because the garbage bag producers do not prioritise the product enough. For example certain distributors use the garbage bag to attract customers to buy other products that the customer needs.

Further, the difference between the empirically declared margins and the potential rents to be earned could be explained by either that the Power Relation Models are not perfectly designed, or that the empirical research is not performed accurately enough. Some information might be experienced as sensitive for interviewees and therefore not revealed.

Last but not least, another possibility is that the market is not balanced today. The players that dominate the supply network have the ability to appropriate value. Today according to the empirical studies, all these players do not appropriate value. This could be explained by lack of information transparency in the supply network. If this is the case it is likely to be changed in the foreseeable future which enables opportunities to reach first-mover advantages for players that are aware of this. For example by establishing a close relation with a dominating player that in the future will appropriate the most value.

When discussing Cox's theories about business success, same parallels could be drawn to the garbage bag industry. A firm with critical assets can use power to dominate the situation and thereby appropriate the value in the supply chain. In the mapping above it could be seen that both Miljösäck and Rullpack have critical assets and could be able to control the power situation. Also, Trioplast and FAS possess critical assets and have a little power advantages in the supply chain. Papyrus has one critical asset, but does not have the possibility to reach a power advantage. This seems realistic, since its critical asset is a contract with its supplier and because the supplier dominates this relation. The result becomes that Papyrus cannot appropriate value to a large extent.

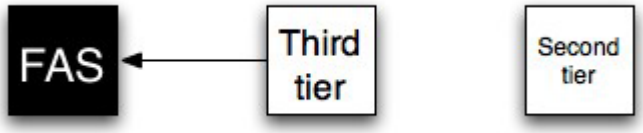
The exceptions from Cox's business theories are Papperskedjan and T-Emballage. Both players do not possess any critical assets, but dominate the power situation. Cox claims that when this is the case (a player dominates without possessing a critical assets), the player dominate because it reconfiguring the existing formation of power by product, process or supply chain innovation. But for Papperskedjan and T-Emballage this seems not to be the case instead there are three other possible explanations for this. One explanation could be that the empirical research did not reveal the critical assets among these distributors. Another explanation could be that the used definition of critical asset in this thesis is not sufficient. For example a possession of a couple of assets can become relatively unique when mixed together and lead to an opportunity to control the power situation, but this is not acknowledged by the used definition. The last explanation could be that our models for investigating the power relation within the dyads are not accurate enough.

5.3 How to increase value for FAS?

The idea of Cox's strategies is to appropriate more value through obtaining a situation where the buyer is more dependent on FAS. To achieve this dominance the Power Relation Model can be used, by focusing of increasing the Total buyer score. The parameters that can be improved in this purpose will be discussed below. First the relation between FAS and the third tier is discussed and second the relation between

FAS and the second tier is discussed. Both relations are important if FAS should appropriate value from the whole supply network.

5.3.1 The relation between FAS and the third tier



There are mainly three parameters that could lead to power advantages for FAS in the relations with the players in the third tier. It is the uniqueness of the supplier offer, switching cost and the supplier's product's impact on the buyer's profit. Then it is important for FAS to approach the most important customer in a more specific way. This is described in the following section below.

Increase the Products' uniqueness

The products' uniqueness could be improved in the areas partnership, customer differentiation, investments in specific projects and more accurately development projects.

An alternative is to start partnership or merge with some of the buyer's critical suppliers, like an extrusion supplier or a raw material supplier. FAS has earlier attempted to have a partnership with an extrusion supplier, but this did not last long, a possible reason for this could be that the timing was wrong; in the future the situation might look different. The partnership with a raw material supplier is not realistic, because the power situation is heavily unbalanced today. The raw material suppliers of polythene have a strong position and have nothing to win on partnership with FAS. However the relatively new raw material suppliers of biodegradable materials can be interesting for FAS to establish partnership with.

The customers experience from FAS's machines is high operation reliance, quality and its' good in-line production. But today this apprehension does not seem as significant as before, therefore FAS most try to reinforce the customers' apprehension. Some customers also expresses that their machines lacks necessary efficiency. By efficiency this is referred to as high speed while remaining the level of operation reliance and quality.

In a technical business it may not be easy to stay in the frontline of various technology areas under several years. Therefore, FAS has to focus its skill to some special areas where it can be in the frontline. The same time, the uncertainty about what the customer wants makes it hazardous to only focus on a few areas. The focus area must be carefully considered before a decision is made to invest in a particular area. FAS should choose areas where it has much information about the market and where it can use its expertise. As mentioned above, the line speed is important, and therefore FAS should invest in such developing projects. Another focus area could be the environmental aspect.

The French innovative market has shown that the environmental aspects within the polythene industry are an important issue and new legalisation is already determined which can totally change the market. Up until today the legalisation only concerns the carrying bags, but is believed to be extended in the future, to also count for the garbage bags. In France a change like this is believed to greatly change the conditions and put many of the French garbage bag producers out of business. The learning from this is that the law is able to change things in the industry drastically. In the Swedish market the law proposal is an interesting area for FAS to study. By keeping itself updated within this, a first-mover advantage is possible to reach. For example if the environmental aspects gets its breakthrough FAS can early try to establish a collaboration with the raw material supplier and together obtain a good position in the new area. The investment at biodegradable is to be able to produce in high line speed and with operational reliance. A last recommendation of focus area is the ability to produce thinner material with as good production flows as when producing normal materials.

To succeed in developing the right product at the right time, a connection between the marketing and development department is necessary, which today is a bit unclear in FAS's case. The development department needs more input from the market department to better understand the customers' needs and design desirable machines for the customers. In the same way the sales department might also need more information about technical aspects to increase sales. The sales organisation should also be investigated to see if it could be reinforced in some way.

Increase the switching cost

Locking in the customer or establish partnership can increase the producer's switching cost. The partnership situation is described above. For increasing the producers' dependence, FAS should try to get the buyer locked in through a specific technique. Also the compatibility with other machines could be considered, especially at the Swedish market where FAS is the dominating player. When getting a player locked in, is it important that the solution for the customer does not get more expensive if no certain value is added, because then the customers will be intimidated.

Increase the profit impact

To know how FAS should affect the producer's profit, it is important to understand the customer's purchasing strategies. When looking at the financial aspect for the producers the converting machines are not the most critical product. Instead the raw material is the most critical product; it amount to at least 50 per cent of the product cost. The second most important purchase is often the extrusion machines. Because the purchase of converting machines is only the third most important purchase, it is also considered to have a relatively little profit impact. As written in the empirical research, there are globally a couple competitors to FAS, but in general those are relatively few. Thereby, the producers' supply risk could be considered relatively high. (See Figure 32. The modified portfolio Matrix.) From this discussion the converting machine is considered as a *bottleneck item*.

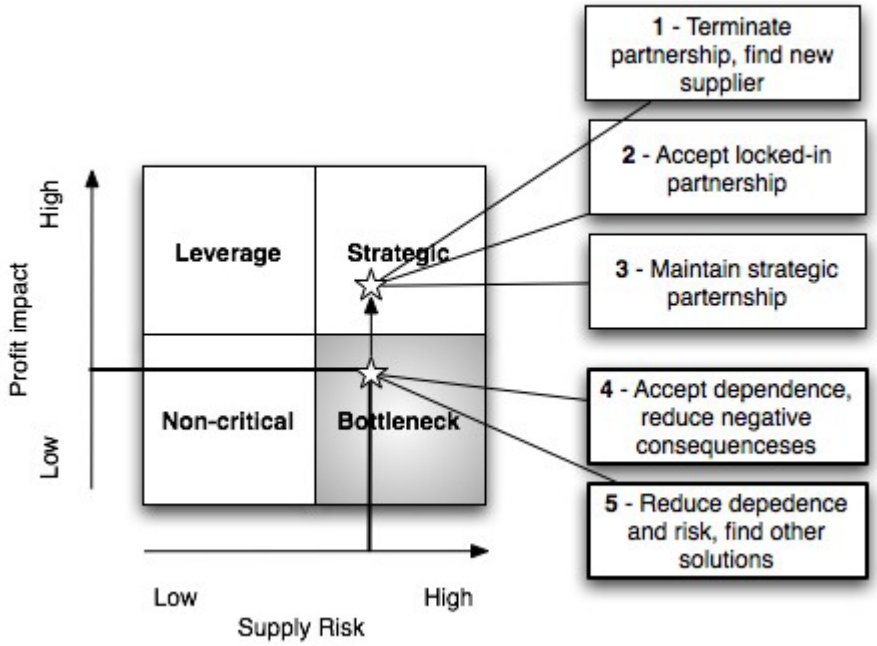


Figure 32. The modified portfolio Matrix

In Caniëls and Gelderman's model they claim that it is two strategies, four and five, that the purchaser uses for *bottleneck items*. In some cases the empirical research shows that a producer is willing to take a worse deal in compensation for securing the supply of the machine. The producer's switching cost for changing converting machine supplier is too high, among other things because of the production is suited for certain machines. For example Draken sees FAS as the self-evident machine supplier when producing bags on roll. When the purchasing situation is like this the theory claims that the supplier dominates the relation or there is a high interdependence between the participants. Today FAS does not differentiate the sale price depending on the customer, this situation is favourable, because the converting machines do not affect the profit so much for the producers. It is not the producer's most prioritised investment and therefore there is an opportunity for FAS to increase price towards these companies.

Many of FAS's customers also use strategies as in strategy number five. To actively search for alternatives, and may if necessary change its requirements for the production. This lead to less supplier dominance compared to strategy number four. FAS should try to get the producers more locked in to avoid strategy number five. To do this FAS should take the frontline in some technology areas that adds value for the customers. FAS could also collaborate with the customer in development projects and thereby increase the customers' dependence to them.

To be classified as a more important supplier or a *strategic item* (according to Figure 32. The modified portfolio Matrix), FAS has to build up a contact with other

suppliers. An alternative is to start partnership or merge with some of the buyer's critical suppliers as mentioned above.

The advantages of supplying a *strategic item* are that the profit impact on the buyer is significantly higher. This gives the supplier much more power dominance, and the possibility to make more money increases. The only drawback with this classification is that the buyer prioritises the item more since the profit impact has increased, and thereby the interest in the bargaining negotiations increases. This makes it hard for FAS to increase the price of the machines, which was possible when it was classified as a *bottleneck item*.

Caniëls and Gelderman claim that there are three (1,2 and 3) strategies for *strategic items* from the buyer's view (see Figure 32. The modified portfolio Matrix). The first strategy where the buyers should avoid and terminate relations, it is important for FAS to strengthen the relation by different contracts and collaborations and make it hard for the producers to find a better supplier. The situations where the producers accept locked in is profitable from FAS's point of view because it can dominates the situation with a low interdependence toward the players. Another strategy that the buyer would try is to maintain partnerships, which could be interesting for FAS. When developing projects this could be made together with the customer, and thereby reduce the risks.

To approach the important customers

In FAS's relations with its producers, it has been apparent that some producers are more important than others for FAS in the future. Even though it is important to have a good connection with the small producers (so they continue to have FAS as their first choice when buying a new machine), the sales possibilities are limited to these customers, which make them less interesting in the future. The only exception on this point is the biodegradable producer Tenova, which can have a great potential in the future if the environmental focus continues to increase. The other important producers are the three big ones; Trioplast, Rullpack and Miljösäck where there is a big potential for increased sales and better margins if FAS acts as above (more generally expressed) and below (to the specific producer).

The contact with Tenova is good and advantageous for FAS, because it dominates the power situation today. Therefore FAS should maintain the relation with this customer in a similar way or even increase the collaboration with it. By doing this FAS can get early signals if the biodegradable materials get a breakthrough as discussed earlier.

Today FAS is considered dependent on Trioplast, which according to Cox can be changed by decreasing the buyer's market share through increasing the rest of the buyers' market shares, try to minimise the competitors on the market, decreasing the information transparency, increasing the social relation or create a more unique product offering (as mentioned above). To decrease the cost and quality transparency are also something that Cox mean should decrease the suppliers dependence on the buyer. This is something that comes naturally because the machines gets more and

more filled with high technology which is harder to estimate the price for, especially in the garbage bag industry were the knowledge about advanced technology seems limited according to the empirical studies. Another thing that could increase the buyer's dependence is the social relation, especially in Trioplast's case were it is scarce today.

In the relation with Rullpack, which is interdependent, the theory claims that the supplier could move towards supplier dominance. To do this, FAS should try to decrease the buyer's market share and try to minimise the competitors on the market. This could be achieved in the same way as explained above concerning the relation with Trioplast. Cox also means that the supplier should liquidate collaborations with buyers concerning product development and product risk sharing, but today this is not frequent in the relation because Rullpack´s strict policy concerning sharing information. Consequently FAS cannot measure this. According to the theory the supplier should also avoid to be locked in by the buyer, and instead try to get the buyer locked in, which is something that to a good extent already can be considered done because Rullpack's majority of converting machines already are FAS machines which make Rullpack dependent to FAS because of its' history.

Miljösäck and FAS has a relation characterised by independence. According to the theory, FAS can transform the independence relation to dependence by minimising the competitors on the market and offer more unique products. Also try to decrease the available substitutes and try to increase entry barriers for new actors. FAS must work hard to keep new and old competitors behind and not give the customers any reason to end the relation with FAS. If FAS could sign agreements with Miljösäck, its dependence on FAS would increase. In the case of Miljösäck, an example of agreement is a common developing agreement concerning development of biodegradable bags.

5.3.2 The relation between FAS and the second tier

According to the theory a favourable situation for FAS is if the second tier (distributors) are dependent on the third tier (producers). Obviously it is difficult for FAS to influence this relation but there are some things that FAS could do. Yet a condition for this is that FAS has knowledge about the situation in the relation between the producers and distributors.

A big problem for FAS is that the garbage bag is on the whole seen as a complementary product down stream the supply chain and is therefore not very interesting. The ideal situation would be if the distributors demanded bags made with a FAS machine. An absolute condition to achieve such a situation would imply that FAS's machines made superior bags but this information would also have to be transferred to the distributors.

In the relation between the producers and distributors the following observations can be made. Because of the dominance of independent relations in this tier the information from the distributors to the producers is probably insufficient. The independent relations are often characterised by an infrequent and shallow contact that jeopardises information transfer. The dominance of the independence relations can be explained by the fact that few things happen on the market and therefore the information flows do not need to be better. The other side of the coin is that few things happen because of the lack of information transfer between the distributors and producers.

The producers receive too little information and demands from the suppliers and do not engage to improve this information flow either because those are satisfied with the situation or do not prioritise the garbage bag in its' businesses. For FAS that most often has contact with the producers this means that it will risk missing out on important information about the tiers further down in the supply chain. It also makes FAS's chances to sell more machines lower because the lack of information flow makes the whole market more sluggish. To change this, FAS can try to establish contacts with the distributors directly, then its information about the market enhances. The expanded information about the tiers further up also makes it easier for FAS to influence the producers with the same kind of information as is included in the distributors' demands towards the producers. The probability that the producers are willing to change and produce new type of products can then increase, which can lead to larger demand for new converting machines.

In the relations between the distributors and the niche distributors/end-users the distributors are very dominating and therefore can influence the customers to a great extent if it was in its interest. For FAS that today has no contact with the distribution tier an increased contact could both give more information about customer needs and a greater chance to influence the customers concerning new types of products. As in the producer tier the most interesting distributors are the bigger ones that have the most power in their relations, for example ThomeeHDF.

Thomee has acquired HDF and thus gets a more dominating position towards its customers and can in the future play a more important role when it comes to the contact with its customers and producers both concerning influencing them and capturing information from them. To establish a contact with ThomeeHDF could be a good thing for FAS. ThomeeHDF see the garbage bag as a good product to have in it's assortment because it has a high rate of turnover and give fairly good margins. Still ThomeeHDF does not see any greater potential in the product; this attitude might be changed with the right marketing and information from FAS. Other suppliers that could be of interest is Papperskedjan and T-emballage which are big and dominates its' relations.

Any contacts with the niche distributors and end-users are probably not necessary to understand the market of garbage bags because the end-users do not have power in the supply chain and therefore is less interesting.

6 Conclusions

In the conclusion the problem of the thesis will be answered. Both the theoretical and empirical contribution will be explained. Suggestions for future research will also be discussed.

6.1 The Theoretical Contribution

Power relations in supply networks have earlier been investigated by several researchers for example Cox, Caniëls and Gelderman. Models that describe this exist but none of them take the characteristics of an investment product in consideration and are by the authors considered too general for the specific industry. Therefore the authors have created Power Relation Models, which are tools that can be used for analysing the relationship between two players in the supply chain in a commodity market. It enables analysing investments (Figure 5. Power Relation Model 1) as well as products (see Figure 7. Power Relation Model 2) and focuses on the power situation in the relation.

Afterwards the power situation is defined between the dyads in the market; the dominant situation could be shown by means of the Power Mapping tool. When knowing the dominating players in the market the conclusion of who appropriate value can be drawn. But in the investigated industry the empirical studies does not support the theories, which express that the dominating players appropriate the value in the industry. Possible reasons for this difference are:

- The player's purpose is not to appropriate value from other players, though it knows about the possibility. For example, the player does not prioritise the garbage bag in its product portfolio, or evaluates the existing partnership too much to break it.
- The empirical part of the investigation has not revealed the right value appropriation for the market, thus the mapping can be considered correct.
- The markets appropriateness of value is not balanced today. This enables first-mover advantages for the player that acts first.
- The Power Relation Model that analyses the dyads are not accurate enough and consequently the mapping will become less successful.

The Power Relation Model is aimed for the commodity product industry but can easy be reconfigured to fit other industries. This is done by adjusting the parameters. Even if the Power Relation Model and the mapping would not give the exact power situation in the industry it is still very useful tools for companies to get an overall picture of an industry. It helps to understand the different connections and the information flows that exist.

Cox's argument about that business success depends on the critical assets and the power has been proven to some extent in the garbage bag industry. The result was that four out of five players that possess a critical asset do also have the opportunity

to dominate the power in the market. The fifth player's critical asset is the connection to a dominating player (that also possess a critical asset), which explains the situation relatively well. Another way to test Cox's theories is to look at the dominating players and see if their dominance could be explained by the possession of critical assets. The result is that there are two players in the market that have a dominating power position without possessing any critical asset and therefore the theories about Business success could not be proven in this case. Cox then means that the players can dominate because those are trying to reconfigure the power structure, but it has not either been acknowledged in this case. Instead, some possible explanations could be:

- The empirical research does not reveal the player's critical assets.
- The criterion for the definition of the critical asset is too narrow.

6.2 The Empirical Contribution

For a company in FAS's position it is useful to have a good overview of the key players further downstream in the supply chain, otherwise it is hard to make more money. First, it must be decided which actors that have the power and what the network downstream looks like. By using the authors' new developed models FAS can get a good understanding of the supply network. When the power situation and the mapping is done the next step is to use the captured information to form strategies that handle the companies different relations in the best possible way and that take advantage of opportunities that appears in the business. The companies closest to FAS in the supply chain, the producers are the ones that can be most influenced.

In the relations with the producers it has been apparent that some producers are more important than others. Even though it is important to have a good connection with the small producers the sales possibilities are limited to these customers, which make them less interesting in the future. The only exception to this point is Tenova, which can have a great potential in the future if the environmental focus continues to increase in the industry. Here FAS should continue to have a close relation and focus even more on the collaboration. By doing this it can get early signals if the biodegradable materials get a breakthrough and use this, for example by establishing collaboration with the raw material supplier of the new bio-materials. To be in the frontline of the environmental issues, it is also important to acknowledge the legalisation that decides the future to a great extent which already has been seen in the French market.

The other important producers are the three big ones; Rullpack, Trioplast and Miljösäck where there are potentials for increased sales and better margins in the future. These are dominating the power situation in the supply network and therefore become even more important for FAS. To increase the three players' dependence on FAS, it must increase its uniqueness of offer and impact on the producers' profit. To do this, FAS must keep on strengthening its brand by working hard with the key competences in-line production; high quality and reliable machines.

It is important for FAS to focus on some technical areas to attract the big customers, for example by developing the machines' line speed. To accomplish to focus on the right technical areas one important condition is to have a close collaboration internally between the marketing and development department. The three big producers are also the ones that have good information exchange with the distributors and therefore can give FAS much input from the tiers further downstream the supply chain.

In the relation between the producers and distributors FAS cannot influence so much to improve its position, but a few things can be done. Between these two tiers independent relations dominate which indicates that the information exchange is insufficient. For FAS this can imply that it will miss out on information and influences from the tiers downstream because FAS mostly has contact with the producers. FAS could consider establishing more contacts with the distributors to influence these and avoid missing important information. The insufficient information exchange can also make the market more sluggish and thus fewer new machines can be sold, because FAS machines have a long lifetime.

In the relations between the distributors and the niche distributors/end-users the distributors dominates the relations and can influence their customers. The distributors that FAS should focus on are Papyrus, T-Emballage and Papperskedjan; these are big players and dominate many of their relations. The niche distributors and the end-users are not something that FAS should focus on because their power is insignificant in the relations with the distributors.

6.3 Suggestions for further research

To apply Cox, Krajic, Caniëls and Geldeman's theories about power in relations has not been uncomplicated. A problem has been that FAS provides an investment product to players in a commodity market that the theories have not been adjusted for. Therefore, the authors have developed new models to ascertain how the power situation is between players and how to describe it in an easy way. Due to time restrictions as well as the model development has taken much time, new strategies about how to act in the supply chain can be developed further and in more detail. This can be something to work on in the future. The mapping process would be even more useful if an additional framework for suitable strategies existed based on the information from the developed models.

This thesis has also shown how to use existing theories concerning power in relations in a new business. In the future, this can be done in many other businesses and for other types of products. For example by using other parameters, the model can be applied to high-tech products. For FAS the model can be used in other markets to map out the power situation. This also gives FAS the opportunity to compare the behaviour and power situation in different markets.

A shortfall in this thesis is the lack of dynamics regarding the parameters; the models that have been developed give a static picture of the relations. Something that would

be interesting to further investigate would be to analyse what happens if a parameter changes.

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Appendix A

Analysing the dyads

In the analysis three examples of dyad analysis has been illustrated and here the rest are presented.

The relationship between FAS and a producer

The Power Relation Model 1 that was developed in the theory chapter is here used. Every parameter except for four will be described and analysed for each dyad. The four are "the number of buyers are few", "the supplier has little relevant information about the buyers", "the supplier's product has great impact on the profit" and "the supplier's switching cost is high". The reason for not analysing these parameters in every dyad is that these are the same no matter who the buyer is. This are marked with G as General, which is illustrated in the Power Relation Model below.

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-2	**B1**-the number of suppliers is few.	
S2-the supplier lacks relevant information about the buyers	G-1	**B2**-the supplier's offering is unique.	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit.	G-1
S4-supplier's switching cost is high	G-0	**B4**-the buyer lacks relevant information about the suppliers.	
S5-a social binding exists.		**B5**-the buyer's switching cost is high	
S6-the buyer's account is attractive to the supplier		**B6**-a social binding exists.	
S7-an agreement exist		**B7**-the distance to the supplier is short and matters	
S8-the size of buyer is large		**B8**-an agreement exist	
Total Supplier Score (max 24)		Total Buyer Score (max 24)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

To make it easier to follow and overview the different dyads, another table format has been used as can be seen below. Also a few shortenings have been used: TSS = Total

Supplier Score, TBS = Total Buyer Score, RS = Relative Power, IS = Interdependence Score. The scoring and analysing of the dyads between FAS and the producers are the following:

Dyad	FAS		Miljösäck	
	S1	2	B1	1
	S2	1	B2	1
	S3	2	B3	1
Parameters	S4	0	B4	2
	S5	1	B5	1
	S6	2	B6	1
	S7	0	B7	1
	S8	2	B8	0
Score	**TSS**	10	**TBS**	8
Power Relation	**RP**	2	**IS**	18

FAS		Rigef	
S1	2	B1	2
S2	1	B2	2
S3	0	B3	1
S4	0	B4	1
S5	1	B5	2
S6	0	B6	1
S7	0	B7	2
S8	0	B8	0
TSS	4	**TBS**	11
RP	-7	**IS**	15

FAS		Tenova	
S1	2	B1	2
S2	1	B2	2
S3	0	B3	1
S4	0	B4	1
S5	3	B5	3
S6	2	B6	2
S7	0	B7	0
S8	0	B8	0
TSS	8	**TBS**	11
RP	-3	**IS**	19

Dyad	FAS		Draken	
	S1	2	B1	2
	S2	1	B2	2
	S3	0	B3	1
Parameters	S4	0	B4	1
	S5	0	B5	2
	S6	0	B6	1
	S7	0	B7	2
	S8	0	B8	0
Score	**TSS**	3	**TBS**	11
Power Relation	**RP**	-8	**IS**	14

FAS		Rullpack	
S1	2	B1	2
S2	1	B2	2
S3	2	B3	1
S4		B4	1
S5	1	B5	3
S6	2	B6	2
S7	0	B7	1
S8	2	B8	0
TSS	10	**TBS**	12
RP	-2	**IS**	22

FAS		Plaståter.	
S1	2	B1	2
S2	1	B2	2
S3	1	B3	1
S4	0	B4	1
S5	0	B5	2
S6	0	B6	1
S7	0	B7	0
S8	1	B8	0
TSS	5	**TBS**	9
RP	-4	**IS**	14

Dyad	FAS		Rimpac	
	S1	2	B1	2
	S2	1	B2	2
	S3	1	B3	1
Parameters	S4	0	B4	1
	S5	0	B5	2
	S6	0	B6	0
	S7	0	B7	0
	S8	0	B8	0
Score	**TSS**	4	**TBS**	8
Power Relation	**RP**	-4	**IS**	12

Written motivations are available for all the dyad analysis, for the interested reader. Please contact any of the authors.

The relationship between a producer and a distributor

Here the Power Pelation Model 2 will be used. In an analogous way as above the dyadic parameters will be analysed for all dyads, but with some exemption because of these parameters generality. The general parameters are "the number of buyers is few" and "the buyer has high operational control upon the supplier".

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer lacks relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exist		**B6**-a social binding exists	
S7-the buyer has high operational control upon the supplier	G-0	**B7**-an agreement exist	
		B8-supplier has great influence in the buyer's logistics	
Result before weighted		**B9**-supplier's account is attractive to the buyer	
Total Supplier Score (max 27)		Total Buyer Score(max 27)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 54** Total interdependence exists in the relation **If interdependence Score >= 27** Interdependence exists to some extent **If interdependence Score < 27 &&** **Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 &&** **Relative Power Score < 3 || >-3** Total independence exists in the relation	

One shortening has been used when illustrating the analysis of these dyads. RBW means Results Before Weighting. The scoring and analysing of the dyads between the producers and the distributors are the following:

Dyad	Miljösäck		Pappersk.	
	S1	0	B1	1
	S2	1	B2	0
	S3	1	B3	1
Parameters	S4	1	B4	1
	S5	2	B5	0
	S6	2	B6	2
	S7	0	B7	2
			B8	2
	RBW	7	B9	0
Score	**TSS**	9	**TBS**	9
Power Relation	**RP**	0	**IS**	18

Dyad	Miljösäck		Tingstad	
	S1	0	B1	0
	S2	1	B2	0
	S3	1	B3	1
Parameters	S4	1	B4	0
	S5	2	B5	0
	S6	2	B6	2
	S7	0	B7	2
			B8	2
	RBW	7	B9	0
Score	**TSS**	9	**TBS**	7
Power Relation	**RP**	2	**IS**	16

Dyad	Miljösäck		BK PAC	
	S1	0	B1	1
	S2	1	B2	0
	S3	0	B3	1
Parameters	S4	1	B4	1
	S5	1	B5	1
	S6	2	B6	1
	S7	0	B7	2
			B8	1
	RBW	5	B9	0
Score	**TSS**	6	**TBS**	8
Power Relation	**RP**	-2	**IS**	14

Dyad	Miljösäck		HDF	
	S1	0	B1	2
	S2	1	B2	0
	S3	0	B3	1
Parameters	S4	1	B4	2
	S5	1	B5	2
	S6	2	B6	1
	S7	0	B7	2
			B8	1
	RBW	5	B9	0
Score	**TSS**	6	**TBS**	11
Power Relation	**RP**	-5	**IS**	17

Dyad	Miljösäck		Ragnsells	
	S1	0	B1	2
	S2	1	B2	1
	S3	2	B3	2
Parameters	S4	1	B4	1
	S5	1	B5	3
	S6	2	B6	1
	S7	2	B7	2
			B8	2
	RBW	9	B9	2
Score	**TSS**	12	**TBS**	16
Power Relation	**RP**	-4	**IS**	28

Dyad	Miljösäck		SITA	
	S1	0	B1	2
	S2	1	B2	1
	S3	1	B3	3
Parameters	S4	1	B4	1
	S5	2	B5	3
	S6	2	B6	2
	S7	1	B7	2
			B8	2
	RBW	8	B9	2
Score	**TSS**	10	**TBS**	18
Power Relation	**RP**	-8	**IS**	28

Dyad	Rullpack		Papyrus	
	S1	0	B1	2
	S2	1	B2	3
	S3	3	B3	3
Parameters	S4	3	B4	1
	S5	2	B5	3
	S6	3	B6	2
	S7	0	B7	3
			B8	3
	RBW	12	B9	3
Score	**TSS**	15	**TBS**	23
Power Relation	**RP**	-8	**IS**	38

Dyad	Trioplast		Thomee	
	S1	0	B1	1
	S2	2	B2	0
	S3	0	B3	0
Parameters	S4	0	B4	2
	S5	0	B5	1
	S6	0	B6	0
	S7	0	B7	0
			B8	0
	RBW	2	B9	0
Score	**TSS**	3	**TBS**	4
Power Relation	**RP**	-1	**IS**	7

Dyad	Trioplast		T-emball.	
	S1	0	B1	0
	S2	1	B2	1
	S3	0	B3	1
Parameters	S4	1	B4	1
	S5	2	B5	1
	S6	1	B6	1
	S7	0	B7	1
			B8	0
	RBW	5	B9	0
Score	**TSS**	6	**TBS**	6
Power Relation	**RP**	0	**IS**	12

Dyad	Trioplast	Cofa

Dyad	Plaståter.	T-emball.

Dyad	Plaståter.	Stenqvist

	S1	0	B1	0	S1	0	B1	0	S1	0	B1	0
	S2	1	B2	2	S2	1	B2	1	S2	1	B2	1
	S3	2	B3	3	S3	1	B3	1	S3	2	B3	2
Parameters	S4	2	B4	1	S4	1	B4	1	S4	1	B4	1
	S5	2	B5	2	S5	1	B5	1	S5	1	B5	1
	S6	1	B6	3	S6	2	B6	2	S6	2	B6	1
	S7	0	B7	1	S7	0	B7	2	S7	0	B7	2
			B8	2			B8	1			B8	0
	RBW	8	B9	0	RBW	6	B9	1	RBW	7	B9	1
Score	**TSS**	10	**TBS**	14	**TSS**	8	**TBS**	10	**TSS**	9	**TBS**	9
Power Relation	**RP**	-4	**IS**	24	**RP**	-2	**IS**	18	**RP**	0	**IS**	18

Dyad	**Draken**		**T-emball.**		**Draken**		**Polypac**		**Kullaplast**		**HDF**	
	S1	0	B1	0	S1	0	B1	1	S1	0	B1	2
	S2	2	B2	1	S2	2	B2	1	S2	2	B2	1
	S3	2	B3	1	S3	2	B3	2	S3	1	B3	1
Parameters	S4	2	B4	1	S4	2	B4	1	S4	1	B4	1
	S5	3	B5	1	S5	3	B5	2	S5	1	B5	1
	S6	2	B6	2	S6	2	B6	3	S6	2	B6	1
	S7	0	B7	2	S7	0	B7	2	S7	0	B7	2
			B8	2			B8	2			B8	1
	RBW	11	B9	1	RBW	11	B9	1	RBW	7	B9	1
Score	**TSS**	14	**TBS**	11	**TSS**	14	**TBS**	15	**TSS**	9	**TBS**	11
Power Relation	**RP**	3	**IS**	25	**RP**	-1	**IS**	29	**RP**	-2	**IS**	20

Dyad	**Kullaplast**		**Thomee**	
	S1	0	B1	2
	S2	2	B2	1
	S3	0	B3	1
Parameters	S4	1	B4	1
	S5	1	B5	1
	S6	2	B6	0
	S7	0	B7	2
			B8	1
	RBW	6	B9	0
Score	**TSS**	8	**TBS**	9
Power Relation	**RP**	-1	**IS**	17

The relationship between a distributor and a niche distributor/end-user

Here the Power Relation Model 3 will be used. The buyers' operational control is not relevant in this relationship, because no producer is involved. Otherwise, the parameter that was general in the previous relationship is general in this case also.

THE SUPPLIER IS DEPENDENT IF:	SCORE (0-3)	THE BUYER IS DEPENDENT IF:	SCORE (0-3)
S1-the number of buyers is few	G-0	**B1**-the number of suppliers is few	
S2-the supplier lacks relevant information about the buyers		**B2**-the supplier's offering is unique	
S3-the buyer has a large market share of the supplier's total market.		**B3**-the supplier's product has great impact on the profit	
S4-the supplier's switching cost for changing buyer is high		**B4**-the buyer has little relevant information about the suppliers	
S5-a social binding exists		**B5**-the buyer's switching cost for changing supplier is high	
S6-an agreement exist		**B6**-a social binding exists	
		B7-an agreement exist	
Result before weighted		**B8**-the supplier has great influence in the buyer's logistics	
Total Supplier Score (max 24)		Total Buyer Score(max 24)	
Relative Power (=Tot score supplier – buyer)		Interdependence Score (=Tot score supplier + buyer)	
If Relative Power Score < -2 The buyer is more dependent than the supplier The supplier dominates the power relation (to some or full extent) **If Relative Power Score > 2** The supplier is more dependent than the buyer The buyer dominates the power relation (to some or full extent) **Else if** No player dominates the relation		**If Interdependence Score = 48** Total interdependence exists in the relation **If interdependence Score >= 24** Interdependence exists to some extent **If interdependence Score < 24 && Relative Power Score < 3 || >-3** Independence exists to some extent **If Interdependence Score = 0 && Relative Power Score < 3 || >-3** Total independence exists in the relation	

The scoring and analysing of the dyads between the distributors and the end users / nische distributors are the following:

Dyad	Papyrus		Försvaret	
	S1	0	B1	2
	S2	0	B2	2
	S3	0	B3	0
Parameters	S4	0	B4	3
	S5	3	B5	3
	S6	3	B6	3
			B7	3
	RBW	6	B8	0
Score	TSS	8	TBS	16
Power Relation	RP	-8	IS	24

	Papyrus		SITA	
	S1	0	B1	2
	S2	0	B2	2
	S3	1	B3	1
	S4	2	B4	1
	S5	2	B5	2
	S6	3	B6	2
			B7	3
	RBW	8	B8	1
	TSS	10	TBS	14
	RP	-4	IS	24

	Papyrus		ISS	
	S1	0	B1	2
	S2	0	B2	2
	S3	1	B3	1
	S4	2	B4	0
	S5	2	B5	3
	S6	3	B6	2
			B7	3
	RBW	8	B8	1
	TSS	10	TBS	14
	RP	-4	IS	24

Dyad	HDF		Granngård.	
	S1	0	B1	1
	S2	1	B2	1
	S3	0	B3	0
Parameters	S4	1	B4	1
	S5	2	B5	2
	S6	2	B6	2
			B7	2
	RBW	6	B8	2
Score	TSS	8	TBS	11
Power Relation	RP	-3	IS	19

	Thomee		Optimera	
	S1	0	B1	2
	S2	1	B2	1
	S3	2	B3	2
	S4	2	B4	2
	S5	2	B5	2
	S6	2	B6	2
			B7	2
	RBW	9	B8	2
	TSS	12	TBS	15
	RP	-3	IS	27

	Thomee		Granngård.	
	S1	0	B1	1
	S2	1	B2	1
	S3	2	B3	2
	S4	2	B4	1
	S5	2	B5	2
	S6	2	B6	2
			B7	2
	RBW	9	B8	2
	TSS	12	TBS	13
	RP	-1	IS	25

Dyad	T-emball.		Optimera	
	S1	0	B1	2
	S2	0	B2	1
	S3	2	B3	2
Parameters	S4	1	B4	2
	S5	1	B5	2
	S6	2	B6	1
			B7	2
	RBW	6	B8	2
Score	TSS	8	TBS	14
Power Relation	RP	-6	IS	22

	Pappersk.		Lund	
	S1	0	B1	2
	S2	1	B2	2
	S3	1	B3	0
	S4	1	B4	2
	S5	0	B5	2
	S6	2	B6	0
			B7	2
	RBW	5	B8	2
	TSS	6	TBS	12
	RP	-6	IS	18

	Cofa		Citypapper	
	S1	0	B1	2
	S2	2	B2	1
	S3	1	B3	1
	S4	1	B4	1
	S5	1	B5	2
	S6	0	B6	1
			B7	0
	RBW	5	B8	0
	TSS	6	TBS	8
	RP	-2	IS	14

Dyad	Cofa		Martin O		Polypac		Citypapper	
	S1	0	B1	1	S1	0	B1	2
	S2	1	B2	2	S2	1	B2	3
	S3	1	B3	1	S3	3	B3	2
Parameters	S4	1	B4	2	S4	3	B4	1
	S5	1	B5	1	S5	3	B5	2
	S6	2	B6	1	S6	0	B6	3
			B7	1			B7	0
	RBW	6	B8	0	RBW	10	B8	2
Score	**TSS**	8	**TBS**	9	**TSS**	13	**TBS**	15
Power Relation	**RP**	-1	**IS**	17	**RP**	-2	**IS**	28

Appendix B

In appendix B the questions that have been used are presented, first the questions to the producers and second the questions to the distributors and end-users.

Questions to Producers

Product

Which is your main product and how important is the plastic garbage bag compared to other products?

Why do you have the garbage bag in your product portfolio/range?

Do you know any other types of garbage bags?

What would be the main reason to start producing a new type of garbage bag?

When was the last time you started to produce a new type of garbage bag?

Competition

What does the competition look like in the garbage bag industry?

- Which are your main competitors?
- What do you do to face the competition?
- Would you say that it is possible for new firms to enter the garbage bag market?
- Does power have to do with it?

How would you say that you stand out against competitors?

In what way do you differentiate compared to your competitors?

- Critical resources
- Business concept and strategy

What do you think about the competition in the future?

- Do you think that a closer collaboration with other actors in the supply chain would make you more successful compared to your competitors?
- Are there any substitutes to plastic garbage bags that you see as a threat in the future, ex paper bags?

Customers

Could you tell us something about the customers that you have and how important they are for your business?

- How many customers do you have? Garbage bags
- Are they the final users? Are some of them bigger than others, in per cent?

- Do you have customers outside the country?
- Is it possible to get contact information to some of your customers?

Could you tell us a bit about what the contact with your customers look like?

- How much contact do you have with your customers, in time speaking?
- To what extent do you believe that you can influence your customers?
- Do your customers have often have questions or special requirements regarding your products?
- Is the relation towards your customers of an open kind?

How does your business work?

- Do you use contracts and in that case for how long do they stretch?
- How is new business created?
- What do you believe is the determining factor if a potential customer buys from you instead of from your competitor?

What type of contact do you have with the actors further down the supply chain?

- Do you have any contact with the end customer and in that case in what way?
- Do you believe that you have enough contact or would you want to have more contact?

How much do believe that you can influence the customer offer?

- How much can you influence the price that the end customer pays?

Suppliers (/technical aspects)

Which are your different suppliers and what does the relation look like towards them?

- Who are your suppliers of raw material?
- What does your bargaining position look like towards your suppliers?
- Is there any openness towards your suppliers? Supply chain thinking
- If you were to buy a new converting machine today what supplier would you turn to? Why this one?
- How do you feel about more openness towards your suppliers when it comes numbers?
- Does power play a roll in your relations with your suppliers?

Why have you chosen the suppliers that you have today?

- What is strategically important when you choose a supplier? (price, quality, relations, capacity, service, production, flexibility)
- What technical specifications are important for your converting machines? (Speed, reliability, flexibility etc.)
- How competent technically do you believe your suppliers are for example FAS?

Which supplier is the most critical for your production?

- Who else are important?

In what way do you look at quality? (durability, capacity, service)

- Would you say that your suppliers have good quality and how would you rank FAS compared to other suppliers?
- What economic length of life do you calculate with for machines, FAS for example?

Production

Could you in a brief way explain how your production works? In-line…

Economy

How big is your turn over: in tons, in money?

How much does a garbage bag constitutes for?

What are your margins on garbage bags?

What does the cost structure look like for garbage bags?

Who do you think appropriate value in the supply chain?

Rawmaterial

- How important is the raw material for your product?
- Do you use new or reused material?

Future

What do you see in the future concerning environmental aspects?

Do you attend the Düsseldorf exhibition?

Questions to Distributors and End-users

Opening questions

What is your main business/product?

Product

What does your product scope look like and how important is the garbage bag for your business?

- How many different kinds of garbage bags do you have in store?
- Are you familiar with other types of garbage bags than the ones that you have?

Competition

What does the competition look like in your industry? Especially concerning garbage bags?

- Who are your main competitors?
- Would you say that you have an advantage towards them?
- What do you do to face the competition?
- Would you say that it is possible for new firms to enter your industry?

How would you say that you stand out against competitors?

What do you think about the competition in the future?

- Do you think that a closer collaboration with other actors in the supply chain would make you more successful compared to your competitors?
- Are there any substitutes to plastic garbage bags that you see as a threat in the future, ex paper bags?

Customers

Could you tell us something about the customers that you have and how important they are for your business?

- How many customers do you have? Garbage bags
- Are they the final users? Are some of them bigger than others, in per cent?
- Do you have customers outside the country?
- Is it possible get contact information to some of your customers?

What does your relations to your customers look like?

- How much contact do you have with your customers, in time speeking?
- To what extent do you believe that you can influence your customers?
- How open are you towards your customers today?
- What is your attitude towards further openess to your customers and do you think that it could lead to advantages for both you and your customers?
- Do your customers have often have questions or special requirements regarding your products?

- Do your customers ever demand new types of garbage bags and in that case what type?

How does your business work?

- Do you use contracts and in that case for how long do they stretch?
- How is new business created?
- What do you believe is the determining factor if a potentiel customer buys from you instead of from your competitor?

What type of contact do you have with the actors further down the supply chain?

- How much do you know about the user of your garbage bags?
- How much can you influence the price that the end customer/consumer pays?

Suppliers

Which are your different suppliers and what does the relation look like towards them?

- How many garbage bag suppliers do you have?
- How would you describe your contact with your suppliers?
- How many tons of garbage bags do you buy every year?
- How do you feel about more openness towards your suppliers when it comes to figures?
- How much co-operation do you have with your suppliers today?
- Would you say that you have a good bargaining position towards your suppliers?
- What do your contracts look like concerning duration and quantity?

Why have you chosen the suppliers you have today?

- Which factors are important? Quality, costs?

Which supplier is the most critical for you?

Economic figures

How much is your turnover?

And out of that how much does garbage bags constitute for?

What are your margins on garbage bags?

Who in the supply chain appropriate the value (margins)?

Future

What do you see in the future concerning environmental aspects?