School of Economics
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Supply Chain Management as a Source of Competitive Advantage

A Case Study of Three Fast-growth Companies

Master Thesis in Business Administration
Management Accounting
Department of Business Administration
School of Economics and Commercial Law

Göteborg University
Spring 2005

Supervisor: Mikael Bergmasth

Authors: Toni Henriksson
Tom Nyberg

ABSTRACT

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Title: Supply Chain Management as a Source of Competitive Advantage
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Background & problem: It is known that supply chain management is, as a research subject, still in its infancy, and in a phase of strong development. This reflects upon the usage of advanced logistical applications in companies; not all are aware of the possibilities that modern logistics could bring to their operations. To recognise the significance of logistics, companies have to understand that it could be a source of competitive advantage. Additionally, fast-growth companies often argue that logistics could limit their growth. This is especially true when companies expand internationally; strategic decisions concerning logistics must be well considered. The main research question of this thesis is: "Can one of the sources of competitive advantage in fast-growth companies be found in supply chain management?"

Purpose: The purpose of this thesis is to conduct both a theoretical and an empirical study of two fields of research: the resource-based view (RBV) and supply chain management (SCM). The theoretical study has two main stages: RBV describing competitive advantage and SCM practises as a source of competitive advantage. In the empirical study the authors investigate if the case companies utilise the supply chain practises that are pointed out as a source of competitive advantage in the literature.

Delimitations: The logistical issues in this thesis are limited to a strategic level. The case companies are expected to trade with physical products, in order to fulfil the requirement of having logistical functions. The theoretical framework is limited to SCM and competitive advantage issues within RBV.

Methodology: A literature survey has been carried out in order to understand the concepts of RBV and SCM. Furthermore, a case study has been conducted in three fast-growth companies by researching whether the companies utilise the practises suggested in the literature. Before the case studies were carried out, secondary information about the case companies was collected. With this knowledge in mind, interviews were planned and implemented.

Results and conclusions: The authors have recognised seven supply chain practises from the literature which could be a source of competitive advantage. In the case studies, some of these practises could be identified within all of the companies. The authors' conclusion is that it is worthwhile for the case companies to utilise and try to develop supply chain practises.

Suggestions for further research: The authors believe that it would be interesting to conduct research with a wider sample of companies, either a quantitative research of the seven practises by questionnaire, or focusing on one of them in detail. Another idea is to

analyse one of the case companies from the resource-based view, broadened from logistics to find a source of competitive advantage.

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Göteborg, March 31, 2005

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Toni Henriksson Tom Nyberg

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1. INTRODUCTION

In this first main chapter the authors will present the background for this thesis. Continuing, the main research question is formulated following the two sub questions that give the thesis further direction towards the authors' interest. The purpose for this study, as well as the delimitations of the research area, are presented. After a brief presentation of the companies used as case studies, an illustration of the thesis' structure will complete this introduction chapter.

1.1. Background

The authors have decided upon the subject of this thesis after courses in management accounting. Building the functionality of a fast-growing company includes some major strategic decisions for the management. The location of a central warehouse, for example, could play a great role in the company's performance and possibilities for gaining a competitive advantage (Christopher, 1998). It is commonly known that supply chain management (later in this thesis the term SCM may be used), as a research subject is still in its infancy (Stock, 1997) and in a phase of strong development (Christopher, 1998). This reflects upon the usage of advanced logistical applications (Yusuf, Gunasekaran, Adeleye & Sivayoganathan, 2004) in the markets. Many companies are not aware of the possibilities that effective logistics could bring to their operations. Ahrens (1992), for example, has found in his research that especially companies in a stage of especially heavy growth could face problems if the strategy for logistics is not well considered.

In a global marketplace, an increasingly tough competition results in companies striving to find strategies that give them a competitive advantage over their competitors (Christopher, 1998). Competition is no longer between companies, but among supply chains (Li, Ragu-Nathan B, Ragu-Nathan T & Subba Rao, 2004). Without completely knowing the logistics strategies of their competitors, it is difficult to find the benchmark for the best solutions (Lumsden, 1998). On the other hand, companies could hold some sustainable competitive advantage without being able to self-recognise the source for competitive advantage. If neither the company itself nor the competitors are able to recognise the source, the competitive advantage will be sustainable (Lippman & Rumelt, 1982). Furthermore, growing customer requirements are leading to an era in which relationships with both customers and suppliers are crucial for corporate financial survival (Wines, 1996). These are the main thoughts that this thesis is based on; the authors believe that the area should be researched and that there will be interested parties for the results of this study.

1.2. Problem discussion

This thesis studies how highly developed SCM could bring a fast growing company competitive advantage. The fast-growing companies often argue that their logistic

functions can be limiting their growth if the supply chain is not optimised. For example, one of the case companies (New Wave Group AB) stated in their annual meeting of 2001 that logistics had to become more productive if the company wanted to sustain their competitive advantage (New Wave Group AB, 2001). Later, in the annual report of 2002, the company declared widely that logistics were one of their competitive advantages (New Wave Group AB, 2003).

Persson (2003) argues that to understand the significance of logistics it has to be viewed from a competition perspective. Therefore, the company has to understand that logistics can be used as tools for competition. When this is achieved, logistics will receive the role they need. It is not enough to state that logistics are important and valuable; the reason for the importance, and how it can be organised, must also be understood.

It is even argued in the literature (Li *et al*., 2004; Yusuf *et al*., 2004; Mentzer, Myers & Cheung, 2004) that a well developed strategy of SCM could bring competitive advantage for a company. Li *et al*. (2004) argues that in order to secure competitive advantage, the supply chain has to be managed effectively. According to their research, there are five main dimensions of an effective supply chain: strategic supplier partnership, customer relationship, level on information sharing, quality of information sharing and postponement. Yusuf *et al*. (2004) have researched agile supply chain capabilities in order to find out how companies may stay competitive. Li *et al*. (2004), also bring up information integration within other companies and long-term collaboration with suppliers and customers as the main characteristics of agile supply chain management. Beside these, they add several other dimensions, for example, co-operation with competitors and alliances amongst complementary equals. However, Olavarrieta & Ellinger (1997) argue that finding suitable partners for deep co-operation within supply chains can be difficult, because the relationships can be demanding and complex.

Barney (1991, 1995) uses the resource-based view (RBV) to discuss how companies can reach sustained competitive advantages. As mentioned earlier, competition in today's markets is not always between companies, but rather between supply chains (Li *et al*., 2004). Barneys model includes four empirical indicators for the potential of firm resources reaching competitive advantage: value, rareness, imitability and substitutability. With a competitive advantage, a company has a better chance for strengthening their supply chain, and therefore supporting the fast-growth of the member companies.

Ahrens (1992) brings up several circumstances where fast-growth companies could face problems within logistical operations. For example, it can be difficult to know how to optimise the inventory levels without always knowing the often unexpected demand fluctuations. Likewise, the capacity of the distribution system has to be well considered to be able to respond to the variations in customers' needs. Especially when companies expand internationally, which is common in fast-growth companies, the strategic decisions concerning logistics will be of high priority. The linkage between logistics and other activities - such as research and development, manufacturing and marketing - in global companies is also pointed out by Kotabe and Murray (2004). When the solutions for these problems are found, the company have taken a step closer to gaining competitive advantage from SCM.

1.3. Research questions

When studying the literature available, the authors have defined the problem in the following question:

- Can one of the sources of competitive advantage in fast-growth companies be found in supply chain management?

The main research question will be investigated within the theories of RBV (Resource-Based View) and SCM (Supply Chain Management). In the empirical studies, the authors will analyse the question of whether the case companies SCM practises are in line with the practises found in the literature (e.g. Closs & Mollenkopf, 2004; Li *et al*., 2004; Yusuf *et al*., 2004). To lead the way to the main research question, the main research question is divided into two sub-questions for which this thesis is pursuing the answer:

- What makes supply chain management a competitive advantage for a company according to the literature?
- Can the recommended SCM practises be found in the case companies? If not, what seem to be the reasons?

1.4. Purpose

The purpose of this thesis is to conduct both a theoretical and an empirical study in order to unite the two fields of research: RBV and SCM. The theoretical study has two main stages; RBV is analysed from the competitive advantage point of view and SCM is presented with the purpose of illustrating the practises a company should use to gain competitive advantage. These theoretical studies have been carried out by researching relevant literature. In the empirical study, the authors test whether the case companies utilise the practises that the literature points out as a sources of competitive advantage. The empirical study is implemented with interviews conducted in three Swedish fast-growth companies.

For the academic world, this thesis will give a theoretical basis in logistics and competitive advantage issues. Also, characteristics of Swedish fast-growth companies are presented to give the academic world a deeper understanding of the issue. For the public, largely companies in need of developing their logistical strategies, this thesis will give a basic frame of reference to study and develop the logistical functions to gain competitive advantage.

1.5. Delimitations

The logistical issues in this thesis are limited to a strategic level, in accordance to the authors field of study, management accounting. Therefore, the interviewed persons in the case companies hold managerial positions in logistics. However, to give a comprehensive picture of the logistical operations, the activities in operational logistics are listed in theoretical framework and shortly described in appendix C. The study is limited to Swedish fast-growth companies based in the region of Gothenburg. The companies are expected to trade with physical products, in order to fulfil the requirement of having logistical functions. Furthermore the theoretical framework is limited to RBV and SCM. The theoretical studies concerning RBV will mainly include competitive advantage.

1.6. Case companies

What follows is a short pre-description of the three case companies co-operating in this thesis. A more detailed description of the companies will be included in the case studies chapter (chapter 5). In Sweden they are known as fast-growth companies. In October 2004, Business Region Göteborg AB held their annual day of seminars about growth in business, called Tillväxtdagen[1]. They invited four successful fast-growth companies to share their experiences; three of them were from the Gothenburg region and they are the case companies of this thesis (Tillväxtdagen, 2004). Business Region Göteborg is a non-profit company that focuses on developing the future of trade and industry in the Gothenburg region. Tillväxtdagen seminars are arranged yearly in co-operation with the Swedish company Ahrens Rapid Growth (Business Region Göteborg AB, 2005). It was founded in 1991 by Thomas Ahrens (Ahrens Rapid Growth, 2005), a well-known Swedish researcher specialising in fast-growth companies.

The case companies were chosen on the basis of their invitations to Tillväxtdagen 2004. Andreas Göthberg (2005), promotional representative at Business Region Göteborg (Business Region Göteborg AB, 2005), has confirmed that several criteria were set for inviting these companies. These criteria included:

- Very strong growth in turnover and number of employed people.
- Early internationalisation.
- Good ethics and good morale.

1.6.1. New Wave Group AB

New Wave Group AB was founded in 1990 (New Wave Group AB, 1997). The head office is based in Kungälv, Sweden. They have subsidiaries and branches in 15 countries in Europe and Asia. Their business includes give-aways, promotional wear

[1] In English: “day of fast-growth” (free translation)

and work wear to other companies. They also deliver clothes, shoes, presents and home textiles to the retail trade. Most of the products are produced in Asia, a smaller part are produced in Europe. Furthermore they control a big number of well-known brands (New Wave Group AB, 2004). The company was listed in 2004 in Europe's 500 (Europe's 500, 2004).

1.6.2. NovAseptic AB

NovAseptic AB is an internationally operating company founded in 1993. Their headquarters are based in Nödinge, Sweden, and subsidiaries are located in France, Holland, Norway, United Kingdom and the USA. The company's operations are based on innovative design and marketing of aseptic valves, mixers and sampling systems. They meet the needs of components specially designed for the most critically demanding applications in the biotechnology, food and pharmaceutical industries. Their worldwide sales and distribution system includes their own sales companies and wholesalers (NovAseptic AB, 2005). The company was voted the best growth company in the Gothenburg region in 2003 by Business Region Göteborg (Business Region Göteborg AB, 2005). The company is listed in Tillväxtlistan 2004 (Ahrens Rapid Growth, 2005).

1.6.3. Santa Maria AB

Santa Maria AB (formed as Nordfalks AB in 1947) is the leading seasoning company in the Nordic region, with their parent company based in Mölndal, Sweden. They have several product concepts marketed under the Santa Maria AB brand name. Their Swedish production facilities are in Mölndal (spices and Taco & chips) and Vadensjö (Tortilla). Currently they operate in three business areas: consumer, catering and in-store kitchens. They have also reached leading positions in several markets outside the Nordic region (Santa Maria, 2004).

1.7. Disposition

The main chapters of this thesis are divided into four parts: *introduction*, *theoretical*, *empirical* and *conclusions*. The structure is illustrated in the following figure (Figure 1). The first part – *introduction* – begins with a chapter where the authors will present the background for this thesis. Continuing, the main research question is formulated, followed by two sub questions. The purpose for this study, as well as the delimitations of the research, is presented. An illustration of the structure of this thesis will finish the chapter. The second main chapter is written to give the reader an overview of the methods that research of this kind could be using. The authors will present different research strategies; the main scientific and research approaches. Credibility issues are also discussed in the methodology chapter before a summary of the methods used in this thesis, that will conclude the second main chapter. A chapter describing fast-growth companies will be included in the introduction part.

The second part of this thesis – *theoretical* – is comprised of a chapter where the authors present the relevant theories concerning the resource-based view and supply chain management. To describe the theories, significant literature and research articles

have been used. The most central concepts of the theories are first defined, then followed by a deeper discussion on the area when applicable.

In the third part of this thesis – *empirical* – the authors present the case studies conducted during this thesis. The case companies are first presented with a collection of secondary information and then completed by the findings the authors have experienced during the interviews with the logistic managers of the companies.

This thesis will be completed with a final part – *conclusions* – that includes two of the main chapters. The first one will analyse the theoretical studies of this thesis in addition to the analysis of the case studies. The final main chapter of this thesis will give a conclusion of the thesis and suggest further studies.

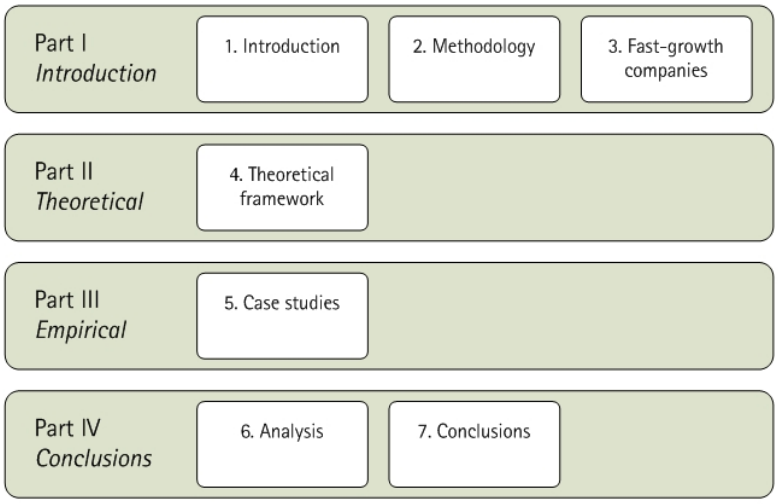

Figure 1: The structure of the thesis

2. METHODOLOGY

This second main chapter of this thesis is written to give the reader an overview of the methods that research of this kind could be using. The authors will present different research strategies, the main scientific and research approaches. Furthermore, the two major sources for information collection are brought up. Credibility issues are also discussed in this chapter, before a summary and an analysis of the methods used in this thesis, that will conclude this second main chapter.

2.1. Research strategy

Before a research can begin, the researcher has to decide how the study will be conducted. The decision between different research strategies is made based on the type of questions the study is trying to answer. Research strategies can be divided into five different types: experiment, survey, archival analysis, history study and case study (Yin, 1994). All of these strategies have their own advantages, as well as disadvantages. They also represent different methods and tools for collecting and analysing data.

An experiment is commonly assessed to be best suited when the research is aimed to find an explanation for something (Lundahl & Skärvad, 1982). With an experiment, the researcher is able to use manipulation to adjust the result by changing the studied variables. An experiment is also possible to be standardised so that it could be repeated if needed. The researcher also has a strong control over the research when conducting it in a form of experiment.

A survey strategy is somewhat the opposite of the experiment strategy. Surveys are commonly used to conduct for example market research, political opinion research or media consumption research. The results of a survey have to be in a standardised form (Lundahl *et al*., 1982), and therefore a survey is representing the quantitative research approach (see chapter 2.3).

With an archival analysis, the researcher is finding answers to his research problem by analysing already existing archival data. This research strategy can be used, for example, to answer research questions like “who”, “what”, “where”, “how many” or “how much” (Yin, 1994). An archival analysis can be useful when the research has describing the incidence or the prevalence of a phenomenon as a goal.

History study is a research strategy to study events that have already occurred. This kind of research gives the researcher understanding of the direction the development has headed historically and at which speed the development has taken place (Wiedersheim-Paul & Eriksson, 1991). With these facts it may be easier to predict the future development in the area.

With a case study, the researcher is getting a more detailed and multi-dimensional picture of the studied object. In a case study, the amount of studied objects are very limited, often only one (Lundahl *et al*., 1982). Typically case studies focus on comprehensive subjects in real life situations. According to Wiedersheim-Paul *et al*.

(1991) case studies can be used for four different functions: to illustrate reality, as a tool to create hypotheses, as a method in reforms or as a tool to create new theories.

The main research strategy for this thesis is the case study that was conducted in three companies. With a case study the authors were attempting to illustrate the situation in reality, by researching if the case companies utilise the practises found in the literature. The case studies in this thesis were conducted by first gathering information about the case companies to learn about their environment and the industry they are operating. With this knowledge in mind the interviews were planned and the managers in charge of logistic strategies were interviewed.

A sub-strategy for this research was archival analysis. Relevant literature concerning RBV and SCM theories were studied and presented in order to understand and develop a theoretical base before conducting the case study.

2.2. Scientific approach

The two fundamental scientific approaches within science and research are positivism and hermeneutics (Patel & Davidson, 2003). Basically, these two aspects can be described as two contrary scientific approaches. Positivistic science and research must be real and available to our consciousness. It should also be logical and based upon examinable consideration. The knowledge gained from the research should be useful and contribute to the community. Hermeneutic science, on the other hand, tries to interpret and understand the fundamental condition of the human existence. In opposition to positivism, hermeneutic science is conducted by the prejudices from the examiners own thoughts and understanding. Hermeneutic science is seldom trying to build up a set of absolute theories; it is rather aiming to give different interpretations of the researched object. However, the researcher could point out the interpretation he thinks is the most accurate (Patel *et al*., 2003).

The scientific approach that this thesis was using could mostly be described as hermeneutic. This is best observed when it is detected that the authors used their own experiences and knowledge in order to analyse the research results. Furthermore, the aim of this research was not to give an absolute truth concerning the researched fields; the aim was rather to use the empirical study to interpret the environment that case companies are functioning within.

2.3. Research approach

There are different methods used for information collection. However, the different methods are not necessarily limiting the use of other methods in the same research. When information is collected for research, it has to be compressed, systematised and inspected to be able to answer the questions behind the research (Patel *et al*., 2003). Qualitative and quantitative approaches to research could be the two main (and contrary) categories when it comes to research. Furthermore, there are different perspectives and methods to gather information and the methods can be used in diverse ways (Thurén, 1998).

2.3.1. Qualitative research

When the collected data cannot be quantified, it is usually considered to be a qualitative study (Backman, 1998). A qualitative feature can be identified but not measured; instead the description is verbally generated. The ambition is to try to understand the entities. During qualitative research, information is usually collected from books, articles, interviews and other texts. A researchers own notes can be used in qualitative research. The material is rarely narrow and therefore qualitative research is usually very time consuming (Patel *et al*., 2003).

In the qualitative approach the background characteristics of the researcher and the intentions of the research are of big interest since they explain the perspective in which the research has been shaped (Patel *et al*., 2003).

It is often discussed whether qualitative studies are unscientific, subjective and not immeasurable. It is also discussed whether qualitative studies are the only form of science with meaningfulness. Basically, when something is unclear, subjective, ambiguous or immeasurable, qualitative studies are needed. Furthermore, all meanings and symbols must be interpreted through qualitative research, even the facts that are hidden or implied. Only qualitative research is able to obtain a deeper knowledge than the fragmentised knowledge that is often the result of quantitative methods (Patel *et al*., 2003).

The purpose of the method is primarily one of understanding. The researcher is not trying to focus on checking the validity of the collected information. The main part is to reach a deeper understanding of the complexity of the problems that are included in the study, through collecting different kind of information (Holme & Solvang, 1997).

2.3.2. Quantitative research

Quantitative research means much more form and structure will be involved than in qualitative research. It also makes it much easier for the researcher to control the method process. The method defines the most interesting part of the problem that the researcher has chosen, and it also leads to possible answers. The planning is recognised by the distance and selectivity in proportion to the sources of information. It has to be this way if the researcher will be able to create formalised analysis, followed by comparisons and tests which will show if the achieved results and the drawn conclusions are able to be generalised (Holme *et al*., 1997).

Basically, quantitative research focuses on gathering facts and studying relations between them. In the quantitative research approach, scientific methods are used to get measurable results. In addition, the measured results should also be possible to use for drawing some generalised conclusions.

Statistics is the science where quantitative information is used regularly. Statistics is a science within itself, but it is also used within many empirical investigations as a tool to organise, illustrate, analyse and work with data.

The thesis research approach is mainly qualitative, because no measurable data has been collected for this study.

2.4. Data collection

When writing a thesis, data can be collected from several sources. The collected data can be roughly separated into two different types, primary and secondary data. In short, the difference can be stated as follows: data which is collected specifically for the purpose of a certain project is primary data, and all the other data is considered as secondary data. The differences will be presented more thoroughly in the following sections.

2.4.1. Primary and secondary data

As previously mentioned, for data to be primary, it is required that no previous documentation exists. Primary data is mostly used to create understanding for a specific project. If the researcher is seeking more universal or general patterns, primary data can be considered to be less useful (Esaiasson, Gilljam, Oscarsson & Wängnerud, 2004).

Primary data is usually collected with the help of conversations, interviews or questionnaire studies. Conversations can be totally free of form; it is often easier for the respondent to express himself when no strict rules exist. In conversations it is not the researcher that takes the initiative to lead the discussion. If the conversations were conducted in a series, a bilateral confidence could be achieved between the researcher and respondent and therefore the results can show some even unexpected results (Wiedersheim-Paul *et al*., 1991).

An interview is usually a qualitative method to get more information that is directly connected to the purpose of the thesis. In an interview, the questions are pre-formatted and the discussion follows a pattern that the researcher has designed in advance. However, the researcher might have designed the interview so that the pattern can change during the interview based on the answers the respondents give. The possibility to make follow-up questions is one of the main benefits of an interview occurring (Wiedersheim-Paul *et al*., 1991).

When using questionnaires, the researcher has developed a set of questions that seem to be relevant to the specific study. The questionnaire is a very cost-effective way to reach a large amount of desirable respondents. However, the downsides of questionnaires must be mentioned. A low rate of reply often occurs (Wiedersheim-Paul *et al*., 1991), and questionnaires have to be well developed and sufficiently tested, because the researcher cannot be helping the interviewee during the process of answering.

Basically all the data that has not been gathered for the specific research area can be called secondary data. Secondary data is often used both as part of the study and to give important background information. Examples of secondary data can be reviews of previous projects, studies, books, scientific articles and other documentation.

The authors have collected both primary and secondary data. The primary data was gathered by conducting the interviews in the case companies. The secondary data was collected from several sources, literature being the major one.

The interviews were planned to last one hour, however one of them lasted longer. The authors planned an interview guide that included all the main subjects. Both English and Swedish guides were prepared, although the interviews were hold in Swedish. The interviewees were informed about the main subjects approximately three days before

the interviews. Under every subject, a couple of supporting questions were listed. The interviews, which took place at the companies' facilities, were mainly characterised by informal discussions. The respondents had the possibility to answer the questions in their own words and express their own experiences of the subjects. During the interviews, the authors made notes that were documented shortly after the interviews. It is worth to note that the authors reflect the opinions of the interviewed personnel, it is possible that these are not totally consistent with the case companies' official standpoints.

2.4.2. Source critique[2]

The data sources can be of diversified quality. Therefore it is important that the researcher is able to criticise the used data. There are three different criteria to criticise data: topicality, inclination and correlation. The topicality of data means that the information has to be written in close association with the event. An example of high topicality is a diary that is written regularly and includes only recent events. Inclination, on the other hand, is to find out the motives of the writer of the data. Correlation criteria mean that the source of information can be dependent upon another source. For example, two interviewees could answer in the same way because they have read the information from the same source (Wiedersheim-Paul *et al*., 1991).

A major risk with the primary sources in this thesis is that the interviewed persons might consciously have wanted to give an unrealistic view of their companies. However, this could have happened on an unconscious level too, depending upon, for example, whether the authors failed to use right tools in the interviews. A risk with the collected secondary data is that the logistic literature and studies about fast-growth companies could be outdated to some extent, as technology and business environments have developed so fast. There is a possibility that the secondary data utilised here could also be criticised based on the inclination factor.

2.5. Validity, reliability and objectivity

In order to gain a high level of credibility, a thesis has to fulfil requirements regarding validity, reliability and objectivity. Thurén (1998) mentions that reliability and validity have to be considered, especially when conducting quantitative research. With a high reliability, the research is independent of whoever is performing it, and with a high validity, it would already have been decided which phenomena would be measured and described.

2.5.1. Validity

Validity is linked to the necessary knowledge that research has to work on two levels: the theoretical and the empirical. The researcher formulates the questions and the problems on the theoretical level, and investigates on the empirical level. Here, a problem may appear. The question is whether the empirical investigation is in accordance with what the researcher has said they will investigate. In other words, it

[2] Source critique, translation from Swedish word "källkritik"

highlights the level of validity present (Esaiasson *et al*., 2004). In the literature it is often possible to find the concept of validity defined in one or more of the following ways:

- Accordance between the theoretical definition and the operational indicator
- Absence of systematic faults
- The researchers truly investigate what they have set out to investigate

These definitions can be used synonymously or they can be divided into two groups. The first and second definition represent the first group called concept validity. The third definition is called result validity. Good concept validity together with a good reliability leads to good result validity. In other words, good result validity is associated with an investigation free from systematic and unsystematic faults. This leads to the third definition: the researchers truly investigate what they have set out to investigate (Esaiasson *et al*., 2004).

In the research process it is possible to discuss the concept validity as soon as the theoretical definitions have been made and the operational measuring instruments have been chosen. The instruments are made to prove theories. Result validity is not possible to evaluate until the investigations on the empirical level have been made One part of the result validity is the reliability, which will be presented next (Esaiasson *et al*., 2004).

2.5.2. Reliability

Reliability is determined by how the measuring is performed, how accurate it is, and how the information is arranged. For high reliability, it is required that the measuring instrument, for example a questionnaire, can output the same results irrespective of the researcher. For example, in interviews, control questions could be used to guarantee a higher reliability. High reliability also means that a method must be independent of the researched units - depending on the grade of generalisation (Wiedersheim-Paul *et al*., 1991).

2.5.3. Objectivity

The objectivity of research can be discussed on different levels (Wiedersheim-Paul *et al*., 1991). On the fundamental level, objectivity includes, for example, the researcher using collected data correctly, not consciously leaving relevant data outside the research. The result of the research has to be presented from a neutral point of view. On a higher level, objectivity is perceived as a more complicated question. Actually, it is questioned if a total objectivity is possible to reach. Basically, the researcher strives towards a complete objectivity by being open and distinct with his research (Wiedersheim-Paul *et al*., 1991). The authors are conscious that total objectivity cannot be reached in this study. The fundamental objectivity criteria are likely fulfilled but the knowledge and personal interests of the authors may affect the results of this research.

3. FAST-GROWTH COMPANIES

This chapter is primarily written to give the reader an understanding of the characteristics of Swedish fast-growth companies. The companies can be described with financial information, or, on the other hand, with organisational characteristics. Secondly, this information is needed to study to what degree the case companies fulfil the organisational characteristics of fast-growth companies. Thirdly, this chapter is written to enable the authors to analyse whether the organisational characteristics can affect the logistics operations.

3.1. Overview

The authors have found several different definitions of fast-growth companies. Davidsson and Delmar (2001b) state that when studying fast-growth companies, the size of companies to be included is a critical consideration. The growth of companies can be viewed from different angles, for example turnover, assets or number of people employed. If size and growth were measured in number of those employed, it would make companies in employee-intensive business areas to seem fast growing. Size and growth of turnover (for example a growth measured in percentage) would be easier to reach from a small base, with other words of smaller companies. Companies can also grow organically, for example, or by acquisitions, penetration of markets, integration or diversifying. Furthermore, companies' growth rates can be stable or varied through the years. So, before considering a company fast-growing, the period for measuring the growth must be defined.

Davidsson *et al*. (2001b) refer to several articles discussing the problems of measuring the amount of growth in a neutral way. In spite of the measuring problems, there are some generally accepted definitions of fast-growth companies. The authors have chosen two definitions that are applicable to the case companies of this thesis. The main aspects of the definitions are the following:

- Ahrens (Ahrens Rapid Growth, 2005) defines fast-growth companies as companies that over the last five years had an organic growth of annual sales with at least 25 %, annual sales of at least 50 MSEK and at least 50 employees.
- Europe's 500 (Europe's 500, 2004) defines fast-growth companies as high performing medium-sized companies that have increased their employment by more than 50 % over the last three years, maintaining turnover growth at an annual rate of at least 15 %.

Among all the new and already existing companies, there is only a small amount that try to grow, because of varying reasons. Most companies will not grow at all. Young and small companies often grow organically, while older and larger companies often grow through acquisitions. Therefore, many big companies do not achieve organic growth as

fast as in the beginning, although they are seen as fast-growth companies by some definitions. Furthermore, in industries where many new companies are formed, fast-growth companies are found more often (Davidsson & Delmar, 2002).

3.2. Characteristics of fast-growth companies

The characteristics of fast-growth companies vary internationally. In smaller countries, like Sweden, the home markets will soon be saturated, and therefore a need for internationalisation will often exist (Ahrens, 1992; Johansson, 2002). The following characteristics mainly describe companies in the Swedish markets. The authors will focus on the following fast-growth topics; organisation, strategy, resources & capabilities, markets and distribution systems.

In the following the authors will describe the historical characteristics of Swedish fast-growth companies found in the literature.

3.2.1. Organisation

Andersson (2001a) writes that fast-growth companies often show patterns like driven entrepreneurs, flexible organisations and few hierarchical levels. Ahrens (1992) discusses fast-growth industry companies and their risks in integrating downstream and upstream. He feels that close customer relationships are important for product- and market development. But with closer customer relationships, companies need to increase their knowledge and develop their systems, which may delay the growth. The risk is that the companies spend their resources on creating new organisations and trying to support customers, while they should be focusing on marketing and logistical functions. The management fails to build up the distribution system alongside the growth.

Ahrens (1992) points out that the lack of time among managers in fast-growth companies often leads to many decisions being made unintentionally and in haste; often in other places than in meeting rooms. Andersson (2001b) has studied Swedish fast-growth companies that have grown internationally from the perspective of management. He has found that it has often been the key persons' motivation, experiences, interests and personal relations that have been very important during the growth. Andersson (2000a) also refers to many studies that show how important a role entrepreneurs and individuals have played in the rise of fast-growth companies. Jacobsson, Lindholm and Dahlstrand (2001) refer to a similar study, showing that many fast-growth technology companies in Sweden have been based on business ideas that have been developed in a former parent company or in the founders' former places of work.

3.2.2. Strategy

Davidsson, Delmar & Wiklund (2001a) have found that fast-growth companies usually have grown organically in the beginning and more through acquisitions later on. There is also a pattern which shows that growth through acquisitions often happens after the company founders and owners let external capital work in the companies. At the same time many fast-growth companies reach internationalisation. Andersson (2001a)

summarises patterns of fast-growth companies, for example their ability to attract external capital and their long-term strategies for markets and internationalisation.

Ahrens (1992) notes that fast-growth companies are far more time-conscious than other companies. Fast deliveries, high service levels in shipments and fast product design are some important factors. He also underlines that many fast-growth companies avoid tying up capital in capital-demanding business activities. He means that they prefer flexibility and free resources, such as subcontractors.

3.2.3. Resources & capabilities

According to Ahrens (1992), fast-growth companies are usually very careful with their recruiting. They mostly have flexible and dynamic employees, as a result of fast growth. When problems occur, everyone in the organisation must be prepared to help. This way the employees gain stronger self-confidence. Johansson (2002) states also that flexibility is a key to competitive advantage. Unexpected demand fluctuations may be responded to faster than with their competitors. This can mean, for example, faster product-design and faster changes of volumes. Good timing saves time and costs for the companies. A fast response takes fewer resources, due to more efficient projects and better utilisation of warehouses, etc.

Andersson (2001a) points out how important it is for fast-growth companies to attract well-educated people. To make this easier, the companies need a vision of growth that they can communicate to their current and future employees. He also explains that these companies often need to keep more employees than the current situation demands. Ahrens (1992) means that many fast-growth companies prefer to offer the employees different kinds of employee benefits. Johansson (2002) also points out that fresh fast-growth companies use employee benefit systems to attract, for example, entrepreneurs. One motivation for entrepreneurs could be higher returns on new ideas.

3.2.4. Markets

The research of Ahrens (1992) shows that fast-growth companies are often strongly product/market driven. They focus on a single customer need or sometimes on just a single product. The strategy has often helped the companies to reach market-leading positions in Sweden. A focus on small niches, however, usually limits the Swedish market quickly, and forces many fast-growth companies to search for ways to achieve internationalisation.

Davidsson *et al*. (2001a) show that the growth in fast-growth companies is often organic in the beginning but increasingly based on acquisitions later on, often in connection with their internationalisation. According to them, many fast-growth companies have achieved success in this way. At the same time, they warn that many other companies might have tried to grow through acquisitions and failed.

Further Davidsson *et al*. (2001a) also state that it is easier to grow quickly in attractive industries than in stable or regressive sectors. Ahrens (1992) agrees that there are many fast-growth companies in the attractive industries, but he points out that this may not last long. Attractive industries reach their maturity level more quickly and many companies lose their market positions. He prefers to compare successful fast-growth Swedish companies, like IKEA and Hennes & Mauritz, and argues that it is not the

industry factors that decide the growth prospects. Instead he refers to specific factors within the companies, like the ability to react quickly to environmental changes.

Ahrens (1992) also points out frequently that fast-growth companies have often achieved and strengthened their success after dealing with demanding markets. This is also confirmed by Andersson (2001b), who refers to a study about the internationalisation of small Swedish technology companies, which shows that these companies take a great interest in the sophisticated American market. Johansson (2002) also states that local rules and regulations in a market can make the environment more fruitful than in other geographical areas. This can cause many fast-growth companies locate themselves in specific areas.

It is known that it is mostly younger companies in younger industries that experience growth. As companies become larger and older, the probability for growth is much lower, particularly organic growth. When looking specifically at Sweden, the statistics show that of the companies defined as fast growing (including the 10 % of all companies that grow most rapidly in number of employed people), about 62 % were younger than 10 years old (Davidsson *et al*., 2002).

Ahrens (1992) notes that a problem which appears in many fast-growth companies is that some of their suppliers – for varied reasons - do not want to grow at the same rate as the company. It is therefore important for companies to search for big suppliers with high potential. He also mentions that it can sometimes be an advantage to have smaller suppliers, which may increase the kind of flexibility that allows for quick reactions to changing customer demands.

3.2.5. Distribution systems

Fast-growth companies need to create markets. Investments in distribution systems are needed. With fast growth, it can be difficult to know how to optimise the inventory levels. These companies often face unexpected demand fluctuations. The capacity of distribution systems has to be well considered and able to respond to the variations in customers' needs (Ahrens, 1992). Strategic logistical solutions are especially important when fast-growth companies grow internationally. Agents and resellers who do not market their own products are without motives to make long-term investments. Therefore many Swedish fast-growth companies decided to have their own subsidiaries when moving to new foreign markets (Ahrens, 1992).

3.3. Summary of fast-growth companies

In this chapter the authors have summarised and presented experiences and important conclusions about characteristics of Swedish fast-growth companies. The findings are based on several Swedish studies in the field of fast-growth companies.

The authors experience is that discussions regarding definitions of fast-growth companies have often appeared in the literature. Most definitions are based on financial information, but this chapter shows clearly that organisational characteristics also have to be considered. The characteristics discussed in this chapter can be summarised in following areas: organisation, resources & capabilities, markets, distribution systems and strategy.

4. THEORETICAL FRAMEWORK

In this chapter the authors will present the relevant theories concerning the resource-based view and supply chain management. The most central definitions are presented with a purpose of deepening the reader's understanding of the theories. Furthermore the authors describe how the theories suggest that companies may gain competitive advantage. The theories are based on literature studies, as well as the latest research reports and scientific articles. This chapter gives a fundamental presentation of the needed theories and the reader is advised to look to the referred literature for further knowledge.

4.1. Resource based view

In the first part of this chapter, after definitions of resources, Porters value chain will be described completed by selected cost drivers and his value system (Porter, 1985). RBV theories about competitive advantage will follow. The authors focus on logistics functions but try to present complete sections when it is appropriate for the understanding. Porter presents a framework for activities, resources and capabilities, which a company needs to gain competitive advantage. Furthermore, RBV will be used to describe the characteristics, the resources, and capabilities needed to gain competitive advantage.

4.1.1. Resources

The literature presents a wide breadth of definitions about how to characterise firm resources. Barney (1991, p. 101) reserves the term for anything

> "*that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness.*"

Further, Barney (1991) refers to other research and divides firm resources into three categories: human capital resources, organisational capital resources and physical capital resources. Teece, Pisano & Shuen (2000, introduction) talk about resources as dynamic capabilities or

> "*influencing capabilities that a firm needs to possess in order to be able to cope with an environment in which change is rapid.*"

In the following sections the authors will focus on logistical resources. Human capital resources will include, for example, logistics management in a rapidly changing environment. Organisational capital resources will refer to logistics infrastructure and physical capital resources will refer to, for example, the efficiency and effectiveness concerning logistics facilities.

In the next section, Porter's Value Chain (Porter, 1985) will be presented. The authors are aware about that his research is considered to be outside the modern RBV area in many cases. However, the authors believe that Porter's Value Chain is appropriate to explain firm activities, which, according to him, are sources for competitive advantage.

4.1.2. The Value Chain

Value-creating strategies are meant to create competitive advantage for firms (Barney 1991). To better understand the activities through which a firm develops a competitive advantage, and which resources and capabilities it needs, it is useful to divide a firm into a series of value-creating activities. Porter (1985) introduced a value-chain model that includes a set of key generic activities that all firms perform to generate customer value. He identified primary and support activities as shown in the diagram below:

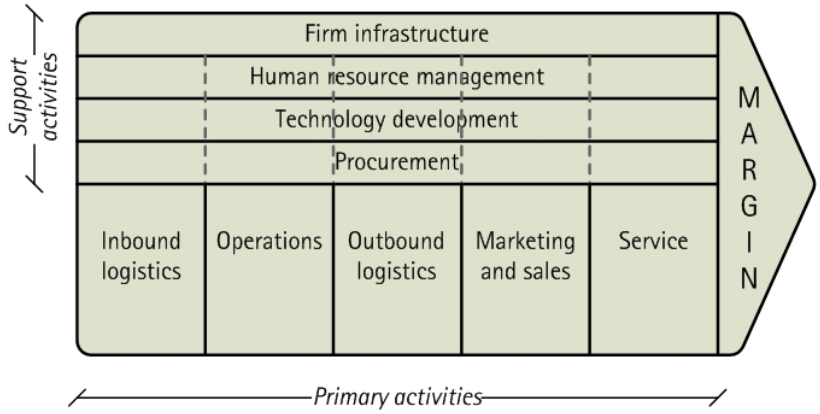

Figure 2: Porters Value Chain (Porter, 1985, p. 37)

The main goal of the activities is to offer a level of customer value that exceeds the cost of the activities, in other words, to result in a profit margin. Porter's analysis shows how a firm gains competitive advantage. He shows that this happens through the firms becoming the lowest cost-competitor or by differentiating its products or services. The value chain includes different logistics activities. The authors' experience is that the role of a firm's logistics is often not understood to its full potential among those outside the logistics field. To better understand the logistics activities in Porters Value Chain, the authors have shared them in underlying activities and listed them in the following figure (Figure 3).

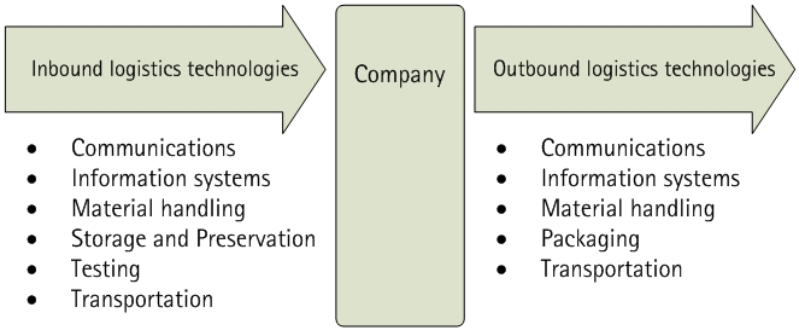

Figure 3: Logistical activities in Porters Value Chain

Porter (1985) explains that in the value chain it is important to understand the role of different technologies that may help competitive advantage. He also mentions that changes in technology may impact competitive advantage by changing the activities in the value chain or by making new configurations possible. Note that if these technologies affect the firms cost drivers or uniqueness, they may lead to competitive advantage.

The authors have experienced that logistics managers have different kind of cost drivers to consider while managing logistics strategies. The following section is written to give a better understanding of the cost drivers connected to the logistical activities.

Cost Drivers

According to Porter (1985), there are ten major cost drivers related to the value chain activities: economies of scale, learning, the pattern of capacity utilisation, linkages, interrelationships, integration, timing, discretionary policies, geographic location, and institutional factors. Porter states that the drivers determine the firm's cost behaviour for its value activities. A firm develops cost advantage by controlling the cost drivers better than its competitors.

Porter (1985) discusses many logistical issues when he develops his thoughts about cost drivers. He finds that economies of scale in transportation often depend on local or regional scale, scale per buyer or on the chosen mode of transportation. Geographic location is mostly very important when logistical costs are discussed. Location relative to suppliers or buyers affects the logistical costs. Location of facilities relative to each other is also an important logistical issue, which may affect transportation and transhipping. Many transportation suppliers offer discounts on carload, container load or shipments to a given area, but often the cost of delivery is linked to the size of the buyer's orders. This means that large buyers are less costly to serve.

Material handling technology may affect a firm's outbound logistical and packaging costs. Costs for outbound logistics activities may vary depending on whether or not a firm owns its transportation vehicles. Among interrelationships, when value activities may be shared with sister units in a firm, distribution systems are sometimes one of the possible areas to develop from the view of costs. It is further described how linkage with suppliers may affect the logistical cost. Porter refers to delivery procedures: for example, the supplier's packaging and buyer's material handling. Linkages with channels may apply to the location of warehouses (Porter, 1985).

The Value System

According to Porter (1985), a firm's value chain is a part of another system that includes the value chains of upstream suppliers, downstream channels and customers. He explains that the level of vertical integration a firm exhibits decides how well it co-ordinates downstream and upstream activities. A firm with a low level of vertical integration may achieve better co-ordination by establishing agreements with suppliers and other channel partners, for example in supply processes. A firm's product could be a part of its customers' value chain. Basis for differentiation is the product's role in the customer's value chain, which decides what the customers needs are. Sustaining competitive advantage depends on understanding how the firm fits in the complete value system (see Figure 4). Value chains look different from each other from industry to industry. This may be dependent upon how they reflect their firm's histories, strategies and former implementation successes. A firm's value chain may differ in competitive range from its competitors, leading to a potential source of competitive advantage.

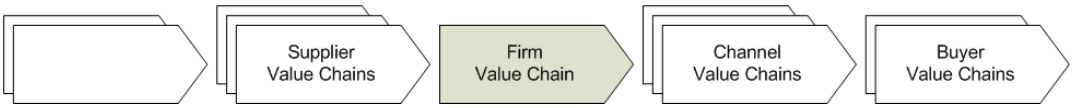

Figure 4: Porters Value System (Porter, 1985, p. 35)

Other perspectives on supply chain integration will be discussed in chapter 4.2.4, Supply chain integration.

4.1.3. Competitive Advantage from RBV

How to identify sources of competitive advantage has been a question for researchers and firm managers for decades. Barney (1995) refers to SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis, and believes this has long been an interesting task for firms. The analysis helped firms to better understand their sources of competitive advantage. According to the research of Barney, firms should consider four important questions about their resources and capabilities while creating the analysis that will help them try to gain competitive advantage: the question of value, the question of rareness, the question of imitability and the question of organisation. Peteraf (1993) reports that resources which are the basis of a company's strategy must meet four conditions if a firm will gain competitive advantage: resource heterogeneity, ex post limits to competition, imperfect resource mobility and ex ante limits to competition. Several other researchers, whose ideas also will be presented, have discussed these questions.

The question of value

Barney (1995) writes that the question of value is the first question to be asked by managers while evaluating competitive advantage. In other words the question is whether the firm's resources and capabilities add value. He also reminds that they may have added value in the past, but that changes in customer tastes, industry structure or technology, for instance, may have reduced the value. Therefore "one of the most important responsibilities of strategic managers is to constantly evaluate whether or not

their firm's resources and capabilities continue to add value, despite changes in the competitive environment" (Barney, 1995, p. 51). The answer links the analysis of internal resources and capabilities with the environmental analysis.

Logistics managers try continuously to create value for their firms by optimal equipment utilisation. The importance of this need can be exemplified in the existence of the many transportation systems that have arisen to help firms create more efficient transportation solutions (Olavarrieta *et al*., 1997).

Logistics distinctive capability as a valuable resource is defined as: (Novack, Rinehart & Wells, 1992, p. 236):

> "*…the creation of time, place, quantity, form and possession utilities within and among firms and individuals through strategic management, infrastructure management, and resource management with the goal of creating products/services that satisfy the customer through the attainment of value.*"

Olavarrieta *et al*. (1997) write that firms' increased interest in efficient consumer response initiatives, just-in-time supply programmes and quick response systems show that logistical distinctive capabilities are rising as valuable factors in the development of customer-oriented corporate strategy. These kinds of programmes tend to give logistics a position as a strategic resource, aimed to render customer satisfaction through inventory availability, timely delivery and less product failure or returns. Lambert & Stock (1993, p.13) also discuss customer satisfaction. In their own words, "*Each element of a firm's logistics system can affect whether a customer receives the right product at the right place in the right condition for the right cost at the right time*".

Peteraf (1993) discusses heterogenic resources, which means that characteristics of resources vary between companies. It can also be a base for competitive advantage to exist. Companies endowed with those kinds of resources are able to compete in a marketplace and to better meet customer need.

The question of rareness

If a firm's resources and capabilities are considered to be valuable, another question is if they are rare among competing firms. Barney (1995) points out that they must be rare to be a source of competitive advantage, at least for a temporary time.

Peteraf (1993) discuss ex post limits to competition; if a resource will provide a long-term comparative advantage for a company, there must be a limited number of other companies with the same resources.

The question of imitability

When the firm's resources and capabilities are considered to be both valuable and rare, it means that the firm can gain at least a temporary competitive advantage. The question of imitability addresses whether competing firms meet cost disadvantage by imitating the resources and capabilities. Barney (1995) feels that it would be possible for a company that controls these special abilities to gain sustainable competitive advantage. Further, he notes that there are two ways in which imitation could occur - through duplication and through substitution. Duplication means that a firm tries to imitate another firm and build the same kind of resources. Substitution means that a firm tries to substitute one kind of resource with other kind of resource. Barney has found that

there is a special reason why some of these internal attributes of firms could be costly to imitate. Barney (1995, p.53) groups them in three parts:

- the importance of history in creating firm resources
- the importance of numerous "small decisions" in developing, nurturing, and exploiting resources
- the importance of socially complex resources

In the importance of history he includes the firm's abilities, skills and resources which have become unique to them through their particular history. Barney (1995) also reflects how the unique mix of experiences, personalities and relationships that may exist only in single firms can affect these resources and capabilities.

In the importance of numerous small decisions he discusses that a firm's competitive advantage more often seems to be a result of numerous small decisions, which have affected the firm's resources and capabilities in a positive way. Further, Barney (1995) points out that the results of small decisions are essentially more difficult for competing firms to imitate than big decisions. Big decisions are often easier to describe, as well as more obvious.

In the importance of socially complex resources he includes phenomena in firms like culture, friendship, reputation, teamwork and trust. All of these are difficult for competing firms to imitate (Barney, 1995).

Duplication may take place when firms try to imitate other firms' routines, after observing them and finding them to be successful, such as emulating routines concerning how to produce a better product. The imitator normally cannot make perfect observations about what they want to duplicate, which might lead to difficulties if problems would arise in the copy. Resolving the problems would be impossible since there is no possibility for a closer inspection of the original (Nelson & Winter, 1991).

According to Rumelt (1984), companies may try to create isolating mechanisms for the purpose of stopping or delaying new actors from entering the market. New actors should face several competitive disadvantages compared with already established companies. In the following figure (Figure 5) the authors will list the sources of potential risks and the isolating mechanisms.

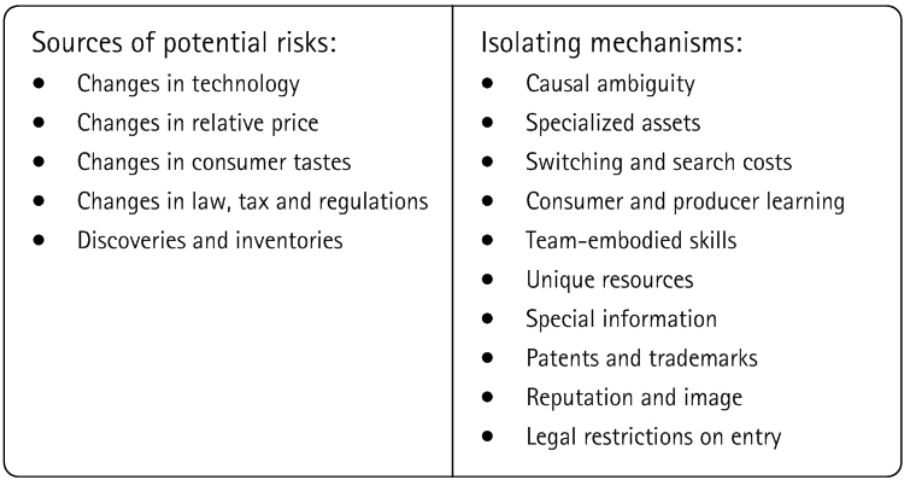

Figure 5: Sources of potential risks and isolating mechanisms

Companies can benefit from the isolating mechanisms when battling against the potential risks. For example, if a company has exquisite information (special information) of potential suppliers in new geographical areas, they can feel safer against the risks of changing trade regulations (Changes in law, tax and regulations) in the current supplier base. Another example can be the customer relations (Consumer and producer learning), with a co-operation in product design phase, the company will increase the possibilities to quickly find out eventual changes in customer tastes.

Peteraf (1993) describe imperfect resource mobility. It helps companies to achieve sustainable competitive advantage, because they limit other companies' possibilities to copy or transfer important resources. Often it is not meaningful to copy or transfer a single resource as it decreases in value when it is not used in the right environment. Ex ante limits to competition is also important, if the competition about a resource is too intensive, the costs for acquiring it may be higher than the obtained value.

Olavarrieta *et al*. (1997) mean that many logistics researches have pointed out the difficulties in copying firms' distribution and logistics systems. Distinctive logistics capabilities may involve a complex combination of organisational routines, people skills, knowledge and physical assets. They also refer to a study, which shows that it is possible to design distribution, as a unique offering that cannot be duplicated by competitors.

Lambert & Stock (1993) describes firms logistics systems as proprietary assets that theoretically should be listed as intangible assets on the corporate balance sheets. They also mean that competitors cannot easily duplicate the logistics.

The question of organisation

According to Barney (1995), when a firm has identified their resources and capabilities as valuable, rare and difficult to imitate, they must also be well organised to fully realise their competitive potential. Among organisational components he mentions are reporting structures, management control systems and compensation policies. These components may lead to competitive advantage, not isolation, but in combination with other resources and capabilities. Prahalad & Hamel (1990) explain that the real sources

of advantage can be found in the management. To enable a business to adapt quickly to a changing environment, the management has to consolidate corporate-wide technologies and production skills into competencies.

Olavarrieta *et al*. (1997) mean that despite a growing understanding for logistics as powerful strategic sources of sustainable competitive advantage in marketing and management literatures, problems remain. Many firms still regard logistics functions as a separate part of their business, whose activities are distinct from the rest of the firms' activities. Therefore many firms have not paid what is deserved attention to the strategic role of logistics. Olavarrieta *et al*. (1997) point out that firms' logistics capabilities can be valuable, rare and difficult to copy. Consequently they could become strategic resources among firms in the same industry.

Further Olavarrieta *et al*. (1997) discuss the problems logistics managers may face when determining which capabilities or service performance areas they should focus on or develop in advance. When creating customer value through logistics they need to react quickly to the rapidly changing world, customer needs and continuously shifting expectations. Competitors, technology, legislation and regulation are other areas that may impact logistics and how a firm serves customers. Olavarrieta *et al*. (1997) state that logistics managers should be allowed to participate in decisions and issues related to, for example customer needs, information processing, production and technology.

Christopher (1998) explains that effective logistics management can help firms gain competitive advantage, under circumstances where the logistics systems are designed on the basis of customer needs. Supply chain management can be seen as an extension of logistics management.

4.2. Supply chain management

Theories concerning supply chain management are presented to formulate an understanding of the framework that companies have when deciding how to build up the logistics functions. The authors are also presenting literature that describes modern concepts of SCM in order to find the characteristics a competitive supply chain has. Finally, the characteristics are presented for later use in the empirical study.

In the literature, a couple of definitions are used when discussing logistics in companies and value chains. These definitions are often mixed up; a definition can be used to mean several different things. Therefore, the used definitions in this thesis are explained on a fundamental level to avoid misapprehensions.

4.2.1. Supply chain

A supply chain is network of actors that transform raw materials into distributed products. But, as the name states, the supply chain has traditionally considered being a chain of actors. Furthermore, the supply chains were considered to be a form of long-term upstream co-operation. In the early 1990's, supply chains were still perceived as linear chains of companies (Kemppainen & Vepsäläinen, 2003). However, the concept of supply chain is today understood rather as a network than a chain.

Christopher (1998, p. 15) describes supply chain as follows:

"*The supply chain is the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer.*"

According to Lumsden (1998), a supply chain consists of five different flows. The flows are illustrated in Figure 6 and described in the following:

1. The physical flow of materials consists of the transported goods from the producer to the consumer.
2. The monetary flow usually goes from the consumer back to the producer through the organisations in the supply chain.
3. The horizontal flow of information is bidirectional; from the consumer to the producer and back again. Information is needed, for example, to produce right products or concerning delivery times.
4. The vertical information flow goes between the four horizontal flows, for example, a track-and-trace system on a truck.
5. Another physical flow is the resource flow, for example, containers used to transport the goods from one destination to another or forklift trucks inside the companies' premises.

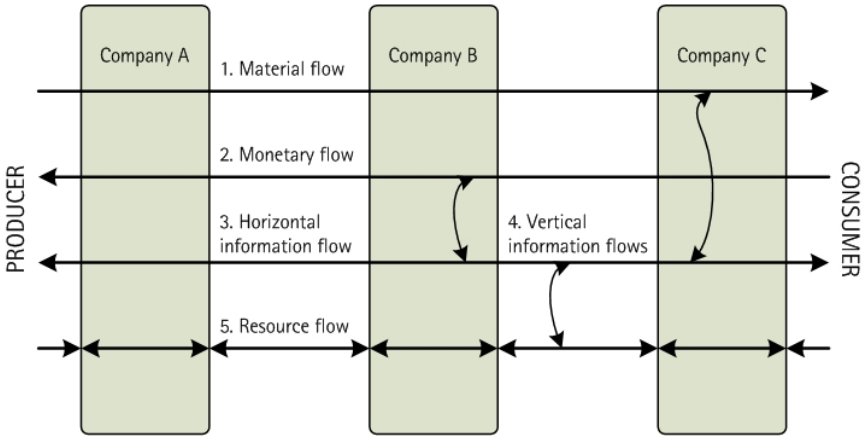

Figure 6: The flows in a supply chain (adapted from Lumsden, 1998, p. 59)

In close relation to the supply chain is the concept of value chain. As previously (in paragraph 4.1.2) illustrated, Porter (1985) defines the value chain as the chain of a company's different functions. Furthermore, the value chain concept defines how the value-adding activities are connected to each other. Like a company optimises its value chain to gain competitive advantage, the supply chain could be optimised for the same purpose. Basically, the supply chain could gain competitive advantage by two ways: by performing the activities more efficiently or by performing the activities in a unique

way. Instead of supply chain or value chain, also a term demand chain is seen in related literature. Christopher (1998) argues that the term demand chain should be used to reflect the fact that the chain should be driven by the markets and not by the suppliers. However, the majority of literature uses the term supply chain and therefore it is used in this thesis as well.

As previously mentioned, the supply chains consist of operational activities carried out by the members of the chain. Many of the activities can be linked to the cost drivers that Porter (1985) discusses. The emphasis of this thesis, however, is on the strategic level of logistics, and therefore the activities are only listed as follows:

- Forecasting
- Sourcing and supply
- Production planning
- Stocking and warehouse management
- Order management and activities in customer service
- Transport
- Other functions

These activities are described more thoroughly in appendix C.

4.2.2. Supply chain management

The concept of supply chain management was introduced in the 1980´s (Skjoett-Larsen, Thernøe & Andersen, 2003) and it was developed from traditional logistics management. Earlier, companies were considered as single entities, with little connection to other companies that were often seen as competitors. Therefore, the companies focused their decision-making on the internal flows and processes. These flows and processes where separately optimised without taking the other parts of the company into consideration. As a consequence from this, the cost for the optimisations was often pushed downstream or upstream, and therefore the optimisations did not affect the total costs of the production. SCM is focusing on the flows and processes both internally and externally. Like mentioned earlier, competition today is between different supply chains rather than between companies (Christopher, 1998). Kemppainen *et al*. (2003, p. 701) defines SCM in the following way:

> "*SCM is a strategic view of materials and distribution management that shows the benefits to the individual companies from the boost of performance of the supply chain as a whole through the lens of the business processes across functional and corporate borders.*"

Similarly like Christopher (1998) mentions, the definition by Kemppainen *et al*. (2003) for SCM brings up both the internal and external views on material flows. Kemppainen *et al*. (2003) also emphasises the strategic nature of SCM. A lot of literature of various disciplines has been viewing SCM from different points of view;

purchasing and supply management, logistics and transportation, operations management, marketing, organisational theory and management information systems. Various theories have been presented of specific aspects or perspectives of SCM, among them also resource-based view (Li *et al*., 2004). As SCM literature is focusing on the flow of materials on strategic level, the RBV literature, however, encourages a deeper look at chains. Particularly, the RBV is studying if certain supply chain practices or characteristics are rare, valuable, and difficult to duplicate. If so, these distinctive elements may provide some chains with a competitive advantage (Ketchen & Giunipero, 2004).

There are lots of judgments to be taken into consideration when making the daily decisions affecting the supply chain. These decisions require that the managers have comprehensive knowledge of the available resources of the company. Furthermore, companies has to realise that the fast changing factors like market demands, customer service, transport considerations and pricing constraints must also be understood in order to arrange the supply chain effectively (RCG University, 1999).

During the latest years, an assumption that firms will gain competitive advantage and make them more customer responsive with effective SCM, has arisen. Therefore, a lot of companies have spent great amounts of money to improve supply chain processes. However, managing supply chains effectively is a complex task as it includes two views: the long-term (strategic) planning and short-term (operational) planning (RCG University, 1999). In this thesis, the strategic planning is in focus as it deals with the overall design and the supply chain structure.

4.2.3. Logistics management

After understanding the definition of supply chain management, it is natural to present the definition of logistics management as well. Logistics includes all the work necessary to physically move and position raw materials and products in a supply chain. Whilst SCM recognises that internal integration by itself is not sufficient, logistics management is primarily concerned with optimising flows within the organisation (Christopher, 1998). Council of Supply Chain Management Professionals (CSCMP, 2005) stated the definition of logistics management as follows:

> "*Logistics management is that part of Supply Chain Management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements.*"

As the definition states, the fundamental idea of logistics management is to meet customer requirements. Therefore, logistics is managing the whole value-creating process. However, this definition is not completely in line with the idea Christopher has about logistics management, as the definition from CSCMP does not take into consideration whether the logistics management happens inside a company or inside a supply chain. Although the definition from CSCMP is widely accepted, the authors of this thesis will use the term logistics management when meaning the management of the physical activities internally in the companies that are the actors in a supply chain. The logistical activities are therefore an integrated part of the supply chain; the concept of SCM could be seen as an extension from the concept of logistics management.

These internal logistical activities are at least as complex to manage as the external SCM. They both require a lot of information (Hurd & Nyberg, 2004). The different departments of a company need both horizontal and vertical information (see Figure 6). Without the information, internal logistics can go wrong and erode trust between the departments. Ultimately, the perceived customer value will be inflated. For example, if a retail chain's marketing department is launching a new product campaign, the information has to reach all the way to the stores and the personnel in question. If the personnel in the stores do not know about the special campaign, it is evitable that stock-outs will follow and instead of boosting the sales, the campaign results in dissatisfying the customers (Hurd *et al*., 2004). Communication problems like these are too usual and can deteriorate the relations both internally and also between the company and it's customers.

4.2.4. Modern SCM concepts

While researching the literature concerning SCM, a few research areas are often encountered. As the SCM literature commenced in the 1980's, the main contents of the research was to define and understand the supply chains. Later, the researchers seem to have concentrated in defining how to use SCM as effectively as possible. In the modern literature, several concepts for effective SCM have been presented, but three concepts tend to appear in the background fluently. These strategic concepts are supply chain collaboration, agile supply chains and supply chain integration, and they are presented in the following sections.

Supply chain collaboration

Co-operation within the supply chains is often referred as supply chain collaboration. During the last decade, new forms of collaboration in supply chains have been developed. They are developed in order to further advance the ordinary information sharing relations. The new forms of collaboration extend their focus to include not only a passive exchange of information between the partners, but also a more proactive approach through common planning and synchronisation of activities and business processes (Skjoett-Larsen *et al*., 2003). To reach such collaboration, several personal contacts were required in the past. However, with modern information technology a great deal of co-ordination and face-to-face meetings are possible to replace by technology.

The companies in the supply chains need to have common goals. Collaboration can help the individual companies to understand the goals of the whole network whether it involves both the economic goals and the social dimensions of the network (Batt & Purchase, 2004). For this purpose, a concept Collaborative Planning, Forecasting and Replenishment (CPFR) was introduced 1995. The concept is defined (Skjoett-Larsen *et al*., 2003, p. 532) as follows:

> "*Collaboration where two or more parties in the supply chain jointly plan a number of promotional activities and work out synchronised forecasts, on the basis of which the production and replenishment processes are determined.*"

The CPFR concept includes the processes of planning, forecasting and replenishment in the supply chains and aims to soothe the information exchange between companies. The

concept is based on a nine-step process model that works as a guideline towards CPFR collaboration (Skjoett-Larsen *et al*., 2003).

Agile supply chains

Lumsden (1998) argues that an agile supply chain has a high capability to flexibly adapt to the fast-changing environment. With this capability, the network can more easily accomplish the paramount goal of the supply chain; gain customer satisfaction. An agile supply chain consists of well-designed organisational structures, information systems and logistics processes. However, the principal fact enabling agility is the skills of the management. The agility of supply chains is also understood as a measure of how well the relationships between members enhance the four pivotal objectives of agile manufacturing[3] (van Hoek, Harrison & Christopher, 2001). Basically, agility is about the combination of speed and flexibility of the network. Naylor, Naim & Berry (1999, p. 108) initiate a compact definition for agility:

> "*Agility means using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile marketplace.*"

The benefits of agility can be found at all the actors of the supply chain; every company benefits from the supply chain being flexible and responsive. The agility is often achieved by modern information technology, which enables to react quickly to the fluctuations in product demand and sourcing problems. The agility can be applied in a range of business situations in the companies (Hurd *et al*., 2004).

Like Naylor *et al*. (1999) define, agile organisations are market-driven, often investing in product research and striving towards short development and introduction cycles. Furthermore, an agile company performs all physical activities quickly and accurately because the faster material, information and decision streams through the chain, the shorter the response time to the market needs. An agile company attempt to shorten the distance between the points in the flow (RCG University, 1999).

Yusuf *et al*. (2004) discuss supply chain agility in the terms of two dimensions: reach and range of the activities that are covered by the information systems. With reach is meant the extent of the used information system in the organisation and its environment, while range means the level of the integration between actors' information systems. When both of the dimensions are achieved maximally, the internal operations will be transparent to all supply chain members and the earlier discussed benefits could therefore be obtained. In practise, this can lead to employees thinking globally and, for example, setting up virtual teams between companies within the supply chain.

Supply chain integration

Integration along the supply chain has been considered to be a source of competitive advantage. Therefore, numerous logistics managers and researchers have seen integration as an interesting and important issue to research (Gimenez & Ventura, 2005). Christopher (1998) presents four different phases to supply chain integration. At

[3] Four basic dimensions of agility: enriching the customer, cooperating to enhance competitiveness, organising to master change and uncertainty and also leveraging the impact of people and information (van Hoek et al., 2001)

first, the companies have their internal departments that strive for optimised processes inside them. By doing this, the departments become competitors to each other and they do not care how the following department will be affected if changes are carried out. This is illustrated as stage 1 in following figure (Figure 7).

Stage 2, the functional integration, is a step towards a company-wide integration. By communicating between the departments, the functions that are dependant on each other, will build integrated blocks. These functions could be, for example, purchasing and material control. Sharing the market information between functions should guide the firm to respond better and faster to customers' needs or problems and to competitive threats. Consequently, fluent responses to the challenges that customers are placing should produce greater loyalty, profitability, and sales (Martin & Grbac, 2003).

The third stage represents already an internal integration, where the functions inside the company are integrated so that they all strive to common goals. The company must have a culture for internal integration before being able to share information with external partners, e.g. suppliers and customers (Martin *et al*., 2003). Achieving this stage needs unrestrained communication between the departments, and this can be accomplished, for example, by using modern information systems.

The fourth stage, external integration, illustrates the eventual goal of coordinated processes: the supply chain management. In this phase the participants of the supply chain have common goals. Like logistics strives to create an optimised flow through a company, SCM strives to optimise the coordinated processes through the whole supply chain and its participants.

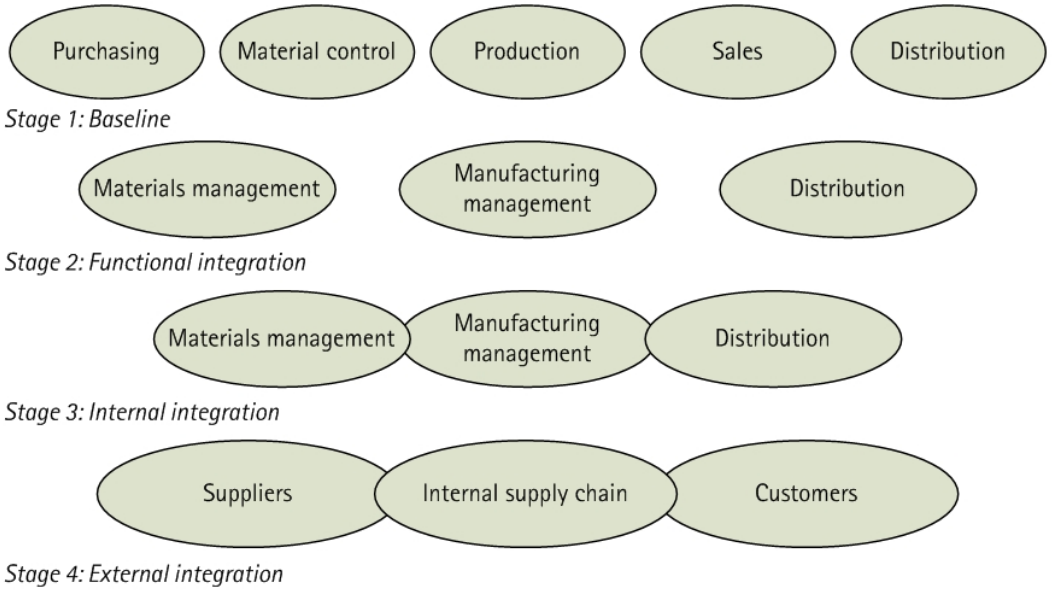

Figure 7: Achieving the levels of supply chain integration (Christopher, 1998, p. 17)

Information systems and other communication technology are seen as the enabler for working external supply chain integration. Technologies like EDI[4], for example, could reduce demand amplification effects along the supply chain. Reduced stock keeping costs and improved delivery performance are often pointed out as consequences for the better information flow between the supply chain actors (Rungtusanatham, Salvador, Forza & Choi, 2003).

Olavarrieta *et al*. (1997) refers to the fact that many companies try to upgrade their logistical capabilities with focus on information based logistics partnerships and on integrated SCM. They warn that forming these solutions require time to develop and integrate, because:

> "*distinctive logistics capabilities involve a complex combination of physical assets organisational routines, people skills and knowledge.*" (Olavarrieta *et al*., 1997, p 572)

Olavarrieta *et al.* (1997) state that suitable and appropriate channel partners may be difficult to find. Their conclusion is that companies who pre-empt competitors by securing successful partnerships should be better positioned to develop and enhance their logistics capabilities.

4.2.5. Competitive advantage from successful supply chains

If the supply chains are analysed from a resource-based view, the key question is whether the characteristics are rare, valuable and difficult to imitate. If these strategic resources are available for only one company at the markets, this company has competitive advantage over its competitors (Barney, 1991; Ketchen, 2004; Rungtusanatham *et al*., 2003). By coordinating the activities a company can gain competitive advantages. Another way to gain competitive advantages is to optimise one or more activities. However, a consideration has to be taken so that optimisation does not end in optimising one function at the expense of the others (Lumsden, 1998; Porter, 1985).

Like earlier described, Porter (1985) argues that competitive advantage is gained by being the lowest cost-competitor or by differentiating. However, within the supply chain domain, competitive advantage is gained by two facts: reducing costs and increasing responsiveness (agility) to customers' needs (Martin & Grbac, 2003). If the company strives to meaningful cost reductions, more efforts on cross-firm co-operation, co-ordination, collaboration and integration are required (Flint, 2004).

As the supply chain has a common goal to satisfy the needs of end customers, global SCM has to understand the service needs of customers in locations spread all over the world. The supply chain strategies have to be prioritised differently when market conditions change (Ekenstedt, 2004). Ahrens (1992) argues also that the internationalisation of fast-growth companies needs strategic logistical solutions.

With the help of the literature review (e.g. Closs *et al*., 2004; Li *et al*., 2004, Yusuf *et al*., 2004), the authors have distinguished characteristics of successful supply chains of today. The reviewed literature has a common goal to improve organisational

[4] Electronic Data Interchange

performance and gain competitive advantage. The recognised supply chain practises are presented in the following figure (Figure 8) and described in following sections. They are later used in the empirical part of this thesis to analyse the practises of the case companies.

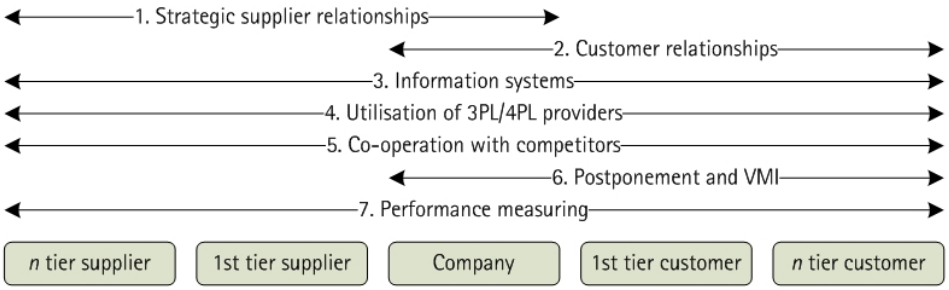

Figure 8: Practises in successful supply chains

Strategic supplier partnerships

Already in the late 1980's, it was observed that collaboration with suppliers could lead to competitive advantage (Ekenstedt, 2004). Also Hurd *et al*. (2004) argue, that the successful companies in the future are those that have established partnerships and supplier relationships. Implications of this observation are today visible. For example, increasing the amount of suppliers, long-term supplier contracts and consolidated efforts are directly in consequence with the observation (Christopher, 1998; Ekenstedt, 2004). By decreasing the amount of suppliers and co-operating with strategically chosen suppliers the companies are striving to have better control of the cash flows (Ekenstedt, 2004).

Kotabe *et al*. (2004) discuss the capabilities of the companies and argue that it is the unique combination of the firms and its suppliers' capabilities that would provide the firm with sustainable competitive advantage. The joint capabilities could help in producing differentiated products. Furthermore, Handfield and Nichols (2004) have found that the supplier relationships have to be maintained positive even when the companies are facing economic challenges. By strategic supplier relationships, the companies can share risks and gain synergies (Closs *et al*., 2004).

The long-term relationships between the company and its suppliers are often designed to leverage the strategic and operational capabilities of supply chain members. With the strategic co-operation companies strive to help each other to achieve significant ongoing benefits (Li *et al*., 2004). If the company manages its' suppliers strategically, operational performance, in terms of dependability, flexibility, cost, and quality, could be improved (Rungtusanatham *et al*., 2003).

Having suppliers involved in product design can have a positive impact on fault rate in manufacturing company's production. If critical suppliers are involved already in the product design process, the company can gain loyalty from these suppliers. Furthermore, if the supplier is involved in the design process, the company can reduce quality problems during the production. In addition, if the company accounts for a large

amount of a suppliers' output, it will prevent competitors getting access to the same supplier and the same sourced products (Rungtusanatham *et al*., 2003).

A key to functioning supplier relationships is trust. Despite the modern information technology, companies need to realise that even non-technical issues, like trust, are of importance. In order to build trust in relationships with suppliers requires transparency. With transparency is meant a precise and timely information exchange between supply chain members, so that everyone is able to work from the same information. Open communication like this will build trust that is the key for optimising decision-making in the supply chains (Hurd *et al*., 2004). The members should feel that the decisions are mutually beneficial for suppliers and the company (Handfield *et al*., 2004).

Handfield *et al*. (2004) present also some of the possibilities of modern technology for supplier relationships. For example, sourcing strategies like cooperative buyer-supplier relationships are today used with the help of technology. In addition, e-procurement tools, on-line reverse auctions and supplier selection and management over the Internet are all examples of the possibilities.

Customer relationships

Like mentioned earlier, the common goal of SCM is to create customer value. It is also discussed that competitive advantage is gained by creating value to immediate down-stream customers and their customers, ultimately to the end-user (Flint, 2004). Noticing these facts is the key to the success of customer relationships.

To see customer relationships as a capability enable companies to understand them as a potential source of competitive advantage. Li *et al*. (2004) state that all the practises for managing customer relationships could be source of competitive advantage. Managing customer complaints, building long-term relationships and improving customer satisfaction are some of their examples of methods for managing customer relationships effectively. Closs *et al*. (2004) also states that integration with chosen customers will build permanent uniqueness for the companies in the supply chains.

Rungtusanatham *et al*. (2003) argues that a firm engaging in a long-term relationship with its customers can reduce demand uncertainty, improve its customer service and ultimately decrease costs for stocking and warehouse management. It is also needed that the companies strive to individualise its customer relationships. Flint (2004) states similarly, that companies should view the supply chain from the customer's point of view. The companies must be able to understand, compare, contrast and merge the attributes the disparate customers could desire. Flint (2004) adds that customer learning will ease predicting the customer needs both regionally and globally, and would then generate competitive advantage. Furthermore, while the market environment is getting increasingly dynamic and turbulent, the ability to develop and successfully manage relationships with customers is emerging as a key capability and consequently a source of sustainable competitive advantage (Batt *et al*., 2004).

Additionally, Rungtusanatham *et al*. (2003) brings up the time factor. If the companies interact with customers on issues related to quality and material flows, they could enhance their operational performance in terms of speed and delivery accuracy. Also customer information would be gaining competitive advantage for the companies; customers' forecasts, order statuses, sales statistics and marketing campaigns are few examples (Rungtusanatham *et al*., 2003). Although companies sometimes have

information like this available, they tend to ignore it as a source of competitive advantage or as a way to reduce costs.

Just like in strategic supplier partnerships, building long-term and profitable relationships with customers needs mutual benefit and trust. By having trusting customers, the company can further develop the relationship and deepen the co-operation with the customers. Furthermore, when trust is established, both the company and its customer can experience that joint efforts are leading to results that are superior to what the two would have achieved independently (Fynes, Voss & de Búrca, 2005).

Information systems

The role of modern information technology is often mentioned as significant in the literature in managing supply chains effectively (Bello, Lohtia & Sangtani, 2004). Both the agility and integration of supply chains are described to be achievable by using the modern information systems. Utilising information systems allow critical and proprietary information to be effectively communicated between supply chain partners (Li *et al*., 2004). Information flow is the element in a supply chain that gives the different actors the possibility to plan their activities. Fundamentally, information and trust are the basis of every profitable relationship (Hurd *et al*., 2004).

Fynes *et al*. (2005) identify three aspects of communication performance in supply chain relationships. Firstly, the quality of the communication is including aspects as the accuracy, timeliness, adequacy, and credibility of the communicated information (Li *et al*., 2004). Secondly, the form of information sharing covers the used methods for communication. And thirdly, the extent to which supply chain members mutually engage in planning and goal formulating is also describing the performance of communication.

Many of the modern logistical concepts, like postponement and VMI (see paragraph 'Postponement and VMI'), have brought stronger relations between companies. It is vital for these relations, that the transaction of information between the participators works unrestrained. As Handfield *et al*. (2004) found, a typical commercial shipment involves nine different members, 20 business documents, 35 supplier-buyer relations and several transport modes. This example gives a clear understanding why the accurate information is vital for the performance of supply chains.

Handfield *et al*. (2004) also states that data could often mean very different things to different members of the supply chain. Viewing this background, the motives behind an ERP[5] system implementation within and beyond the boundaries of supply chain members become clearer. The ERP systems theoretically enable a company to catch valuable information about demand and supply factors. This would lead further to enhanced performance, more efficient and effective management of the supply chain flows (Rungtusanatham *et al*., 2003).

Agile supply chains compete through increased levels of knowledge and competency allowing them to broadly implement information technology. In addition, the use of information technology is a major indicator of SCM best practice, particularly if employed to connect customers, suppliers and value adding services (Power, Sohal & Rahmann, 2001).

[5] Enterprise Resource Planning systems

Utilisation of 3PL/4PL providers

The concepts 3PL and 4PL have their backgrounds in the amount of actors taking part of the logistical functions. When the manufacturer (or the buyer) takes care of the logistical activities all the way to the buyer, there is only one actor participating in the logistics, therefore the name 1PL (one party logistics). When both the buyer and supplier are involved in the functions, for example, sharing the responsibilities of transport, the name 2PL (two party logistics) could be used. When having a third actor between the supplier and the buyer, for example a transportation company, the name 3PL (third party logistics) is commonly used. Additionally, the concept of 4PL (four party logistics) is nowadays used. In such situation, the fourth actor in the logistics function is offering its immaterial services to the members of the supply chain. The 4PL provider assembles and manages the resources, capabilities and technology of the other three players to function optimally (Lumsden, 1998).

The concept of 3PL is not only covering the transportation functions between the buyer and the seller; 3PL providers are often taking care of several activities for its customers. By doing this, the customer company have better possibilities to concentrate in their core competencies. In addition to transportation, activities like warehousing, packing and planning are examples of activities that the 3PL providers could offer its customers (Lumsden, 1998).

Fundamentally these concepts of 3PL and 4PL are logistics outsourcing. The companies often calculate that outsourcing could lower costs and help them gain a competitive advantage. Boyson, Corsi, Dresner and Rabinovich (1999) found that outsourcing logistics functions has helped companies to achieve competitive advantage, improve customer service and reduce overall costs in logistics. According to Ekenstedt (2004), logistics activities are outsourced not only to reduce and control operating costs, but also to give the possibility to use resources that companies are not occupying internally.

Distribution has become one of the major competitive advantages of the manufacturing companies. The companies have utilised distribution to differentiate itself from other companies by excelling in delivery service. When the mass produced products are not differentiated, the distribution can be the order-winning factor. By co-operating with just one partner in the distribution functions, this partnership can develop to be of strategic nature (Lumsden, 1998).

Co-operation with competitors

To bring agility to the supply chain, Yusuf *et al*. (2004) suggest that co-operative alliances with competitors should be established. The agility would then emerge from process integration and inter-dependence. These factors would further enable to delegate the production of modules between competitors. However, the research by Yusuf *et al*. (2004) shows, that this is not a commonly used method.

Nevertheless, in automotive manufacturing, co-operation with competitors has been used for years. One of the recent co-operations with most publicity is the production plant for small cars in Czech Republic, started in co-operation with Japanese Toyota and French PSA Group. The plant will serve the European car markets with 300 000 similar cars annually, under three different brands. The two manufacturers think that the new production plant will gain competitive advantage from the unique mix of resources: the plant will be provided outstanding production technology by Toyota and the

effective European sourcing network by PSA (PSA Peugeot Citroën, 2002; Göteborgs-Posten, 2005a).

Postponement and VMI

The concepts of postponement and VMI are often found in the logistics literature, mentioned to make the downstream supply chain functions more effective. Postponement is a way to take advantage of mass production but still be able to differentiate the products according to customer requirements (Ekenstedt, 2004). Postponement is defined as the practice of moving one or more activities downstream to a later point in the supply chain (Li *et al*., 2004). By keeping materials undifferentiated longer, the company will increase its flexibility in responding to variations in customer demand (Li *et al*., 2004). However, postponement could be achieved also by delaying the differentiation process until the customer order is received; the company could reduce cost by keeping undifferentiated inventories (Li *et al*., 2004; Ekenstedt, 2004).

VMI on the other hand is a concept, where the supplier is taking responsibility of the customer's stock levels. In retailing, for example, the traditional inventory management is being replaced by VMI. Earlier, the ordering and transport functions between distributor and retailer were handled by orders from retailers. According to these orders, the products were shipped to the retailer's central warehouse and further to the stores (Bello *et al*., 2004). When using VMI, the stores place no orders; instead they share information with their suppliers (Christopher, 1998). The key to a working VMI-solution is the horizontal information flow; for example, point-of-sales information could be utilised to plan the activities. The VMI-solutions are often designed in a way that the supplier gets paid of his products at the same moment when his customer has sold the products. With a VMI-approach, the customers' stock levels are kept on a reasonable level, as the supplier is not pushing his products without a concrete need. Also, the risk of stock-outs will diminish (Christopher, 1998).

Performance measuring

In the past, financial accounting information was the only instrument for managers to rely on when companies were investing in new programs and initiatives in order to build their capabilities. Nowadays, however, the financial accounting practices must be expanded to include the assessment of the company's intangible and intellectual assets as well (Simons, 2000). The logistics strategies are often very intangible in nature, so their performance cannot be measured totally by the ordinary financial information. Performance measuring connects the components of strategic supply chain systems and the activities on the operational level (Miller & Ross, 2003).

For assessing the achievements of strategies, the balanced scorecard is a commonly used tool. With a balanced scorecard, the company can communicate the objectives that companies must achieve to compete based on their intangible capabilities and innovation. The basic scorecard uses four perspectives to translate company's mission and strategy: financial, customer, internal business process and learning and growth. (Simons, 2000) These perspectives are often replaced or completed by company-specific perspectives to make the scorecard more useful for the particular company's needs.

Another method for measuring non-financial information is the key performance indicators (KPI). These indicators are used to measure the company's functions on an operational level, where the financial measures are inadequate. The measures in a

balanced scorecard are sometimes also called KPI's (Management, 2002). The idea behind KPI's is that the management has designed a strategy for the company's operations, and with the help of KPI's the organisation can steer the operations towards visible goals. Consequently, if the operations are performed well, the financial measures will show good results as well (Management, 2001; Management, 2002).

An example of special tools for measuring logistics performance is the "21st Century Logistics" framework. It has been developed to measure the companies' internal and external supply chain performance. It includes five key performance areas: customer service, cost management, quality, productivity and asset management. This framework has been shown to be useful and therefore been used to, for example, compare logistics practises between two geographical areas (Closs *et al*., 2004). It is also emphasised in literature that when measuring supply chain performance, the suppliers and customers has to be included in the measuring (Handfield *et al*., 2004).

Benchmarking is often used to learn the practises of other companies. The process of benchmarking includes four stages. Firstly, own company's and benchmarked company's performance levels should be measured. Secondly, these measurements are compared. Thirdly, the company has to start learning from the benchmarked company's practises. And finally, after learning, the company can improve its own practises. When planning a benchmarking process, it is usually divided in separate projects, one for each main business process, for example, warehousing. The information gathered from benchmarking is usually flowcharts and process descriptions. While the idea of benchmarking is very attractive, a major obstacle for using it is the lack of partners willing to share their internal information (Andersen, Fagerhaug, Randmæl, Schuldmaier & Prenninger, 1999).

4.3. Summary of theoretical framework

Literature has been presented in order to view the competitive advantage from resource-based view and supply chain management. To describe the company's internal structure of activities through which a firm develops a competitive advantage, the value chain of Porter (1985) was presented. RBV has been described with four main questions that a firm should make when describing its resources and capabilities when trying to gain competitive advantage: the question about value, the question about rareness, the question about imitability and finally the question about organisation.

SCM is described to present the companies' external environment with suppliers and customers. Literature was used to find characteristics of modern supply chain management. Consequently, authors recognised seven practises of successful supply chain management: strategic supplier relationships, customer relationships, information systems, utilisation of 3PL/4PL providers, co-operation with competitors, postponement/VMI and performance measuring.

The following figure (Figure 9) is composed to illustrate the authors' view of the subjects of this thesis. The focus has been in the concept of competitive advantage of a firm, as viewed in the middle of the figure. To gain competitive advantage, the company needs resources, and the main resources discovered during this thesis are the seven supply chain practises, viewed in the third layer in the figure. However, for the practises to be a source of competitive advantage according to the RBV literature, they need to meet the criteria in the grey second layer. The authors have recognised these practises

from literature studies; the fundamental concepts of literature studies are presented on the outermost layer, outside the dotted line.

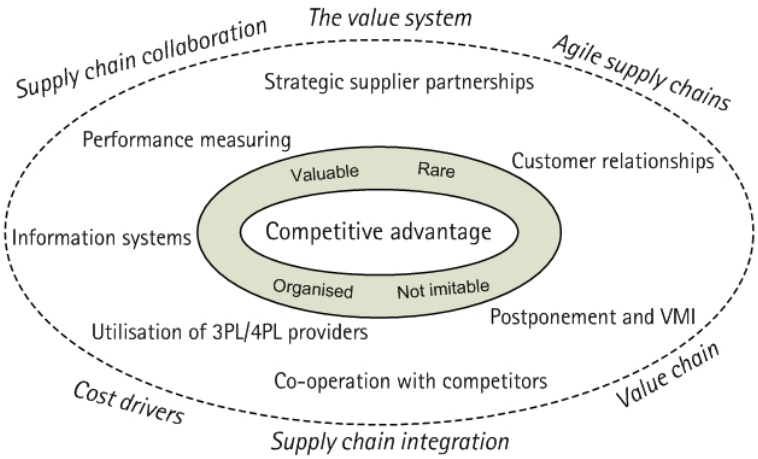

Figure 9: Summary of the theoretical framework

5. CASE STUDIES

In this chapter of empirical study the authors are presenting the case studies of the three West-Swedish fast-growth companies. Each case company is first presented by using the available secondary information. The presentations are followed by the results of the interviews the authors have conducted at the companies. The results are backed up by first describing the logistics organisation of the companies and the observed effects on logistics caused by the fast growth. The detailed information about the seven researched characteristics will complete the case studies.

5.1. New Wave Group AB

New Wave Group AB was started in 1990 by an acquisition of Torsten Jansson (New Wave Group AB, 1997). Mr Jansson is still the CEO and the principal shareholder of the company (New Wave Group AB, 2005a). He has built up the company with the help of his younger brother, Tomas (Veckans Affärer, 2003), who is the profiling business area manager (New Wave Group AB, 2004) and also the CEO of the subsidiary New Wave Mode AB, in Dingle, Sweden (New Wave Group AB, 2005b). Their cousin, Joakim Jansson (Veckans Affärer, 2003), works as a group level purchasing director. Joakim Jansson was employed in 2001 and he is also, like Tomas, a member of the management group. The company is listed on the Stockholm Stock Exchange since 1997 (New Wave Group AB, 2004).

The headquarters of New Wave Group AB is located in Kungälv, Sweden. These days the New Wave Group serves two business areas. Firstly, profiling business area that delivers give-aways, promotional wear (profile) and work wear (introduced in 2004) to other companies through independent retailers. Secondly, retailing business area which delivers clothes, shoes, presents and home textiles to consumers through gifts, shoe and sport retailers (New Wave Group AB, 2005b). Mr Jansson started business with promotional wear already in the beginning of the eighties in his parental home (Veckans Affärer, 2003). The company has subsidiaries in 14 countries in Europe and Asia. It controls a big number of well-known brands, for example Craft, which is distributed through own subsidiaries and distributors on 22 markets in Asia, Europe and North America. Most of the company's products are produced in Asia, a smaller part are produced in Europe. The company conduct tight product quality controls in the suppliers' facilities in Asia. The company has a strategy to deliver 98 % of their products in 24 hours (New Wave Group AB, 2004).

During the period of 1992-2003 the company had an average growth of annual sales of 40 %, included organic growth and acquisitions (New Wave Group AB, 2004), and 22 % in 2004 (New Wave Group AB, 2005a). From the end of 2001 to the end of 2004, the sales increased from 1 269 MSEK to 2 302 MSEK. The average growth of annual sales was 22 %. Sales outside Sweden amounted to 58 % of the total sales in 2004. The average number of employees during the same period increased from 422 to 1269. The company has programmes for employee benefits, for example, subscription options for employees (New Wave Group AB, 2004; New Wave Group AB 2005a).

The company was listed on Europe's 500 at the end of year 2004 (Europe's 500, 2004). In year 2003, CEO Torsten Jansson was voted to Entrepreneur of the Year in Sweden (New Wave Group, 2004).

5.1.1. Overview of the interview

In the New Wave Group the authors got the opportunity to a personal interview with the logistics manager Joakim Björkqvist, which took place in his department in Borås, Sweden. The interview lasted more than one hour. Mr Björkqvist has been in charge for the group level logistics strategies since year 2000 when the New Wave Group employed him. His previous work experience comes from transport and 3PL operations. He is not involved in the management group, although his predecessor used to take part of the management group meetings. The group level logistics department comprises only two persons, however the IT department backs them up when needed. This group level logistics department supports the subsidiary level logistical functions where each subsidiary has the responsibility of its' own logistics. The group logistics are represented in the management group by group purchasing director, Joakim Jansson. The logistics organisation has been active in this current form for two years.

Experiences of fast-growth in logistics functions

Mr Björkqvist experiences that the major problems with the fast growth is that there exists only few possibilities to consolidate, for example, the logistical routines, in particular in the companies that have become a part of the group through the acquisitions. Another problem Mr Björkqvist pointed out was the strong sales spirit of the management persons, which in turn affects the logistical functions in many ways. For example, it happens often that the logistics department is late informed about new customer arrangements, often depending on the fast decision making in the higher management. This could be solved by lifting up a representant of the logistical functions in the management group, Mr Björkqvist mentioned. Further he told that all logistical problems, which occur, are solved internally, by the subsidiaries in question or with the help of his own department. At the end Mr Björkqvist expressed that the logistics must have been a support for the company, as the long-term fast growth (combined with high profitability, the authors note) proves. He exemplified it all with telling about their container shipments from Asia, that usually includes products for several subsidiaries in Europe.

5.1.2. Supply chain practices in New Wave Group AB

The following sections are based on the seven supply chain practices that the authors have recognised in the theoretical framework. The used questions for every section can be found in appendix A.

Strategic supplier partnership

New Wave Group has a supplier base of circa 500 suppliers. In some of the product lines, the suppliers are taking part of the product design process, however the area of corporate profiling the group takes care of the product design process by 100 %. Also, in the retailing business area, the company has licensed trademarks that they represent in Sweden, and these products are totally supplier designed. Likewise, some of the products are sourced in the trade fairs and these products can also be completely

developed by the suppliers. Since the New Wave Group is continuously replacing the products in the portfolio; it happens that they need to find new suppliers. Some of the suppliers do not have the capacity or quality to stand up to the demand from New Wave Group. Other reasons for taking in new suppliers could be, for example, political export quotas between Asia and Europe. According to Mr Björkqvist, replacing a supplier in the profiling business area is a risky task because the quality and nuances of the textiles. New Wave Group is sometimes helping its' suppliers to source the right raw materials to guarantee the quality of the products. The only services the New Wave Group is utilising from its' product suppliers is the consultation services from suppliers of the licensed products, for example, about the season colours of textiles the New Wave Group is interested in.

Customer relationships

The customers of New Wave Group do not take part of the product design, although they may response to test collections. Sometimes the sales persons in New Wave Group get new product ideas from their customers too. According to Mr Björkqvist, the local distributors' markets are strongly characterised by personal relationships with end customers. He also exemplified that the subsidiary Craft has a strategy to employ former professional athletes to their product development department in order to meet the quality the active athletes demand. Some of the products in the profiling area (e.g. t-shirts, bags) are best when they are unisex and when the products suit as many groups of users as possible. The company is offering the customers several services to support their business. For example, the offers includes: information material like books and studies of profiling business, customer survey and advertisement plates. Another major area is sponsorship of TV programs, through the department of New Wave Professionals and often organised in co-operation with retailers. The company does not measure the customer satisfaction on the group level, however their subsidiaries may carry out measurements on their markets. Subsidiaries can also utilise the services of the New Wave Groups Research & Development department for this task.

Information systems

Currently there are no common ERP-system used in New Wave Group, the subsidiaries are often using their own systems. However, there is a consolidation project ongoing, where all the subsidiaries and the parent company are planned to use one and only ERP-system. Mr Björkqvist was delighted over an integrated planning system for logistics that takes care of purchasing and supplier relationships. Even this system will be integrated in the new ERP-system and therefore will work routines become harmonious throughout the whole group. New Wave Group offers its customers a possibility to follow their shipments from the Internet, as the distributor maintains a website for this use. There are also some Internet-based services the group is offering its customers, for example, making orders or final design of the products. The suppliers are not integrated to New Wave Groups information systems. The company works in some product areas, for example textiles, with plans for six months that are shared with the suppliers. The integrated planning system can be used to follow up this plan. According to Mr Björkqvist, the purchasing offices in Asia track the production flows with an intense control. Mr Björkqvist divides the quality of shared information according to the business areas; the customers of profiling business area are not used to always deliver relevant information in time in the way the customers of retailing business area is. Profiling business area is commonly known to be impulsive, Mr Björkqvist pointed out.

Utilisation of 3PL/4PL providers

New Wave Group is utilising 3PL providers. They are not involved in the strategic planning. Referring to cost drivers the company owns most of the warehousing activities, however it happens sometimes that they must rent warehousing services. As the profiling business has 24 hours lead time[6], it forces the company to keep several warehouse facilities, always close to the market. According to Mr Björkqvist, the main competitors have similar delivery service. Further he exemplified with Denmark, where the company does not have own warehousing facilities. It has lead to a slower organic growth in the Danish market compared with other markets as well as with their competitors.

Co-operation with competitors

The company has no strategic co-operation with its competitors, neither in purchasing or distribution. However, they have tried to co-operate with competitors, for example in the supplier side by trying to find common solutions to share container transports from Asia to Europe. Mr Björkqvist said that the companies in this business have very different needs and therefore co-operation is difficult to execute. In product design they co-operate indirectly by taking part of different regulations and industry standards.

Postponement and VMI

The company is currently differentiating some of the products at the last possible position in the supply chain, closest to the end consumer. This happens when the New Wave Group delivers products without embroideries to the retailers who in their turn differentiate the product according to customers' demands. It happens also, that at the products are differentiated at the suppliers' premises after a customer order is received at New Wave Group, for example, if the customer wants to use their own neck labels in clothing. In the future though, the group might be striving towards having the whole production and differentiation processes inside the group. In New Wave Mode AB, a subsidiary of the group, VMI solutions are used to control the stock level at the customers' facilities. Furthermore, the group has lately started a co-operation with retail chain, where New Wave Mode AB owns the products until the consumer buys them (Andersson, 2005). In the profiling business VMI is not used, as the distributors are not warehousing the products at all.

Performance measuring

According to Mr Björkqvist, the company is not benchmarking externally, only internally with measuring the warehousing productivity etc. Around 20 key performance indicators (KPI) are used to measure logistics performance; they are handled on manual basis, through their subsidiaries sending lists with details about levels of service and product returns etc. to the group logistics department. Mr Björkqvist also referred to some of the companies' cost drivers by describing that large warehousing facilities are not always the most cost efficient method for warehousing, for example, the distances in picking areas could decrease the efficiency. Therefore, it is a question of balancing the economics of scale with eventual time losses. All in all, it seems that the New Wave Group has highly developed routines for logistics performance measuring.

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[6] Lead time is defined as the time period from receipt of customer order to delivery (Christopher, 1998)

5.2. NovAseptic AB

NovAseptic AB was founded in 1993 by Sten Johansson, Håkan Samuelsson and Nils Årthun. All of them had industry experience in medical devices and expertise in development, manufacturing, and marketing. Their fundamental idea was to specialise in process components for the pharmaceutical industry (NovAseptic AB, 2005). According to the latest published shareowner list from April 2004, Skandia Investment KB and all the company founders control all together 85 % of the shares in NovAseptic AB. The shares are not listed on any stock exchange (NovAseptic AB, 2004), although there exist plans for a future listing (Aktiespararen, 2005). The headquarters of NovAseptic AB is located in Nödinge, Sweden. Johan Westman is CEO. It is a knowledge-based company with highly educated employees. They operate in the medical devices sector, in which they develop, market and sell aseptically designed process components, mainly to the pharmaceutical and biotechnology industries. NovAseptic AB's products are used as components in their customers' products. High order values are characteristic. The company has subsidiaries located in France, Holland, Norway, United Kingdom and USA, and local distributors in 19 markets all around the world (NovAseptic AB, 2005).

During the period of 1993-2004 the company had an average growth of annual sales of about 30 %. The company's history includes no acquisitions. Between the period of 2000/01 - 2003/04 (financial year, 1 May - 30 April), the sales increased from 80 MSEK to 160 MSEK. The average growth of annual sales was 26 %. Average number of employees during the same period increased from 36 to 71. The company has programmes for employee benefits, for example, subscription options for employees. Sales outside the Nordic region amounted to 83 % of the total sales in 2003/04. USA is the company's key market. (NovAseptic AB, 2004).

NovAseptic was voted as the best growth company in the Göteborg region in 2003 by Business Region Göteborg (Business Region Göteborg AB, 2005) and the company is also listed on Tillväxtlistan (Ahrens Rapid Growth, 2005).

5.2.1. Overview of the interview

After researching the secondary information concerning NovAseptic, the authors conducted a personal interview, which took place in the company headquarters and lasted about one hour. The interviewee was Jan Henriksson, logistics and purchasing manager of the operative functions. Mr Henriksson accounts of the department of operational logistics employing 14 persons. His superior, the operations director, is on the next organisational level and a member of the management group. Mr Henriksson has been working for NovAseptic for two years and had experience of responsibilities in production, purchasing and logistics for over 10 years.

Experiences of fast-growth in logistics functions

One of the many consequences of fast growth that NovAseptic has faced is the unacceptable long lead times that some products have had. Mr Henriksson pointed out that the main reason for these problems is that the suppliers are not capable or not willing to grow at the same rate as NovAseptic does. This has lead to changes of suppliers in order to meet the capacity demands. But Mr Henriksson pointed out that in the past the choice of suppliers have been vital for the company's positive expansion.

He also added that well functioning logistics is one of the requirements of the company's further growth, however the quality of products, economy of scale and optimal sales organisation are more crucial requirements. When in need of expertise, for example, designing the new warehouse, the company may use external consultants. Yet, in the daily operations the problems are solved internally. For the future, and like mentioned earlier, Mr Henriksson had a vision of more complete suppliers that could take responsibility of more of the activities that NovAseptic carries out today. He exemplified with the packaging and quality control. Although this is not the main purpose for the near future, it could help NovAseptic to concentrate strongly to its core competences.

5.2.2. Supply chain practices in NovAseptic AB

The following sections are based on the seven supply chain practices that the authors have recognised in the theoretical framework. The used questions for every section can be found in appendix A.

Strategic supplier partnership

The suppliers of NovAseptic have been playing a major role in the production, as NovAseptic does not manufacture any of their products. The product design process is totally managed by NovAseptic internally. The company does not currently have any plans to decrease the amount of their suppliers, although a constant examination of the suppliers' is carried out. This may lead to changes in the current supplier base, even if Mr Henriksson admits that changes would require significantly higher value from the new suppliers. The rapid growth of NovAseptic might require stronger suppliers having more resources, which can lead to utilising more complete suppliers. The suppliers could, for example, prepare customer packaging, conduct quality controls or further refine the products. This could result in less number of suppliers, which in turn could lead to lower costs and higher quality according to Mr Henriksson. The suppliers of today do not have strategic partnerships with each other, however there exist some co-operation between the upstream suppliers. NovAseptic uses their supplier only for purchasing products; no support or service is acquired.

Customer relationships

Customers are not taking part in the product design processes, although the customer needs are crucial when taking the decisions about which products to develop. The time for the complete sales process, from product idea to first delivery, often reach five years. Product design is strongly influenced by the problems the customers are presenting to NovAseptic. Mostly the final customer in the chain is the one presenting the ideas for new products and solutions, although these actors are much further down in the value chain. In addition to the physical products, NovAseptic is offering its customers a newly developed laboratory for testing of solutions. Customer satisfaction is measured through external research companies.

Information systems

NovAseptic is utilising a well-known ERP-software in its functions. However, material planning is not included in the system, as the company does not manufacture any products by itself. No additional planning systems for the logistics functions are used. Neither customers nor suppliers are linked to the ERP system. Business relations with

partners are taken care by continuous manual contacts. According to Mr Henriksson, the quality of shared information could be considerable higher; it could be enhanced, for example, with information systems for forecasting.

Utilisation of 3PL/4PL providers

3PL providers are used in distribution, a global express carrier and package delivery company is often utilised. Referring to cost drivers, their resource strategy includes that the company owns its warehouses and partners own the transportation vehicles. Instead of using 3PL providers, NovAseptic obtain some radiation services from its' suppliers.

Co-operation with competitors

The company has no co-operation with its competitors when considering the inbound logistics. Co-operation exists in the outbound logistics, as the products of NovAseptic are shipped to the end customer as a part of the complete solution. Being a small niche player in the markets, NovAseptic is not taking part in the standardisation work. The standards around the world are strongly affected by the American regulating organisation Food and Drug Administration (FDA).

Postponement and VMI

According to Mr Henriksson, postponement is not actual as strategy, because their products are complete already at the time of shipping out from the warehouse. However, some products are manufactured after receiving customer orders. VMI is not either actual, because the customers never stock NovAseptics products.

Performance measuring

NovAseptic have limited possibilities to benchmark their competitors' logistical functions. The competitors are often operating locally on each geographical market. Internally the company is measuring logistics performance in following areas: suppliers' delivery precision, suppliers' product quality, inventory turn rate and quality of deliveries towards their customer. Balanced scorecard is taken into consideration when planning the performance measuring for the future. Mr Henriksson added, that being ISO-certified means that NovAseptic is required to continuous performance measuring.

5.3. Santa Maria AB

Santa Maria AB was founded in 1946 by Armin Mattsson, as Nordfalks AB. In 2001 they changed the name to Santa Maria AB. Armin Mattsson operated as CEO for more than 20 years, followed by his son and current chairman, Lars-Olof Mattsson. The CEO today is Anders Ternbom. The company was founded as a family owned business and the family ownership have always played a great role in the development of the company. The headquarters of Santa Maria AB is located in Mölndal, Sweden. Santa Maria AB operates in the seasoning industry. They operate in three principal business areas: consumer, catering and in-store kitchens. Consumer area is the heart of the business and Santa Maria AB is the market leader in the Nordic region. They operate in many other European countries too. Consumer products are distributed via the largest retail chains. Catering turns to restaurants and institutional kitchens with specially

adapted products and concepts. The product portfolio consists of seven concepts: spices, barbeque, Tex Mex, Spicy World, Thai, India and fresh herbs. Santa Maria AB has three production plants in Sweden (Santa Maria AB, 2004; Göteborgs-Posten, 2005b).

Between the period of 2000/01 - 2002/03 (financial year, 01 September - 31 August), the sales increased from 915 MSEK (Affärsdata i Sverige AB, 2005) to approximately 2 000 MSEK. Average number of employees during the same period increased from 333 to about 440 (Affärsdata i Sverige AB, 2005; Santa Maria AB, 2004). The company offers employee benefits. Sales outside Sweden are currently amounted to about 50 % of the total sales (Billger, 2005). The company's growth history includes a combination of organic growth and acquisitions (Santa Maria AB, 2004).

In 2004 the company has extended the financial year to the end of December (Jighede, 2005). The financial report for the period of September 2003 - December 2004 was not known for the authors at the end of February 2005.

5.3.1. Overview of the interview

After analysing the secondary information concerning Santa Maria, a personal interview took place in the company headquarters. The authors had the opportunity to interview one of the logistics managers, Göran Jighede. The interview lasted less than one hour. Mr Jighede has worked for Santa Maria for eight years, and has a 20-year-experience from purchasing and logistics on fast moving consumer goods. The logistics function is divided into two departments: supply chain / product logistics and purchasing / transportation logistics. Mr Jighede is the head of the purchasing / transport logistics department and he is taking part of the strategic decision making by being a member of the management group. The structure of having two separate departments in logistics function has been in use for nearly five years. Three employees that are working with core logistical issues assist the two managers.

Experiences of fast-growth in logistics functions

The company has been in a phase of fast growth and so far the logistical solutions have been adapted to the problems the growth creates, like space, handling and planning. All these "positive problems" have been solved internally according to Mr Jighede and the company continues to meet the customer requirements. However, the expansion in mainland Europe requires new solutions for warehousing operations. Therefore, a new warehouse for European operations is planned for the future. Furthermore, some production could be conducted closer to the customers. Already earlier the warehousing operations have gone through changes, the previous structure with warehouses in every country has modified to the strategy of central warehouse situated in Kungsbacka. Mr Jighede declared that he personally could not identify any competitive advantages in their logistics solutions. He told that maybe they have been successful in the question of timing. He supposed that Santa Maria has their strongest competitive advantage in the highly developed product design process.

5.3.2. Supply chain practices in Santa Maria AB

The following sections are based on the seven supply chain practices that the authors have recognised in the theoretical framework. The used questions for every section can be found in appendix A.

Strategic supplier partnerships

According to Mr Jighede, the company has strategic supplier partnerships on some of the areas. The purchased products are based on raw materials for their own manufacturing, as well as products with license agreements that are ready for the markets. Santa Maria controls the whole process of product design internally. With other words, the suppliers are not involved at all in the product design process. Though a huge number of suppliers, the company has no plans for reducing the amount of them. According to Mr Jighede, the current supplier base works flexibly adapting to the needs of Santa Maria. He told also that the suppliers do not co-operate with each other based on the information he has. Santa Maria is co-operating with its suppliers by sourcing the right raw material and packaging material for the contract manufacturers. The packaging material is always designed by Santa Maria. The only service the company is buying is the maintenance of the machine park at the factories.

Customer relationships

Concerning the products design process, Mr Jighede mentioned that Santa Maria is never using customers in the process. He added that the product development process lasts usually 1-2 years and is always internal before the products are tested in consumer panels, in co-operation with the retail chains. When testing the products in the consumer panels, the products are compared with the competing products by blindfold tests. To consider taking the products into manufacturing, the tests should show that Santa Maria products are better or at least matching the competing products. Santa Maria offers its customers service, for example, in form of in-store furnishing and material for consumer profiling. The only customer satisfaction measuring that Santa Maria uses occurs at the consumer panels, before the products are launched at the markets.

Information systems

Santa Maria uses a complete version of an well-known ERP system. Although the ERP system includes all the needed functions for forecasting, order administration etc., there are some logistical tasks that needs separate software systems. Some of their customers are using EDI-communication with Santa Maria, but neither the customers nor the suppliers are fully integrated to the ERP system of Santa Maria. However, the contract manufacturers do get the forecasts for the coming year. On the other hand, the raw-material suppliers can be offered information only for the specific shipment and not for the future plans.

Utilisation of 3PL/4PL providers

The domestic transports are mainly arranged by one specific 3PL-partner. In the export markets the company is mostly using distributors. There are internal transports between the production sites and the central warehouse that are taken care of by 3PL-partners. Referring to cost drivers the company does not own any transportation equipment itself. The central warehouse for whole Europe is recently taken in use and it is located in Kungsbacka, Sweden. All the personnel in the warehouse are employed by Santa Maria, a strategic decision according to Mr Jighede. The 3PL-partners are not involved in the strategic planning but they provide information for Santa Maria for such decisions.

Co-operation with competitors

When asking about the co-operation with competitors, emphasised Mr Jighede that no co-operation exists. He mentioned that a possible area of co-operation could be a joint distribution network, but the company has not found any suitable solution for this.

Postponement and VMI

The modern logistical solutions of postponement and VMI are not used as a part of Santa Maria's strategy. However, a VMI-project has recently started in co-operation with a Danish retail chain. This project is carried out in Denmark and it was the partner retail chain that initiated it. According to Mr Jighede no postponement solutions are used because the production lines are capable of fulfil the differentiation of the products. The production is also executed according to forecasts, so there is no need for postponement after receiving customer orders.

Performance measuring

Santa Maria is doing their best in pursuing to benchmark other companies' logistical solutions. However, the information about competitors' solutions can be very hard to find and therefore the possibilities for a real comparison are very limited. The only performance measurement is the service levels of the shipments to customers. The company does not use performance measurement tools for measuring logistics activities (key performance indicators, balanced scorecard etc.). Mr Jighede states that the seasoning industry is very customer driven and amount of distributed products follows the periodic consumption levels through the year.

6. ANALYSIS

The chapter includes analyses of the theoretical and empirical studies presented in previous chapters. Firstly, an analysis of the organisational structure is written from a logistical point of view. Secondly, the seven successful practises in supply chain management are analysed, first shortly from the resource-based view and then compared to results from the empirical studies.

6.1. Organisations

In the following sections the authors will analyse the case companies from two different aspects. Firstly, characteristics of the case companies are researched on the basis of the descriptions of fast-growth companies in chapter 3 and the accomplished interviews. Secondly, the structure of organisations is described from a logistical point of view.

6.1.1. New Wave Group AB

The authors have found that the organisation of New Wave Group fulfils several described characteristics of the fast-growth companies (Ahrens, 1992; Andersson, 2001a; Andersson, 2001b; Davidsson *et al*., 2001a; Johansson, 2002). The company history has visible roots of entrepreneurship. In the early days, the company concentrated mainly on profiling business area. When external investors came into picture through the launch at Stockholm stock exchange, the internationalisation accelerated, often through wholly owned subsidiaries. The company seems to avoid fixed costs in many areas, as they are using suppliers for most of their production and all of their transport solutions. Employee benefits are a part of their strategies to engage and motivate personnel. Furthermore, fast decision making is usual in the organisation.

Logistics organisation in New Wave Group seems to have limited possibilities to act in the strategic level of decision making. This can be exemplified by the delayed information flows between the management board and the operational logistics department. As described in the literature (e.g. Olavarrieta *et al*., 1997), to manage customer needs more successfully, the logistics managers should participate in strategic decision-making. However, the main role of the logistics department in New Wave Group is to develop the group wide logistical operations and integrate the strategic decision making with the operational logistics in the subsidiaries. For example, the company manage shared container shipments from Asia for several of their subsidiaries in Europe.

6.1.2. NovAseptic AB

Also NovAseptic has several characteristics for fast-growth companies (Ahrens, 1992; Andersson, 2001a; Andersson, 2001b; Davidsson *et al*., 2001a; Jacobsson *et al*., 2001; Johansson, 2002). The founders of the company brought earlier experience from their earlier employments together to build up a new business. They attracted external

investors after a short growth phase, in accordance to the characteristics found in literature. However, the growth rate of the company includes no acquisitions, the company has grown only organically. NovAseptic also invested early in the demanding USA market. In the beginning, the company focused on only one customer need, also in purpose to build up the knowledge inside the company. Furthermore, the company does not own production facilities. The personal policy includes two clear characteristics for fast-growth companies: employee benefits and over-dimensioned personnel. However, NovAseptic has some characteristics that are opposite to the theories of fast-growth companies, for example, the several levels of hierarchy.

So far, the logistic operations at NovAseptic seem to be clearly a support function. As the company has no own production, most of the logistics planning seems to include the material flows from suppliers. It seems to the authors, that the logistic organisation of NovAseptic is over dimensioned, when keeping in mind that the company has no own production. Internally, the company seems to have plain logistical processes. The outbound material flows are mostly direct deliveries.

6.1.3. Santa Maria AB

The empirical study has showed that even Santa Maria fulfils some of the special characteristics of fast-growth companies (Ahrens, 1992; Andersson, 2001a; Andersson, 2001b; Johansson, 2002), however not in such extent as the other case companies. Santa Maria's personal policy includes employee benefits and a low level of hierarchy. An entrepreneur, whose son is currently the chairman of the company, founded the company 1946. However, the company shows no signs of true entrepreneurship any longer. Also, the international growth boosted decades later, not in accordance with literature. However, the company seems to respond fast to the customer needs and is often first on the markets with new products.

The logistics organisation in Santa Maria has a special structure compared to the two other case companies. The responsibilities in logistics are shared of two managers; one taking care of supply chain and product logistics and the other taking care of purchasing and transports. The authors think that Santa Maria seems to have a customer oriented logistics organisation, in accordance with the literature (e.g. Christopher, 1998). Furthermore, logistics seem to be well represented in the management group.

6.2. Supply chain practises

In the following sections the authors will go through the seven successful practises in supply chains by first analysing if they are valid as a source of competitive advantage according to the resource-based view. The case companies supply chain practises are also analysed to find out if the background for their fast-growth could be a competitive advantage in logistics. When possible, the authors are describing the reasons why the companies do not use the suggested practises.

As mentioned earlier, the authors reflect the opinions of the interviewed personnel. It is therefore possible that these are not totally consistent with the case companies' official standpoints.

6.2.1. Strategic supplier partnerships

As the literature review argues, strategic supplier partnership could be understood as a valuable resource (Closs *et al*., 2004; Ekenstedt, 2004; Handfield *et al*., 2004; Hurd *et al*., 2004; Kotabe *et al*., 2004; Li *et al*., 2004; Skjoett-Larsen *et al*., 2003; Rungtusanatham *et al*., 2003). Although the dilemma of partners having common goals (Batt *et al*., 2004), Kotabe *et al*. (2004) wrote that the unique combination of the firms and its suppliers' capabilities would provide the firm with sustainable competitive advantage. Therefore strategic supplier partnerships could be a source of competitive advantage according to RBV literature (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993). However, the sustainability can be lost based on the other factors defining sustainable competitive advantage. For example, the question of rareness is not valid if the supplier has mainly similar relations with the competing firms as well.

The supplier partnerships in the case companies seem to be varying strongly. New Wave Group for example, has both the strategic partnerships and the less developed supplier contacts. This depends on the products; if they are based on the design of New Wave Group, if suppliers already designed them or if they are licensed products. In the products areas where the New Wave Group has own-designed products, the suppliers seems to be more tightly connected to the company. For example, in Asia, the New Wave Group manages tight product controls near the suppliers. All in all, the authors think that a source of competitive advantage could be found in strategic supplier partnerships.

NovAseptic on the other hand, pointed out that they aim to select suppliers by competition between them. However, some of the relations have been based on long-term contracts and supporting the company's fast-growth and therefore changes in supplier base has not been urgent. The authors have found out that NovAseptic do not fulfil the requirements for strategic supplier partnerships. However, it seems to be a conscious decision. Therefore, a source of competitive advantage cannot be found.

Santa Maria has also some characteristics of the strategic partnerships, for example, the company is sourcing the raw materials and packaging in co-operation with the manufacturing suppliers. However, some of the raw materials for own production are purchased on spot markets, having price and availability as determining factors. All in all, the authors think that Santa Maria fulfils the requirements for supplier partnerships, as they are co-operating also with second-tier suppliers. It means that a source of competitive advantage could be found.

6.2.2. Customer relationships

Li *et al*. (2004) state that all the practises for managing customer relationships could be source of competitive advantage (see also Batt *et al*., 2004; Flint, 2004; Fynes *et al*., 2005; Rungtusanatham *et al*., 2003). They exemplify with practises like building long-term relationships and improving customer satisfaction. Flint (2004) states that customer learning can ease predicting customer needs and it would then create competitive advantage. He also states that customer relationships must be based on customers' point of view. RBV literature describes ways to achieve value, which are always connected to being customer oriented. The authors state that customer relationships can create value, be rare, not imitable and possible to organise in an

effective way (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993; Rumelt, 1984). The conclusion is that customer relationships may be source of sustainable competitive advantage. However, like Olavarrieta *et al.* (1997) points out, finding suitable partners may be difficult to find. And Batt *et al*. (2004) adds that in order to co-operation, the partners need to have common goals.

In New Wave Group, the customers do not take part of the product design. Their business areas have different level of customer relations; the profiling area has tighter relations through the distribution network than the retailing business area. Company is striving to customer learning by offering several services to support the customers business, for example, own studies about the profiling, information material and TV sponsorship. Overall, the New Wave Group seems to use their customer relations in a way that the literature suggests. Therefore it could have a source of competitive advantage in customer relationships.

NovAseptics customers are not taking part of the product design process, however the final customers present the ideas for new products. NovAseptic offers its customers possibilities to test new solutions in a laboratory. The authors think that NovAseptic fulfils the requirements for customer relationships in order to have a source of competitive advantage.

Santa Maria designs their products internally. They offer its customers service, for example, in the form of in-store furnishing and material for consumer learning. All the case companies use some kind of customer satisfaction measurement, however Santa Maria uses consumer panels before new products launching. Although this can be seen as strong customer influence, it is the services offered for retailers that makes Santa Marias customer relationships more alike the suggestions in the literature. The authors are judging that Santa Maria uses their customer relationships in a way that they could be a source of competitive advantage.

6.2.3. Information systems

Information systems can allow supply chain companies to communicate critical and proprietary information between each other (Li *et al*., 2004). According to literature, if ERP systems are implemented optimally, they can enable a company to catch valuable information. Consequently this will lead to enhanced performance and more efficient and effective SCM (Rungtusanatham *et al*., 2003). Martin *et al.* (2003) state that internal integration is a requirement for companies before being able to share information with external partners. In accordance with RBV literature (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993; Rumelt, 1984), information systems may add value, be rare, be not imitable and optimally integrated in the organisation. However, the authors argue that all these four key questions are not automatically valid simultaneously, and therefore do not always match the criteria for sustainable competitive advantage.

New Wave Group is planning to implement group-wide ERP solution, as replacement for all the disparate systems currently used in the group. Already earlier they had been using an integrated planning system for purchasing and supplier relationships. The company also offers its customers several Internet-based services, for example, follow up systems for shipments, designing products or electronic customer orders. All in all, the New Wave Group seems to have a strategy to utilise information systems as the

literature is recommending. Therefore, a source of New Wave Group's competitive advantage and continuous fast growth could be in information systems.

NovAseptic has not integrated its ERP system to their suppliers' or customers' systems. No such logistics planning system as the New Wave Group has is used in NovAseptic. The company takes care of its business relations rather by manual contacts. Although the company uses a modern ERP system, the authors think that NovAseptic does not have an information system strategy in line with the suggestions in literature. Therefore, the source of their competitive advantage is not found in the utilisation of information systems.

Santa Maria uses a company-wide ERP-system but neither their customers nor suppliers are fully integrated to the system. For logistics activities some separate systems are used. Some of the customers are connected by using EDI-communication. Forecasting information is shared with contractor manufacturers but the raw material suppliers are not offered such information. Although only a few of Santa Marias customers are connected via EDI-links, their strategy seems to be to utilise information systems in a lot of tasks. The authors think that Santa Marias information systems fulfil the needed requirements for being a source of competitive advantage. However, the used EDI-systems seem to be easily imitated, so they cannot be seen as a source of sustainable competitive advantage.

6.2.4. Utilisation of 3PL/4PL providers

Utilising 3PL or 4PL providers can be regarded as outsourcing, often initiated to cut costs. However, with the resources of 3PL or 4PL providers, the companies can also generate a unique mix of resources (Ekenstedt, 2004). This in turn can be a source of competitive advantage, totally in accordance with the RBV literature (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993; Rumelt, 1984). In case the co-operation creates value for the partners, sustainable competitive advantage can be gained for the company utilising 3PL provider.

In New Wave Group, the 3PL providers are utilised, however not in strategic planning. The company usually manages all the stocking activities by itself, but due to lack of capacity warehousing services are also rented. To keep the promise of 24-hour delivery time, the New Wave Group has built up a network of warehouses near their customers. The authors think that the New Wave Group is acting as the literature suggests, by building up a delivery network in co-operation with a 3PL partner. This could be a source of their competitive advantage, however it is not sustainable as all the players on the market can offer similar delivery service.

The value of NovAseptics shipments is often of high value and high security requirements. Therefore, NovAseptic has a strategy of shipping products directly to customers by an express carries service. NovAseptic uses also some typical 3PL services that are offered by their material supplier instead of a classic 3PL company. It seems to the authors, that NovAseptic does fulfil the criteria of utilising 3PL providers according to the literature. The company could therefore find a source of competitive advantage in this area.

Santa Maria has a main 3PL partner for the shipments in the Swedish markets; internationally suitable partners are used. The warehousing activities are taken care by the company itself, which has been a strategic decision. The 3PL-partners are often

providing some important information for strategic planning, but they are not taking part of the decision-making. Santa Maria does co-operate with a 3PL provider, but it seems that they are not utilising the possibilities that a 3PL provider could offer. They are, for example, performing all the warehouse-related functions inside the company. The authors think that the source of Santa Marias competitive advantage is not found in the utilisation of 3PL providers.

6.2.5. Co-operation with competitors

Yusuf *et al*. (2004) suggest that co-operation with competitors should be established to gain agility to the supply chain. For example, by jointly managing transports from a distant supplier, all the co-operating companies can minimise the costs. The partners need to have common goals for co-operation, for example, cost reduction (Batt *et al*., 2004). Cost reduction creates value to the partners, which is in accordance to RBV literature (Barney, 1995; Olavarrieta *et al*., 2004; Peteraf, 1993). However, a company cannot achieve sustainable competitive advantage as the co-operating competitor is taking advantage from the same solution.

New Wave Group has tried to co-operate with competitors, for example in the supplier side by trying to find common solutions to share container transports from Asia to Europe. In product design they co-operate indirectly by using industry standards and regulations. However, the company has experienced that co-operation with competitors is difficult, because the companies tend to have so different needs. The authors think that the co-operation that the New Wave Group is having, is not meeting the requirements in literature to have a source of competitive advantage in co-operation with competitors.

NovAseptic has no co-operation with competitors in the inbound logistics. In outbound logistics, their products are often delivered as part of complete solutions to their end customers. When this happens the complete solution provider can often be seen as competitor to NovAseptic. This because they can also offer similar products as NovAseptic, but sometimes the end customer especially wants the products from NovAseptic to be included in the complete solutions. The authors think that the co-operation with complete solution providers could be the source of competitive advantage of NovAseptic.

Santa Maria has no co-operation with any competitors but they could consider a future joint distribution network, which they already have tried to implement but failed in finding a suitable partner. It seems that Santa Maria is interested to co-operate with the competitors, but it is not a part of their logistics strategy. Therefore, the authors think that the company does not find their source of competitive advantage in the co-operation with competitors.

6.2.6. Postponement and VMI

Postponement refers to taking advantage of mass production but still being able to differentiate the products according to customer requirements (Ekenstedt, 2004). The company can also be quicker in responding to variations of customer preferences (Li *et al*., 2004). As the RBV literature (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993; Rumelt, 1984) proposes, the differentiation is one of the main factors for competitive advantage. By using VMI, the company can keep customer

inventory levels reasonable, as a result of better horizontal information flow. Consequently it will reduce the costs for the companies and maintain the value for the end customers, in accordance with the resource-based literature.

New Wave Group has planned to strive towards having the whole production and differentiation processes inside the group. However, the business processes are today organised so, that distributors differentiate the product according to end customers' demands. Also, in the supply side, postponement practises are used, as some of the products are not differentiated at the suppliers' premises until a customer order is received at New Wave Group. VMI solutions, where the company takes care of their customers' replenishment, are used in the retailing business area. The authors experience, that the New Wave Group is using postponement and VMI like the literature suggest. Therefore, the source of New Wave Groups competitive advantage could easily be found in these modern logistical concepts.

NovAseptic is not using postponement in its operations. The reason for this is mainly the fact that the products are complete already when shipping out from the company's warehouse. However, some of the products are produced after receiving the customer order. The customers of NovAseptic are not stocking the products and therefore VMI as a solution is not applicable. Although, some of the products are produced after customer orders, the company have not made strategic decisions to use postponement or VMI. Therefore, the competitive advantage of NovAseptic is not found from the use of these concepts.

Postponement and VMI are not included in Santa Marias strategy, however a pilot project with a Danish retail chain has initiated. Santa Maria is producing according to the forecasts and therefore no delaying of the product differentiation is needed. Just like in NovAseptic, Santa Maria has some aspects of the two modern concepts. However, they are not using them as a part of their logistics strategy, and therefore the authors think that the source of Santa Marias competitive advantage is not found here.

6.2.7. Performance measuring

When planning the logistical strategies, the company should find suitable facts to measure. Miller *et al*. (2003) states that supply chain activities are often measured on practical level, but they should be connected to the strategies of the company. Balanced scorecard and KPI's are tools for uniting the strategic and practical levels of performance measuring. Like Olavarrieta *et al*. (1997) points out, the logistical systems are often very complex in nature and within several organisations, so benchmarking competitors' solutions could be an impossible task. The authors argue that performance measurement systems can be analysed from the RBV literature (Barney, 1995; Lambert *et al*., 1993; Olavarrieta *et al*., 1997; Peteraf, 1993; Rumelt, 1984). They might create value, be rare and being not imitable.

New Wave Group seems to have a well-developed performance measurement system for logistics; around 20 key performance indicators (KPI) are used. NovAseptic is measuring its logistics internally, which is demanded depending on their ISO-certification. Santa Maria has only one factor for logistics performance measurement, which shows the service levels to the customers. None of the case companies is using balance scorecards, however NovAseptic has an intention to introduce it in the future. All the case companies seems to be interested in benchmarking competitors' logistics solutions, but just like the literature (Andersen *et al*., 1999) describes, they all declared

the difficulties in it. Both the New Wave Group and NovAseptic seem to have designed the measurement systems for logistics as literature defines. Santa Marias choice of having only one factor for measuring logistics is not in line with the suggestions in the literature.

6.3. Summary of analysis

The following figure (Figure 10) will summarise the results of the analysis.

	New Wave Group AB	NovAseptic AB	Santa Maria AB
Strategic supplier partnerships	X		X
Customer relationships	X	X	X
Information systems	X		X
Utilisation of 3PL/4PL providers	X	X	
Co-operation with competitors		X	
Postponement and VMI	X		
Performance measuring	X	X	

Figure 10: Used supply chain practises in case companies

Like the New Wave Group has declared in former publications, also the results of this study seem to indicate that their logistics strategy may be a source of competitive advantage. Of the seven researched supply chain practises, the authors have found that six are utilised in New Wave Group. In addition, the seventh supply chain practise (co-operation with competitors) has been piloted, but the results were not convincing.

NovAseptic did not believe that they would gain competitive advantage from supply chain practises. The result of the study indicates also that their main source of competitive advantage is obviously found in other functions than supply chain practises.

Santa Maria could not identify clear competitive advantage from their supply chain, however they mentioned timing to be a possible one. The authors have found that Santa Marias source of competitive advantage is supposed to be found in other functions.

7. CONCLUSIONS

This final chapter includes the conclusions based on the analyses in previous chapters. Firstly, the logistical experiences of fast-growth in the case companies are presented. Secondly, the case companies are individually presented in terms of their success with supply chain practises. The authors then present their ideas on the companies' future utilisation of these practises. The authors also return to the research questions to prove that the questions have been answered. Additionally, recommendations for future, further work are given.

7.1. Complications faced by the case companies

A main issue in this thesis has been to recognise the ways supply chain management can be practised for gaining competitive advantage. The concept of competitive advantage is viewed from the resource-based view. SCM's has a main principle to help companies create customer value. According to the literature, fast-growth companies are often customer focused. Based on this study, the fast-growth case companies are clearly customer oriented.

The study has shown that fast growth combined with strong sales orientation might even create several problems in logistical functions. For example, one of the companies has experienced delays in information flow between the sales organisation and the logistics departments because of a lack of attention to logistical issues in the management group. Growing fast through acquisitions has also created problems in one of the case companies due to the lack of time for consolidation of logistical functions. Internationalisation has created needs for new structures mainly in warehousing. New production structures might also be topical in the future. One of the companies has experienced problems with suppliers that are not able to grow at the same rate as itself, which may lead to changes in the supplier base in the future. This problem of not having common goals, however, can also happen in companies' customer bases. The need to focus on core competences has also created a desire to seek more complete suppliers.

Two of the case companies have defined their logistics as a support function while the third company defines it as strategic. However, all the companies have described their product design or sales orientation as more strategic than logistics. All of the case companies have expressed that their strategy includes solving logistical problems mainly internally. An individual conclusion for each case company is presented in the following sections. The conclusions include the authors' views on supply chain successes in the case companies, and short prospects for the future.

7.2. Conclusions of New Wave Group AB

As the results in this thesis have indicated, the New Wave Group has gone far in their practises of supply chain management. This can be exemplified throughout their whole

line of business, from suppliers, most situated in Asia, to the end-customers in Europe. Their delivery processes are characterised by tight product controls near the suppliers and competitive container shipments from Asia to Europe that are shared by several subsidiaries. Their network of warehouses in Europe are situated near the customers, and the company offers 24-hour delivery times. The New Wave Group utilise only 3PL providers for the deliveries. Further, several customer learning processes seem to be a strategy for achieving tighter customer relations. Postponement is also widely utilised in the company, both with the inbound and the outbound logistic functions. Obviously, it seems that supply chain practises have been a possible source of competitive advantage for the New Wave Group.

The authors sense that the future of supply chain practises in the New Wave Group will be very promising. Firstly, the new ERP-system that will be implemented group-wide will consolidate the work processes and optimise both internal and external information flow. Secondly, the authors experience is that the New Wave Group has great potential in terms of the current VMI-solutions. Cost reductions and higher inventory availability are possible if the solutions are further developed and spread to all applicable business areas. The performance measuring systems they utilise can also help the company find and solve any bottlenecks in the supply chain.

7.3. Conclusions of NovAseptic AB

When looking at NovAseptic, it seems clear that the company's most utilised supply chain practises are found in their customer relationships. Ideas for new products are usually presented by the end-customers through NovAseptic's customer network. As described in the case study, some of the customers can also be considered as competitors, as NovAseptic sometimes uses the competitors to reach end-customers. The co-operation with competitors is usually initiated by the end-customers. NovAseptic also offers end-customers the opportunity to test new solutions in a laboratory. This can be considered as a way for NovAseptic to tighten their relations with their customers. The company has a strategy to utilise a specific 3PL-provider for their outbound logistics. In addition to customer relations, co-operation with competitors and 3PL utilisation, performance measurement systems are used. Therefore a source of competitive advantage may be found in NovAseptics supply chain practises.

The authors believe that NovAseptic has only limited possibilities for further developing their outbound supply chain practises due to the high values of their shipments and safety requirements. However, the inbound logistics and supplier base could be a field for developing strategic partnerships. The authors also think that the suppliers could execute some of the currently internal logistics operations in the future. Information systems also seem to have possibilities for enhanced use in future supply chain management, as they are currently used only internally. As mentioned earlier, the business model of NovAseptic does not allow for utilising postponement or VMI solutions.

7.4. Conclusions of Santa Maria AB

Santa Maria seems to have their main supply chain practises in the customer base. As an experienced food industry manufacturer, their customer relationships are strongly characterised by co-operation with retail chains. Creating value for consumers is a main purpose for Santa Maria, which is guaranteed for example through the consumer panels described earlier. Another way to involve consumers is through consumer learning, exemplified with material like recipes and competitions. On the supplier side, Santa Maria is showing strong signs of strategic supplier partnership by sourcing some of the raw materials and packaging for the first tier suppliers. In addition to customer relationships and strategic supplier partnerships, information systems are used in accordance with the literature. Therefore, all three practises could be a source of competitive advantage.

The authors believe that in order to further develop the downstream supply chain of Santa Maria, the initiative will most likely come from the customers. Having a strong customer focus is in accordance with the literature, but the authors also think that Santa Maria could be interested in enhancing supply chain practises in the future. It is the authors' experience that, for example, expanded VMI solutions could be worthwhile to investigate as a tool to achieve agility in the supply chain. Co-operation with competitors has already been considered and could also be a potential source for future cost reductions. The development of logistics performance measurement systems is strongly recommended by the authors.

7.5. Research questions

In this section the authors will return to the research questions. In the theoretical framework, the authors have found the answer to the first sub-question:

> *What makes supply chain management a competitive advantage for a company according to the literature?*

Based on the literature survey, the authors have found seven supply chain practises that enable supply chain management to be a source of competitive advantage. These practises are presented in the theoretical framework and motivated by referring earlier studies in the field.

The second sub-question has been answered in the analysis.

> *Can the recommended SCM practises be found in the case companies? If not, what seem to be the reasons?*

As mentioned, the analysis chapter (chapter 6) has formed the answers to these questions. The analysis has been composed mainly with the empirical studies achieved through interviews with the case companies. In the analysis, the authors prove that all the recognised SCM practises are found in the case companies, but only to a certain extent. The reasons for not utilising these supply chain practises have been presented if they have been available.

Finally, the main research question can be answered:

> *Can one of the sources of competitive advantage in fast-growth companies be found in supply chain management?*

It seems to the authors that companies can find a source of competitive advantage in supply chain management. Therefore, the fast-growth of a company could be at least partly explained by the utilisation of supply chain practises. While the practises discussed in this thesis are on a strategic level, there seem to be many operational obstacles present in the supply chains which must be removed before the firms can fully utilise the strategies.

7.6. Suggestions for further study

The authors think that it would be interesting to see the results from a quantitative research style, where a wider sample of companies would be involved. This could be executed for example by a posted questionnaire that could include the seven supply chain practises recognised in this thesis.

Another suggestion for further studies is to focus on one of the seven supply chain practises and include a wider sample of companies in the study. This could provide the possibility of deeper analyses.

It could also be inspiring to study one of the case companies more deeply from the resource-based view. If the perspective would be broadened from just logistics, the probable source of competitive advantage could be identified.

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8.2.3. Interviews

Andersson, L., vice president, New Wave Mode AB, interview by e-mail, 24 March 2005.

Billger, H., manager of marketing department, Santa Maria AB, interview by e-mail, 16 March 2005.

Björkqvist, J., group logistics strategies manager, New Wave Group AB, interview in Borås, Sweden, 28 February 2005.

Göthberg, A., promotional representative, Business Region Göteborg AB, interview by e-mail, 9 March 2005.

Henriksson, J., purchasing & logistics manager, NovAseptic AB, interview in Nödinge, Sweden, 24 February 2005.

Jighede, G., purchasing & transport logistics manager, Santa Maria AB, interview in Mölndal, Sweden, 15 February 2005 and interview by e-mail, 18 February, 2005.

APPENDIX A

Guide for interviews. English translation is available in Appendix B.

1. Logistikens roll (särskilt logistikchefens) i företaget.

Författarna vill veta om logistiken är med i företagets långsiktiga strategi.

A: Har logistikchefen ansvar i strategiskt beslutsfattande?

B: Existerar en logistikavdelning? Hur många anställda finns där? När bildades avdelningen?

C: Hur lång erfarenhet har logistikchefen? I detta bolag, inom branschen?

2. Strategiska leverantörs partnership.

Författarna vill veta hur utvecklade relationerna mellan företaget och dess leverantörer är.

A: Är leverantörerna med i produktutvecklingen?

B: Avser företaget att minska antalet leverantörer?

C: Samarbetar leverantörerna med varandra?

D: Finns det strategiska leverantörs partnership längre upp i leverantörskedjan?

E: Köper bolaget även service eller support av leverantörerna?

3. Kundrelationer.

Författarna frågar hur väl utvecklade kundrelationerna är.

A: Tar kunderna del av produktutvecklingen?

B: Finns det strategiska kundrelationer längre ned i kundkedjan?

C: Erbjuder bolaget även service och support till sina kunder?

D: Mäter bolaget kundnöjdhet?

4. Informationssystem.

Författarna undersöker hur informationssystem används inom logistiken.

A: Använder företaget affärssystem?

B: Använder företaget avancerade planeringssystem inom logistiken?

C: Är leverantörer och/eller kunder integrerade i företagets informationssystem?

D: Delar leverantörerna eller kunderna relevant information för att underlätta planeringen?

E: Hur beskriver logistikchefen kvalitén på den delade informationen?

5. Användning av 3PL eller 4PL leverantörer?

Frågorna ska besvara om företaget utnyttjar externa partners inom logistiken.

A: Använder företaget tjänster av 3PL eller 4PL leverantörer?

B: Är de i så fall med i den strategiska planeringen?

C: Har bolaget hela lagerverksamheten i egen regi?

D: Äger företaget sina logistiska funktioner?

6. Samarbete med konkurrenter.

Författarna vill undersöka om företaget driver strategiskt samarbete med konkurrenterna.

A: Samarbetar företaget med konkurrenter inom inkommande flöden?

B: Samarbetar företaget med konkurrenter inom distribution?

C: Samarbetar företaget med konkurrenter inom produktutveckling eller inom delar av produktionen? T.ex förpackningar, standarder etc.

7. Postponement och leverantörsstyrda lager.

Författarna vill veta om postponement eller leverantörsstyrda lager används inom logistiken.

A: Förekommer anpassning av produkter längre ned i värdekedjan?

B: Anpassar företaget produkterna efter inkommande order?

C: Anpassar företaget produkterna på närmast möjliga nivå före slutkunden?

D: Styr företaget kundernas lagernivåer?

8. Prestationsmätning.

Frågorna är skrivna för att undersöka om företaget använder prestationsmätning internt och/eller externt.

A: Praktiserar företaget benchmarking inom logistiken?

B: Använder företaget nyckeltalsfunktioner för att mäta prestationer inom logistiken?

C: Använder företaget balanserat styrkort eller andra mjuka prestationsmätningsverktyg? Om ja, hur?

9. Tillväxtföretag.

Författarna vill veta företagets specifika erfarenheter om tillväxtrelaterade effekter på logistiken.

A: Vilka effekter uppstår av tillväxten inom logistiken?

B: På vilket sätt stöder/stöder ej logistiken tillväxten idag eller historiskt?

C: Hur har ev. problem inom logistiken lösts? T.ex internt, m.h.a litteratur, konsulter etc.

D: Framtida potential och utvecklingsmöjligheter inom logistiken?

APPENDIX B

English translation of the interview guide.

1. The role of logistics (and especially the logistics manager) in the company.

The authors want to know if logistics is a part of company's long-term strategy.

A: Has the logistics manager responsibilities in the strategic decision making?

B: Does a logistics department exist? How many employees? How old is the department?

C: How long experience has the logistics manager? In this company, in this industry etc?

2. Strategic supplier partnership.

The authors will ask questions to find out how well developed the relations with upstream partners are.

A: Are the suppliers taking part of the product design process?

B: Is the company striving to decrease the amount of suppliers?

C: Do the suppliers of the company co-operate with each other?

D: Are there strategic supplier partnerships further upstream than only first tier?

E: Is the company buying also service and support of the upstream partners?

3. Customer relationships.

The authors will ask questions to find out how well developed the relations with downstream partners are.

A: Are customers taking part of the product design process?

B: Are there strategic customer relationships further downstream than only first tier?

C: Is the company offering also service and support downstream partners?

D: Is company measuring customer satisfaction?

4. Information systems.

Here the authors will study how information systems are used in logistics.

A: Is company using Enterprise Resource Planning systems?

B: Is the company using Advanced Planning Systems for planning logistics activities?

C: Are suppliers and/or customers integrated to company's information systems?

D: Do the company's suppliers/customers share relevant information helping planning?

E: How do the logistics manager describe the quality of shared information?

5. Utilisation of 3PL or 4PL providers.

These questions will find out if the company is utilising extern partners to logistics functions.

A: Is the company utilising 3PL or 4PL providers?

B: Is the 3PL/4PL provider involved in strategic planning?

C: Has the company control over its warehouse operations internally?

D: Does the company own the logistics functions?

6. Co-operation with competitors.

This section of questions will study if the company have strategic co-operation with its competitors.

A: Does the company co-operate with competitors in the sourcing functions?

B: Does the company co-operate with competitors in distribution?

C: Does the company co-operate with competitors in product development process or parts of the production? I.E. packaging, standards etc.

7. Postponement and VMI.

The authors want to know if postponement or VMI are used to reach higher efficiency in the downstream logistics.

A: Does product differentiation occur downstream (outside) from the company?

B: Is the company delaying product differentiation until customer order is received?

C: Is the company delaying product differentiation to last possible position (or nearest to customer) in the supply chain?

D: Is the company using/planning to use vendor managed inventory?

8. Performance measuring.

These questions are written to find out if the company use performance measuring tools internally and/or externally.

A: Does the company benchmark other companies' performance on logistics?

B: Is company using key performance indicators to measure logistics performance?

C: Is the company using "Balanced scorecard" or other "soft" performance measuring tools? If yes, how is logistics measured?

9. Fast-growth companies.

The authors want to find out the company-specific experience of fast-growth related with logistics.

A: What are the effects of the fast growth on company's logistics functions?

B: Does logistics support or delay (now or in the past) the growth of the company?

C: How are the possible problems solved? E.g. internally, with help from literature, consultants etc.

D: What are the main potential development issues in logistics in the future?

APPENDIX C

Operational activities in supply chains

Forecasting

Forecasting is one of the most critical activities in logistics. Therefore, the key persons in logistics are also often taking part of the company's forecasting. Forecasts are usually based on sales statistics and plans, but in order to control the material flows more detailed information of the article level material needs is highly relevant. Consequently, forecasting and warehouse management are tightly associated with each other (Persson, 2003)

Sourcing and supply

The activities in sourcing and supply are often important for the logistical functions of a company. Raw materials, components and products are to be sourced. Suppliers have to be chosen. Furthermore, placing orders, receiving goods and deciding how to support the production with materials are all activities that have to be working. For the quality of the internal logistics, it is important that the suppliers can keep their short and precise delivery times, high quality of materials and right price level. Therefore, it is important that the relationships with suppliers are taken care by persons with knowledge of logistics (Persson, 2003).

Production planning

One of the most important tasks for production planning is to support the production levels to be rational. Simultaneously, the company should produce the products the markets need the most. A key question is whether the company has a rational capacity. To use proper batch sizes and to prioritise right products are critical questions for the company's delivery time and safety and therefore also for the productivity of the overall logistics functions of the company (Persson, 2003).

Stocking and warehouse management

The decisions concerning warehousing include both the decisions of warehouse management and of warehouse structure. Warehouse management consists of the decisions like investing on the facilities, size of safety stock, order quantity, service levels etc. The decisions of warehouse structure comprises of e.g. warehouse positioning, warehouse dimensioning and internal organisation of the warehouse (Persson, 2003).

Order management and activities in customer service

Within logistics, the typical activities concerning customer orders are order transferring, order receiving, order processing and delivery. Furthermore, companies have several service-oriented activities that have to do with logistics, for example information about order status or stock levels. Delivery time to customers' facilities and availability of products can be order-winning factors and critical in organising the logistics of the company (Persson, 2003).

Transport

Transports are perhaps the most commonly known logistical activity. The decisions concerning transports deal with planning, implementation and tracking of the transports. The transport planning could include decisions concerning forwarder, route planning, points of reloading and unloading (Persson, 2003)

Other functions

The other functions in supply chains are for example return goods handling, part and service support, salvage and scrap disposal, product development and marketing activities.